

US EPA ARCHIVE DOCUMENT

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 148, 261, 268, and 271

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[FRL 5816-5]

Land Disposal Restrictions--Phase IV: Treatment Standards for Wood Preserving Wastes, Paperwork Reduction and Streamlining, Exemptions From RCRA for Certain Processed Materials; and Miscellaneous Hazardous Waste Provisions

AGENCY: Environmental Protection Agency (EPA, the Agency).

ACTION: Final rule.

SUMMARY: The Agency is finalizing treatment standards for hazardous wastes generated from wood preserving operations, and is making a conforming amendment to the standard for wastes from production of chlorinated aliphatics which carry the F024 hazardous waste code. These treatment standards will minimize threats to human health and the environment posed by these wastes. In addition, this final rule revises the land disposal restrictions (LDR) program to significantly reduce paperwork requirements by 1.6 million hours. This rule also finalizes both the decision to employ polymerization as an alternative method of treatment for certain ignitable wastes as well as the decision not to ban certain wastes from biological treatment because there is no need to classify these wastes as "nonamenable." It also clarifies an exception from LDR requirements for de minimis amounts of characteristic wastewaters. Finally, this rule excludes processed circuit boards and scrap metal from RCRA regulation which is intended to promote the goal of safe recycling.

EFFECTIVE DATE: This final rule is effective on August 11, 1997 except §§ 148.18(b) and 268.30(b), which are effective on May 12, 1999.

ADDRESSES: The public docket for this rulemaking is available for public inspection at EPA's RCRA Docket, located at Crystal Gateway, First Floor, 1235 Jefferson Davis Highway, Arlington, Virginia. The regulatory docket for this final rule contains a number of background materials. To obtain a list of these items, contact the RCRA Docket at 703-603-9230 and request the list of references in EPA Docket #F-97-PH4F-FFFFF.

FOR FURTHER INFORMATION CONTACT: The RCRA Hotline between 9:00 a.m.-6:00 p.m. EST, toll-free, at 800-424-9346; (703) 412-9810 from Government phones or if in the Washington, DC local calling area; or 800-553-7672 for the hearing impaired. For more detailed information on specific aspects of the rulemaking, contact the Waste Treatment Branch (5302W), Office of Solid Waste (OSW), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; phone (703) 308-8434. For technical information on the treatment standards for wood preserving wastes, ask for Nick Vizzone; for information on paperwork reduction and clean-up of Part 268, call Rhonda Minnick at (703) 308-8771 or Nick Vizzone at (703) 308-8460. Contact Kristina Meson at (703) 308-8488 for information on the exclusions for scrap metal and shredded circuit boards. Call Pan Lee at (703) 308-8478 for information on the capacity analyses. For questions on the regulatory impact analyses, contact Paul Borst at (703) 308-0481. For other questions, call Sue Slotnick at (703) 308-8434.

SUPPLEMENTARY INFORMATION:

Availability of Rule on Internet

This rule is available on the Internet. Please follow these instructions to access the rule electronically: From the World Wide Web (WWW), type <http://www.epa.gov/rules> and regulations. In addition, several technical background documents contained in the docket supporting this rule will be available on the Internet at <http://www.epa.gov/offices> and [regions/oswer](http://www.epa.gov/regions/oswer).

Table of Contents

- I. Background
- II. Potentially Regulated Entities

- III. New Land Disposal Restrictions Treatment Standards for Wastes from Wood Preserving (Waste Codes F032, F034, and F035) and Revised Treatment Standard for Chlorinated Aliphatics Waste (F024)
 - A. Summary
 - B. Determination of BDAT
 - 1. General
 - 2. F032 wastewaters
 - 3. F034 wastes
 - 4. F035 wastes
 - C. Alternative Combustion Treatment Standard for Dioxins and Furans in F032
 - 1. Today's action
 - 2. Background
 - 3. Summary of Phase IV NODA for F032
 - 4. Review of Major Comments on Phase IV NODA and Promulgation of A Modified Version of Suboption Three
 - 5. Revised Treatment Standard for F024 Wastes
 - D. Soil and Debris Contaminated with Wood Preserving Wastes
 - 1. Summary of comments
 - 2. LDR Requirements Do Apply to Contaminated Media
 - 3. Technology- versus Risk-based Treatment Limits
 - 4. UTS Limits and the Performance of Remedial Treatment Technologies
- IV. Improvements to the Land Disposal Restrictions Program
 - A. Significant Reduction in LDR Paperwork
 - 1. Background
 - 2. Discussion of Specific Paperwork Changes
 - B. Clean-up of LDR Requirements in 40 CFR 268
 - 1. Section 268.1
 - 2. Section 268.4
 - 3. Section 268.5
 - 4. Section 268.7
 - 5. Section 268.9

6. References to section 268.32
7. Sections 268.34-268.37
8. References to sections 268.41-268.43
9. Appendices
- C. Clarifications of Point of Generation
 1. General Discussion
 2. Boiler Cleanout
 3. Sludge From High TOC (Total Organic Carbon) D001 Treated in Tank Based Systems
 4. Tank Rinsate
 - D. POLYM Method of Treatment for High-TOC (Total Organic Carbon) Ignitable D001 Wastes
 - E. Decision to Retain Current Treatment Standard for Multi-Source Leachate (Waste Code F039)
 - V. Status of Proposed Provisions on Leaks, Sludges, and Air Emissions from RCRA-Equivalent Treatment of Decharacterized Wastewaters in Clean Water Act Surface Impoundments
- VI. Decision Not to Ban Nonamenable Wastes from Biological Treatment
- VII. Capacity Determinations For Wood Preserving Wastes
 - A. Introduction
 - B. Available Capacity
 1. Thermal Treatment
 2. Stabilization
 3. Wastewater Treatment
 - C. Required Capacity and Comparison with Available Capacity
 - D. Mixed Radioactive Wastes
 - E. Phase IV Wood Preserving Wastes Injected Into Underground Injection Control (UIC) Class I Wells Injected into Class I Wells
 - F. Summary of Variance Determinations
- VIII. Changes to Definition of Solid Waste to Exclude Processed Scrap Metal and Shredded Circuit Boards From RCRA Jurisdiction
 - A. Processed Scrap Metal

1. Summary of Proposal
 2. Modifications to the proposal
 - B. Shredded Circuit Boards
 1. The Proposal
 2. Exclusion For Shredded Circuit Boards Conditioned On Containerized Storage Prior To Recovery
 3. Limitation on Mercury Switches, Mercury Relays, Nickel-Cadmium Batteries and Lithium Batteries
 4. Clarification of regulatory status of secondary materials associated with the generation or management of circuit boards.
- IX. State Authority
- A. Applicability of Rules in Authorized States
 - B. Abbreviated Authorization Procedures
 - C. Effect on State Authorization
 - D. Less stringent requirements
- X. Regulatory Requirements
- A. Regulatory Impact Analysis Pursuant to Executive Order 12866
 1. Methodology Section
 2. Volume Results
 3. Cost Results
 4. Economic Impact Results
 5. Benefit Estimate Results
 - B. Regulatory Flexibility Analysis
 - C. Unfunded Mandates Reform Act
 - D. Paperwork Reduction Act
- XI. Environmental Justice
- A. Applicability of Executive Order 12898
 - B. Potential Effects
- XII. Submission to Congress and General Accounting Office

I. Background

In the 1984 Hazardous and Solid Waste Amendments (HSWA) of the Resource Conservation and Recovery Act (RCRA), Congress specified that land disposal of hazardous waste is prohibited unless the waste meets treatment standards established by EPA. HSWA requires that treatment standards must substantially diminish the toxicity or mobility of hazardous waste, so that short and long term threats to human health and the environment are minimized. The treatment standards are part of the Land Disposal Restrictions Program.

Today's final rule is one part of the collection of land disposal restrictions (LDR) rules known as "Phase IV." They are the latest in a series of LDR rules that establish treatment standards for newly listed and identified wastes, and that resolve other hazardous waste matters.

EPA proposed the Phase IV rule in two proposed rules (60 FR 43654, August 22, 1995; and 61 FR 2338, January 25, 1996), and subsequently issued a Notice of Data Availability on Phase IV issues (61 FR 21418, May 10, 1996). The attached rule finalizes portions of those earlier proposals. Other proposed revisions are in a second supplemental proposed rule elsewhere in this Federal Register.

EPA estimates that the directly measurable benefits associated with the land disposal restrictions treatment standards in this rule are limited relative to the costs that may be incurred. Therefore, the relative priority of addressing these risks could be questioned. However, we do not believe, for this specific action, that a simple cost effectiveness measure alone provides a sufficient basis for decision-making. As discussed below, the preference for permanent treatment of hazardous wastes is part of the basic policy structure which Congress enacted when it amended RCRA in 1984, and reflects concern over the technological uncertainties regarding risks and long term protectiveness of land disposal and the intent to assure that waste management practices are protective for future generations.

The whole premise of the LDR legislation is that risks posed by land disposal of hazardous wastes are inherently uncertain to evaluate and that land-based units are incapable of long term containment. Land disposal units (such as landfills, surface impoundments, and waste piles) are engineered units that can and have failed in the past with significant consequences to human health and the environment. For this reason, Congress required that hazardous wastes be pretreated before disposal by "treatment [which] should be the best that has been demonstrated to be achievable." Congressional Record of July 25, 1984 (S9178). The technology-based approach of the land disposal restrictions provides a measure of insurance against the potential for failure in these land based units.

Given these facts, and evident Congressional intent, EPA continues to believe that the LDR prohibitions and treatment standards are justified in many instances. EPA sets treatment

standards that reduce toxicity and mobility of hazardous constituents (or require recycling), and EPA also requires that the treated wastes be placed in reasonably secure land disposal units. However, EPA does believe that, in some situations, the current LDR rules may not provide the optimum regulatory approach. In those situations, EPA will look to other mechanisms to address those relatively low risk scenarios.

II. Potentially Regulated Entities

Entities potentially regulated by this final rule vary according to the section of the rule. The following table breaks down the categories industries that may be regulated according to each major section. The table is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated.

Table of Entities--Potentially Affected by the Phase IV Final Rule

Section of the rule	Category	Examples of entities potentially affected
Addition to 40 CFR § 268.40--Treatment standards for wood preserving wastes.	Wood Preserving Hazardous Waste Generators	Any person that generates over 100kg of F032, F034, or F035.
	Hazardous Waste Treatment Facilities . . .	Facilities that treat F032, F034, or F035.
Modifications to 40 CFR § 268.7--Waste Analysis and Recordkeeping.	Hazardous Waste Generators	Any person who generates over 100kg of prohibited hazardous waste, or over 1 kg of acute hazardous waste in a calendar month.
	Hazardous Waste Treatment Facilities . . .	Facilities permitted under 40 CFR Part 270 for incinerators, surface impoundments, and/or land treatment facilities.
	Hazardous Waste Disposal Facilities	Facilities permitted under 40 CFR Part 270 for landfills, and/or injection wells.
Addition of §§ 261.4(a)(12) and 261.4(a)(13) -- Exclusion from the definition of solid waste for excluded scrap metal and shredded circuit boards.	Scrap Metal and/or Circuit Board Generators	Persons who generate scrap metal, as defined under 40 CFR § 261.1(c)(6) (e.g., Die Casters, Metal Stampers, Machining Parts).
	Scrap Metal Salvage and Storage Yards . .	Facilities that store scrap metal, but do not generate or recycle.

Point of generation; Decision not to ban nonamenable wastes.	Scrap Metal Recyclers	Facilities that process scrap metal as defined in 40 CFR § 261.1(c)(10).
	Circuit Board Shredders	Facilities that shred circuit boards.
	Hazardous Waste Generators	Any person who generates over 100kg of prohibited hazardous waste, or over 1 kg of acute hazardous waste in a calendar month.
	Hazardous Waste Treatment Facilities . . .	Facilities that perform biological treatment in surface impoundments.

III. New Land Disposal Restrictions Treatment Standards for Wastes From Wood Preserving (Waste Codes F032, F034, and F035) and Revised Treatment Standard for Chlorinated Aliphatics Waste (F024)

A. Summary

EPA is promulgating UTS limits as the treatment standards for the hazardous constituents in wood preserving wastes F032, F034, and F035, as proposed. (See 60 FR 43654, August 24, 1995; 60 FR 546451, October 25, 1995; and 61 FR 21417, May 10, 1996.) In addition, EPA is establishing a compliance alternative for dioxin and furan (D/F) constituents in nonwastewater and wastewater forms of F032, namely allowing use of a method of treatment--combustion--for these constituents. Thus, if this method of treatment is utilized, combustion residues would not have to be analyzed for D/F constituents. The alternative is only available for F032 residues from units subject to the standards in Part 264 subpart O or Part 266 subpart H, or from interim status incinerators which have made a specific demonstration that they operate in a manner equivalent to a Part 264 or Part 266 combustion unit. EPA also is amending the treatment standard previously established for F024 wastes. EPA is adopting the alternative compliance standard for F032 as the standard for F024. The practical effect of this change will be to limit somewhat the type of facilities that can combust F024.

B. Determination of BDAT

1. General

EPA has determined that combustion (CMBST) represents BDAT for organics in nonwastewater forms of F032 and F034 (i.e., the treatment standards are based on the

performance of combustion technology). For organics in wastewater forms of F032 and F034, EPA has determined that a single treatment technology or a normal wastewater treatment train can meet the treatment standards promulgated today. As explained in the Final Best Demonstrated Available Technology Background Document for Wood Preserving Wastes--F032, F034, and F035 (Wood Preserving Background Document for this rule), EPA has determined that wastewater treatment technologies such as biological treatment, steam stripping, carbon adsorption, or combinations of these technologies can treat organics regulated in F032 and F034 to the concentration levels promulgated today. These wastewater treatment technologies are available to, or in use at, existing wood preserving facilities.

For metals in nonwastewater forms of F032, F034, and F035, EPA has determined that the promulgated treatment standards can be based on (slag) vitrification for arsenic and on stabilization for chromium (total). The treatment standard for arsenic also can be achieved using stabilization treatment (see the Wood Preserving Background Document). For wastewater forms of F032, F034, and F035, EPA has determined that treatment levels can be achieved by lime addition followed by sedimentation and filtration for arsenic, and by chemical precipitation followed by sedimentation for chromium. (Of course, since no method of treatment is required to be used under the promulgated treatment standards, any type of treatment other than impermissible dilution may be used to achieve these concentration levels.)

2. F032 Wastewaters

Some commenters felt that the limits proposed for D/F in F032 wastewaters, namely the existing UTS limits, were not achievable. Commenters felt that EPA's own wastewater characterization data showed that the D/F concentrations in untreated F032 wastewaters were orders of magnitude higher than the untreated concentrations in the wastewater samples used in establishing the UTS limits. They also emphasized that biological treatment normally removes D/F constituents in the order of 78% of influent pollutants and thus, may yield an effluent with higher concentrations than those proposed by EPA.

EPA has examined the available data on the characterization of F032, prevailing management practices for wastewaters as difficult to treat as F032, and for wastewaters managed by biological treatment systems. EPA acknowledges that the concentrations of D/F in F032 wastewaters, as generated, are much higher than those treated by the biological treatment system supporting the existing UTS limits for D/F. However, based on the available data on wastewater treatment practices at wood preserving facilities, EPA believes that prevailing wastewater treatment practices can be optimized or upgraded to meet the D/F limits promulgated for F032 wastewaters. As explained in the BDAT Background Document, pretreatment steps can be, and are, used to reduce influent concentrations to biotreatment units to levels comparable to those on which the treatment standards are based, and EPA believes the same level of performance is

achievable for wood preservers. (See the wood preserving background document and the BDAT response to comments document for additional discussion on EPA's rationale and data review.)

Another commenter asked EPA to withdraw its proposal for the regulation of D/F constituents in F032 wastewaters. The commenter believes that the regulation of PCP and polynuclear aromatic hydrocarbons (PAH) can ensure the reduction of D/F in F032 wastewaters. The commenter also submitted data with regard to concentrations of D/F, PCP, and PAH analytes in two effluent F032 wastewaters treated by activated carbon adsorption. These data appear to support the commenter's statement that monitoring of PCP and PAHs may serve as a surrogate candidate for the reduction of D/F levels in these particular effluent wastewaters. However, EPA lacks data to determine if the alternative surrogate constituents proposed for regulation can also serve as surrogates for monitoring the treatment of D/F in wastewater treatment effluents resulting from other treatment technology trains that may achieve the proposed UTS, and has therefore chosen not to adopt this suggestion.

3. F034 Wastes

Some commenters objected to EPA's proposed regulation of arsenic and chromium in F034 wastes, but their arguments were not persuasive. One argument was that F034 wastes typically do not contain arsenic and chromium and that they should only be regulated if chromated copper arsenate (CCA) is used at the facility generating F034 at concentrations exceeding treatment standards. EPA's data supporting the listing of F034 wastes in fact show that arsenic and chromium are frequently present in F034. (See Background Document Supporting the Final Listing for Wastes from Wood Preserving Processes, November, 1990.) Further, EPA determined that these two metal constituents are toxic and that their concentrations in untreated F034 wastes also supported the listing of these wastes as RCRA hazardous waste F034. (See Background Document Supporting the Final Listing for Wood Preserving Wastes from Wood Preserving, November, 1990; 55 FR 50458-59, December 6, 1990; and 53 FR 53299-300, Table 13, December 30, 1988.) Because treatment of organic constituents in F034 may not reduce the mobility of these metals, EPA is promulgating treatment standards that will assure that the mobility of these metal constituents is reduced prior to disposal, consistent with a core LDR requirement to develop treatment standards which "substantially reduce the likelihood of migration of hazardous constituents from the waste * * *". RCRA section 3004(m)(1). Furthermore, EPA points out that treaters of this waste can address the monitoring of these metal constituents in their permit Waste Analysis Plans (WAP). See 55 FR at 22669, June 1, 1990; *Chemical Waste Management v. EPA*, 976 F.2d 2, 31 (D.C. Cir. 1992); cert. denied 113 S.Ct. 1961 (1993).

4. F035 Wastes

Other commenters were concerned with the achievability of arsenic limits in wastewater and nonwastewater forms of F035. One commenter was concerned that EPA was mandating the use of vitrification as opposed to setting a numerical limit. Other commenters felt that vitrification is an inappropriate technology for setting arsenic treatment limits and that EPA should set, instead, UTS limits that are based on the performance of stabilization technologies.

None of these commenters have submitted treatment performance data supporting their inability to meet the proposed UTS limits, nor have they documented that their waste will behave differently when treated by stabilization or vitrification practices. The treatment technology supporting numerical limits for arsenic in nonwastewater forms of F032 is vitrification. However, EPA believes that arsenic limits can also be achieved via stabilization based on treatment data supporting the promulgation of the UTS limit for arsenic (see "Final Best Demonstrated Available Technology (BDAT) Background Document for Universal Standards Volume A: Universal Standards for Nonwastewater Forms of Listed Hazardous Wastes"). In addition, today's promulgated treatment levels do not preclude the use of other treatment alternatives such as stabilization, as long as such alternatives do not constitute land disposal or impermissible dilution. As a result, EPA is promulgating treatment limits for arsenic as proposed.

C. Alternative Combustion Treatment Standard for Dioxins and Furans in F032

1. Today's Action

This notice establishes combustion (defined at 40 CFR 268.42, Table 1, CMBST) as an alternative compliance treatment standard option for D/F in F032. Combustion is the basis for the D/F numerical limits, and properly conducted combustion should effectively destroy D/F constituents. If this method of treatment is used to treat F032 in certain specified combustion devices, there is no need to monitor compliance with the D/F numerical limits established for D/F constituents. However, all other organic and metal constituents will require monitoring prior to disposal. This approach is patterned after EPA's promulgation of a similar alternative treatment standard for D/F in F024 (wastes from production of chlorinated aliphatics). See 55 FR 22580-81, June 1, 1990. EPA discussed this approach in detail in a Notice of Data Availability (NODA) that appeared in the Federal Register on May 10, 1996 (61 FR 21418).

In general, EPA is providing a method of treatment as an alternative to actual D/F measurement that will be equally protective, and will assure availability of effective treatment for these wastes. The alternative, namely not providing the alternative treatment standard, leaves open the real possibility of these wastes being refused treatment, an environmentally worse result. EPA also notes that its experience with F024 waste treatment, for which there is a parallel treatment regime, has been satisfactory: these wastes are effectively

treated by combustion technology, and sufficient treatment capacity has remained available once EPA promulgated the alternative treatment standard which did not require analysis of D/F in treatment residues.

2. Background

EPA proposed numerical treatment standards for F032 constituents on August 22, 1995. Several members of the regulated community expressed concern that EPA's proposal to regulate D/F constituents in F032 may result in problems finding treatment facilities willing to accept the waste. D/F are very controversial hazardous waste constituents that often trigger public opposition if documented at any concentrations regardless of the estimated risks presented. D/F monitoring also adds significantly to monitoring costs. See generally, 55 FR at 22580-81. Commenters emphasized that owners and operators of combustion devices had informed them that their combustion facilities will not accept F032 if EPA requires the monitoring of D/F in combustion residues. Further, commenters noted that if combustion is conducted properly, analysis of D/F is unnecessary.

The American Wood Preservers Institute (AWPI) and the Penta Task Force asked EPA to consider establishing an alternative treatment standard that sets a method of treatment as an alternative to the numerical limits for D/F in F032.

The Penta Task Force submitted data to show that the concentrations of D/F in F032 are substantially lower than those EPA reported in the F032 Listing Background Document. They stated their belief, along with AWPI, that D/F in F032 should be regulated like D/F in F024.

3. Summary of Phase IV NODA for F032

EPA examined these new data and concerns and proposed in the NODA to codify combustion (CMBST) as an alternative method of treatment for D/F in F032. EPA also requested comments on potential regulatory controls on combustion devices to assure that D/F destruction is conducted only in well-designed and well-operated combustion devices. EPA proposed three regulatory suboptions for implementing a CMBST standard. One suboption was to merely apply the existing F024 alternative combustion treatment standard to F032 with applicable regulatory controls in Part 264, 265, or 266. The second suboption was to revise the alternative D/F standard for F024, and establish for F024 and F032, a CMBST standard alternative, that would limit the combustion of F032 and F024 to RCRA permitted or interim status combustion devices which have demonstrated the ability to achieve a dioxin toxicity equivalent (TEQ) air emission discharge limit of 0.2 ng/dscm. The third suboption was to revise the F024 standard, and to

establish an alternative standard for F024 and F032 that limits the combustion of F024 and F032 to RCRA permitted combustion devices. (In all of these options, and in today's final rule, the restriction on types of devices applies only to facilities opting to comply with the D/F standard without analyzing treatment residues.)

4. Review of Major Comments on Phase IV NODA and Promulgation of A Modified Version of Suboption Three

The majority of commenters supported the proposed compliance alternative setting CMBST as a method of treatment for D/F. In addition, the majority of commenters preferred suboption 1 (i.e., allow combustion in a RCRA interim status or permitted device) to ensure that combustion is conducted in well-designed and well-operated devices. A significant number of commenters also were concerned that adoption of suboption 3 may have excluded the use of well-designed and well-operated interim status combustion devices operated under the Part 266 rules applicable to boilers and industrial furnaces.

The majority of commenters argued that it would be premature for the Agency to adopt suboption 2 whereby a D/F emission limit of 0.2 ng/dscm TEQ would be established given that the Agency has only recently proposed such an emission standard for hazardous waste burning incinerators, cement, and lightweight aggregate kilns under the maximum achievable control technology (MACT) rule. See 61 FR 17358 (April 19, 1996).¹ The Agency believes that this concern is warranted given that EPA has received substantial comments on whether that standard is appropriate for those devices and has not made a final decision as to an appropriate standard.

The Agency believes that suboption 3 (i.e., allow combustion of FO24 and FO32 only in RCRA-permitted devices), as proposed, was too restrictive. EPA agrees with the commenters that interim status boilers and industrial furnaces operated under Part 266 should qualify for the proposed alternative CMBST compliance standard as well. These devices are subject to interim status combustion controls which limit carbon monoxide (CO) or total hydrocarbon levels (THC) in combustion gases, thus ensuring that the devices operate under good combustion conditions. The standards also can include explicit control of D/F under specified conditions (see section 266.103 (c)(1)). Although these controls do not provide the explicit demonstration of destruction of toxic organics in the waste feed that the DRE (Destruction and Removal Efficiency) for permitted combustion devices standard provides, the Agency believes that they establish good combustion, and may, in some cases, provide even better assurance of operations under good combustion conditions than the bare DRE standard.

¹ Also available via Internet" "<http://www.epa.gov/epaoswer/cmbust.htm>".

Accordingly, the Agency believes that it is not necessary to restrict burning to RCRA-permitted devices because boilers and industrial furnaces operating under interim status are required to operate under good combustion conditions which should ensure destruction of toxic organic compounds in the waste feed.

The Agency acknowledges that ensuring that the combustion device operates under good combustion conditions (i.e., either under a DRE standard or by limiting carbon monoxide (CO) and total hydrocarbon levels (THC) in stack gas) may not necessarily ensure control of D/F emissions. This is because D/F can be formed in the post-combustion zone of the device--in the duct work and particulate matter control devices that operate at temperatures above 350 deg.F. Boilers and industrial furnaces operating under these conditions must comply with specific D/F emission standards. (See 40 CFR 266.103(c)(1) and 266.104(e).) In addition, under existing Omnibus permit authority, permit writers have the authority, if the permitting authority demonstrates that it is necessary to protect human health and the environment (RCRA section 3005(c)(3)), to impose operating requirements more stringent than those authorized by regulations. This authority could be invoked (assuming the requisite showing is made) to justify controls on permitted hazardous waste incinerators.

EPA currently lacks similar Omnibus permit authorities for incinerators regulated under Part 265, Subpart O. In addition, unlike the standards for interim status boilers and industrial furnaces, the interim status standards for hazardous waste incinerators do not contain controls on good combustion (i.e., CO or THC controls), a DRE requirement, or explicit standards for D/F. EPA is concerned, therefore, that the combustion of F032 and F024 in Part 265 incinerators may not consistently achieve the treatment objectives sought by the alternative combustion compliance treatment standard. As a result, EPA cannot support the promulgation of suboption 1 for incinerators operated under Part 265. (See also 265.352(a), forbidding combustion of the acutely hazardous D/F-containing wastes in interim status hazardous waste incinerators.)

Although EPA's finding here is that the interim status incinerator standards may be inadequate for qualifying for a CMBST treatment standard for D/F, EPA believes that on an ad-hoc basis, a site-specific determination can be made pursuant to 40 CFR Part 268.42(b) to extend the availability of a "CMBST" treatment standard to an individual interim status incinerator. The availability of a CMBST treatment standard to a facility combusting F032 or F024 in a Part 265 incinerator will require the accomplishment of a two-step process. One step is for the facility to demonstrate to a regional or state official that the combustion of D/F in F032 (or F024, if applicable) at the facility uses controls to assure good combustion and control of D/F. These would typically be the CO/THC standards and D/F standards found in Part 266. The second step is that the facility solicits from EPA's Headquarters an equivalent treatment determination under Part 268.42(b). (EPA believes both steps are necessary because normally some type of direct interaction with the Region or State with the facility is needed to evaluate performance of the combustion process, and the treatment equivalency administrative process remains an EPA Headquarters task.)

5. Revised Treatment Standard for F024 Wastes

The current F024 treatment standard requires CMBST as a method of treatment, which, under the definition at 268.42, Table 1, allows combustion in Part 265 Subpart O interim status incinerator (along with other types of combustion devices). Today's rule makes the treatment standard for F024 identical to today's alternative combustion standard for F032. The existing standard allows combustion in permitted units or interim status incinerators (Part 265 subpart O). The new standard would require that an interim status incinerator receive a determination of equivalent treatment under 268.42(b), as described for the F032 standard above. As described above, this restricts the burning to facilities with combustion controls that ensure proper destruction of D/F.

D. Soil and Debris Contaminated With Wood Preserving Wastes

1. Summary of Comments

Several commenters asked EPA to revise its policy that media contaminated with hazardous listed wastes is subject to the treatment standard for the contaminated waste, and to set instead risk-based treatment levels. They asked EPA to delay the applicability of the Phase IV final rule until the Hazardous Waste Identification Rule for contaminated hazardous media is promulgated in order to lessen potential disruptions to ongoing remediation activities. In addition, other commenters argued that the proposed treatment standards for organics and D/F were unachievable by remediation technologies.

2. LDR Requirements Do Apply to Contaminated Media

Commenters stated that hazardous media should be exempt from LDR requirements until EPA finalizes HWIR for contaminated media. This issue was settled in the Phase II final rule (50 FR at 47986-7, September 19, 1994) if not before, and it is not being reopened in this final rule.

3. Technology-versus Risk-based Treatment Limits

The principal objection to the proposed treatment standards was that the values do not reflect risk, that is, the standards are based on performance of a treatment technology rather than on assessment of risks to the human health and the environment posed by the waste. The question of technology-versus risk-based treatment standards has been raised throughout the development

of the land disposal restrictions program. The Agency is not reopening this issue in this final rule. See, instead discussion in the Phase II final rule (59 FR at 47986, September 19, 1994). EPA does specifically find, however, that the treatment standards for these contaminated media are not established below levels at which threats to human health and the environment are minimized. In part, this finding turns on the Agency's present inability to quantify this level. In addition, for these wastes, the presence of extremely toxic hazardous constituents (arsenic, D/F, PCP), plus the widespread contamination already caused by past land disposal of these wastes (see, e.g. the background documents to the Listing rules for F032, F034, and F035) warrant treatment which effectively destroys, removes, or immobilizes hazardous constituents to the promulgated levels.

4. UTS Limits and the Performance of Remedial Treatment Technologies

The third issue raised by the commenters is whether or not the UTS limits promulgated for organics can be achieved by all remediation technologies currently being used at wood preserving facilities. The UTS limits promulgated for organics and D/F regulated in nonwastewater forms of wood preserving wastes are based on the performance of (and are routinely achievable by) combustion technologies. EPA does not have to set treatment standards that are achievable by all, or even several, treatment technologies. The treatment limits promulgated for D/F constituents in nonwastewater forms of F032 are based on the combustion of solids, liquids, and soils contaminated with D/F constituents, namely acutely hazardous wastes F020, F022, F023, F026, and F027 (see 51 FR 1733, January 14, 1986). EPA's existing technical guidance documents describing technological options for treating contaminants found at wood preserving facilities often recommend incineration as a viable technology for cleaning up "hot spots" of organics and D/F contaminants. These guidance documents also emphasize that incineration is usually able to treat below cleanup levels and LDR treatment limits. (See "Presumptive Remedies for Soils, Sediments, and Sludges at Wood Treater Sites", Directive 9200.5-162, NTIS #PB-95-963410; "Technology Selection Guide for Wood Treater Sites", EPA 540-F-93-020 or Pub.9360.0-46FS; and "Contaminants and Remedial Options at Wood Preserving Sites", EPA/600/R-92/182.)

Available data on the performance of noncombustion technologies such as thermal desorption and chemical dehalogenation also do not necessarily support the commenters' claim that other remedial technologies will fail to meet the treatment limits promulgated today. Based on the available information, EPA believes that chemical dehalogenation (for D/F and chlorinated organic constituents) and thermal desorption (for organics and D/F constituents) generally can be optimized to meet the UTS limits promulgated today. (See Wood Preserving Background Document and Technical Guidance documents cited above.) Furthermore, it may be necessary to use two or more treatment technologies to achieve the limits, as EPA's Technical Guidance documents point out. This is, however, a site-specific determination, and the ability of a treatment train to meet or fail UTS or cleanup limits can only be assessed through the findings of a feasibility study.

IV. Improvements to the Land Disposal Restrictions Program

A. Significant Reduction in LDR Paperwork

Summary: The LDR regulations heretofore required hazardous waste handlers to include LDR notifications with each shipment of waste sent to treaters or disposers. Today EPA is amending the rule to require only a one-time notification, rather than with each shipment of hazardous waste. The one-time notification would apply to shipments of all restricted hazardous wastes, and so would include lab packs. No new notification would be required unless there were a change in the waste, process, or receiving facility. This amendment will save approximately 1,630,000 hours spent by the private sector on paperwork. EPA is also promulgating other paperwork reduction actions, as proposed.

1. Background

In January 1995, EPA announced a goal to reduce the reporting and record keeping burden imposed by its regulations by 25 percent by June 30, 1996. This announcement initiated implementation of one of the reinvention projects set forth in the President's March 16, 1995, report, "Reinventing Environmental Regulations." The baseline from which the 25 percent reduction was to be calculated was the reporting and record keeping burden hours as described in the Information Collection Request (ICR) documentation as of January 1, 1995.

2. Discussion of Specific Paperwork Changes

The LDR program imposes a significant reporting and record keeping burden that is being decreased significantly by changes being made in today's rule. It is estimated that the changes being made today result in a reduction of over 1.6 million hours per year of paperwork burden. Furthermore, these changes are not likely to compromise the protectiveness or enforceability of the LDR regulations.

Most commenters on this issue supported the proposed paperwork changes. Almost all commenters addressing this issue agreed that the proposed changes made sense, and that it would be beneficial to the regulated community to reduce the paperwork burden. A few commenters expressed concern that the reductions in LDR paperwork could be an incentive for mismanagement of hazardous wastes. The Agency acknowledges that although the potential for mismanagement is real, inspection and enforcement efforts have been, and will continue to be, a disincentive to facilities to provide false or misleading information about the hazardous wastes at their sites. This disincentive is believed to be far more important than the frequency with which the regulated community must create notification and certifications. The Agency, therefore, is promulgating the paperwork reductions despite this concern.

Much of the language specifying what must be included on LDR notifications has been rewritten to include reductions in paperwork burden and to make it easier for the regulated community to understand the requirements to which it must adhere. Rewriting this section has resulted in the renumbering of the regulatory paragraphs. The new numbering for this section is used in this discussion. Also, the generator paperwork requirements are consolidated into a table at § 268.7(a)(4).

Under the requirements of § 268.7(a), generators managing restricted hazardous wastes must determine whether their wastes meet the applicable treatment standards at the point of generation, or are otherwise exempt from those standards. Generators then must notify, in writing, either the treatment or disposal facility about their waste. The Agency is changing the notification requirement under § 268.7(a)(2) from one requiring a notice accompany each waste shipment to one allowing an one-time notification that would accompany the first waste shipment and would also be placed in the generator's files. If a generator repeatedly generates wastes which do not meet the applicable treatment standards, but the composition of these wastes, or the process generating the wastes, or the treatment facility receiving the wastes does not change, then the generator is only required to submit a one-time notification to the receiving treatment facility and to place a copy in their files. If the waste, process, or the receiving treatment facility changes, the generator is required to send a new notice to the receiving facility, and place a copy of this new notice in their files. One commenter stated that the concept of what constituted a change in one's waste was vague and should be clarified so that a new notification would be required only when a change in the waste affects the determination of which treatment standards apply. The Agency agrees that only when a change in the waste affects the determination of which treatment standards apply must the generator create a new LDR notification.

The Agency proposed that the one-time notification requirement would not apply to lab packs. Under the LDR program, a generator of a lab pack can either meet the treatment standards and paperwork requirements for all the hazardous wastes included in the lab pack, or meet the streamlined lab pack requirements of Sec. 268.42 and the paperwork requirements of §268.7(a)(9) (old § 268.7(a)(8)). Several commenters disagreed with the proposed approach, stating that while lab packs can be highly variable in hazardous waste content, there are instances where routine and consistent lab packs are shipped by generators on a regular basis. It was also pointed out that if the lab pack generator decided to meet the treatment standards of each waste in the lab pack rather than the Sec. 268.42 alternative lab pack standards, it would be allowable to produce a one-time notification for each waste the lab pack contained. Therefore, it did not seem equitable to make a lab pack generator that chose to use the alternative lab pack standards produce a notification for each shipment, while a lab pack generator meeting the treatment standards for each hazardous waste in the lab pack could produce one-time notifications for each waste, so long as their waste, process or receiving facility did not change. Therefore, EPA has decided to change its proposed approach, and is including generators of lab packs in the one-time notification provisions of this final rule.

Furthermore, the lab pack notification requirements of § 268.7(a)(8) are streamlined in today's rule to include only the requirements of §§ 268.7(a)(2), 268.7(a)(6), and 268.7(a)(7). This is possible because the alternative treatment standard for lab packs specifies a method of treatment rather than concentration levels that would have to be monitored after treatment. There is, therefore, no need to know whether the wastes in the lab packs are wastewaters or nonwastewaters or are hazardous debris (these are the data items being deleted from the lab pack notification).

In § 268.7(a)(3), the Agency is changing the notification requirement so that a generator whose waste meets the appropriate treatment standards as generated is only required to submit a one-time notification and certification to the receiving facility. The requirements for this one-time notification and certification are much the same as those discussed above.

In § 268.7(a)(5), EPA is removing the requirement that generators treating on-site in tanks or containers have to submit waste analysis plans to States and Regions. Instead, the plans must merely be kept in their on-site files, as proposed.

The Agency is changing the record retention time period in § 268.7(a)(8) from five to three years, in order to make LDR requirements consistent with other RCRA record retention periods.

Under § 268.7(b)(4), the treatment facility is only required to submit a one-time notification and certification to the receiving facility, rather than submit one with each shipment of waste. A copy of the notification and certification must be kept in the treatment facility's files. If the waste, treatment system, or the receiving land disposal facility changes, the treatment facility must send a new notification and certification to the land disposal facility, and place a copy of these records in their files. Furthermore, the treatment facility notification requirements have been consolidated into a table at § 268.7(b)(4).

Finally, the Agency wishes to clarify that any records kept in connection with the LDR program may be stored electronically, eliminating the need to actually maintain paper copies. EPA wants to encourage electronic storage of LDR notifications. However, because of the complex issues involved in electronic data interchange (EDI), EPA cannot at this time include standards for electronic storage of LDR notifications in this final rule. The Agency may develop those standards at a future date. Until such general standards for allowing electronic storage of information are developed, EPA would note that it has, on one occasion, confirmed that the use of an image scanning system developed by Safety Kleen Corporation was sufficient to meet hazardous waste manifest recordkeeping requirements (see attachment to the letter to Catherine A. McCord in the docket). This system was used to scan, store, and retrieve images of original hazardous waste

manifests with handwritten signatures. Although the letter confirmed only that Safety Kleen's system met these requirements, the Agency noted that similar systems used by others might also be able to meet RCRA requirements.

B. Clean-up of LDR Requirements in 40 CFR 268

EPA is rewriting portions of the LDR regulations to help the regulated community understand better what they are required to do to comply with today's rule. Clean-up tasks such as removing extraneous cross references, eliminating unneeded language, removing unneeded appendices, and other similar actions have been taken to eliminate confusion for the regulated community. A noteworthy change is the elimination of the California List requirements that were promulgated in 1987, because they have been superseded by more specific treatment standards. In addition, a clarification has been made at 40 CFR 268.1(e) that the de minimis provision applies to characteristic wastes as well as commercial chemical products and intermediates.

1. Section 268.1

Section 268.1(e)(4) is clarified so that the de minimis provision applies to minor losses of characteristic wastes as well as to minor releases of commercial chemical products and intermediates. EPA actually made this clarification already in the Phase III final rule (see 61 FR at 15597), but inadvertently omitted it from the Phase III withdrawal notice (see 61 FR 15662). The withdrawal notice should have removed paragraph 268.1(e)(4)(ii) only, because it dealt with the special de minimis provisions for characteristic wastes being injected into Class I injection wells (and thus, subject to the Land Disposal Program Flexibility Act of 1996, the impetus for the withdrawal notice. See 61 FR 15661). A typographical error made it appear that the entire paragraph (e) was being withdrawn, which was not the intention of the Agency. Therefore, today's regulatory language contains the text of 268.1(e) in its entirety, and clarifies that the de minimis provision applies to characteristic wastes.

2. Section 268.4

Section 268.4(a)(2)(iv) is changed to read, "Recordkeeping. The sampling, analysis, and recordkeeping provisions of §§ 264.13 and 265.13 apply." Referencing the §§ 264.13 and 265.13 requirements in Sec. 268.4 clarifies that there are no additional recordkeeping requirements at Sec. 268.4; the general facility recordkeeping requirements apply, thus the LDR program does not add additional burden.

3. Section 268.5

The Agency proposed to amend Sec. 268.5(e) so that an applicant could apply for and be granted additional time (up to one year) when first applying for a case-by-case extension of the effective date. Commenters argued, however, that it would be inappropriate for EPA to grant what would be, in effect, a "two-year" case-by-case capacity variance. Some commenters stated that the proposed change would hinder necessary treatment capacity from being brought on-line expeditiously, and that requiring a renewal application for a second-year extension allows the Agency to evaluate whether the applicant has made a good-faith effort to develop or locate hazardous waste treatment capacity. The Agency is persuaded by the commenter's concerns and is, therefore, not making the proposed change to Sec. 268.5. As has always been the case in the LDR program, case-by-case extension applicants must make a separate application for a renewal of their case-by-case extension if the initial one-year period is not sufficient to develop treatment capacity.

4. Section 268.7

In section 268.7(c)(2), the sentence, "* * * test method described in appendix I of this part or using any methods required by generators under Sec. 268.32 of this part * * *" is changed to read, "* * * test method described in 'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,' EPA Publication SW-846." Specific reference to EPA Publication SW-846 for the Toxicity Characteristic Leaching Procedure gives the regulated community a more direct reference for details of the test method.

5. Section 268.9

In § 268.9, paragraph (a) has been clarified to better describe how wastes should be identified for purposes of the LDR program when they are both listed and characteristic hazardous wastes.

In § 268.9(d)(1)(ii), the language has been edited to clarify that if all underlying hazardous constituents reasonably expected to be present in a characteristic waste will be monitored, then the generator need not list any of them on the LDR notification. If, on the other hand, a subset of all underlying hazardous constituents will be monitored, they must be included on the LDR notification.

6. References to Section 268.32

References to § 268.32 and RCRA 3004(d), California List wastes, are removed, because the treatment standards for these wastes have been superseded by subsequent treatment standards. See generally 55 FR at 22675 (June 1, 1990) noting the general principle that California list prohibitions no longer apply once a more specific treatment standard applies, and noting the handful of situations where California list prohibitions would continue to apply. With the advent of the requirement to treat for underlying hazardous constituents reasonably expected to be present in characteristic wastes, there no longer are any situations where California list prohibitions could create an exclusive treatment standard. Consequently, there is no need to retain any reference to California list prohibitions in the regulations.

7. Sections 268.34-268.37

The information about the dates of waste prohibition provided in §§ 268.34-268.37 is removed because the treatment standards for the wastes are all now in effect, eliminating any need to retain the dates.

8. References to Sections 268.41-268.43

References in Part 268 to LDR treatment standards that have previously been found in tables in §§ 268.41, 268.42, and 268.43, are changed to refer to the consolidated table in 268.40.

9. Appendices

Appendix I is removed and reserved because the TCLP test method reference to SW-846 will be incorporated into the text of the regulatory language.

Appendix II to Part 268 is also removed and reserved because it incorrectly refers to treatment standards in §§ 268.41, 268.42, and 268.43 (they are now in § 268.40); furthermore, there is no longer a need for a reference to the solvent treatment standards.

Appendix III is removed and reserved because the California List treatment standards have been superseded by Universal Treatment Standards plus the requirement to treat underlying hazardous constituents in characteristic hazardous wastes. Thus, there is no need for a listing of halogenated organic compounds under the California List.

Appendix VI is amended to clarify that land disposed characteristic wastes that also contain underlying hazardous constituents must be treated not only by a "deactivating" technology to remove the characteristic, but also treated to achieve the Universal Treatment Standard for underlying hazardous constituents.

Appendix VII has been updated to include all the effective dates of all surface disposed hazardous wastes for which there are treatment standards. Likewise, Appendix VIII has been updated.

Appendix X is removed and reserved because it summarized paperwork requirements that are clarified in tables in today's rule at sections 268.7(a) and (b).

The Agency is committed to identifying new ways the LDR program can be simplified, and will continue to seek additional opportunities for such streamlining efforts in the future.

C. Clarifications of Point of Generation

Summary: EPA is identifying the point of generation of wastes from boiler cleanout and for certain ignitable wastes treated in tanks. The significance of this action is to define the point at which a determination is made as to whether or not the LDR prohibitions attach to the wastes generated from these activities. In some cases, the broader question of whether a hazardous waste is even generated also can be presented. A waste which is not identified or listed as hazardous at the point LDR prohibitions would attach, the so-called "point of generation" is not prohibited from land disposal. Conversely, if a waste is hazardous (i.e. identified or listed) at that point, LDR prohibitions typically do attach notwithstanding that the waste may no longer be "hazardous" at the point it is land disposed. EPA is not finalizing options discussed in the Phase III LDR rule (60 FR 11715, March 2, 1995) which discussed more far-reaching alternatives for defining the point at which LDR prohibitions can attach, but is issuing interpretations applicable to several discrete fact situations involving questions implicating this issue.

1. General Discussion

Since November 1986, EPA has required determinations as to whether LDR prohibitions attach to be made at the point when hazardous wastes are generated (51 FR 40620). This issue took on critical import in the so-called Third Third rule when EPA addressed the issue of treatment standards for wastes that exhibit a hazardous waste characteristic, and whether LDR prohibitions could apply to wastes that initially exhibit a characteristic but no longer do so (i.e. are

"non-hazardous" in that they are no longer identified or listed as hazardous) at the point they are land disposed. By adhering to the principle that LDR prohibitions attach at the point of waste generation, EPA maintained that these de-characterized wastes must still be treated to satisfy EPA-established treatment standards, notwithstanding that the wastes are no longer identified as hazardous. 55 FR at 22651-52. The D.C. Circuit sustained this interpretation as permissible in *Chemical Waste Management v. EPA*, 976 F.2d 2, 13-14 (D.C. Cir. 1992) cert. denied 113 S. Ct. 1961 (1993).

In the Phase III LDR rule, EPA solicited comment on the issue of possibly redefining the point at which LDR prohibitions attach. EPA presented three options: (1) when there are similar wastewater streams generated by similar processes; (2) when there are waste streams from a single process; and (3) at a point of aggregation called "battery limits." 60 FR 11715-717.

EPA considered these options because of the potential reach of the Chemical Waste Management opinion on generally successful wastewater management operations carried out pursuant to the Clean Water Act (i.e. treatment of aggregated wastewaters, some of which at one time exhibited a hazardous waste characteristic, pursuant to the National Pollutant Discharge Elimination System regulations for direct dischargers and pretreatment regulations for indirect dischargers) and the Safe Drinking Water Act (injection of decharacterized wastewaters into Class I non-hazardous injection wells under the Underground Injection Control program). However, on March 26, 1996, President Clinton signed into law the Land Disposal Program Flexibility Act of 1996. This Act provided, among other things, that decharacterized wastes managed in the types of wastewater management systems described above are no longer prohibited from land disposal so long as they are not hazardous wastes at the point they are land disposed. See generally 61 FR 61660 (April 8, 1996). As a result, EPA no longer believes there is any need to fundamentally reexamine the issue of where LDR prohibitions attach, and is not acting on these parts of the Phase III proposal.

However, the Agency has identified specific issues which may be considered "point of generation" issues, and which were not addressed by the Land Disposal Program Flexibility Act of 1996. In today's rule, EPA is addressing these specific issues. In each case discussed below, the Agency believes that the existing regulatory language is adequate, but clarification is necessary to prevent inappropriate interpretations. In making these interpretations, EPA is in some cases clarifying not only LDR applicability, but also generally where the determination as to whether a waste is hazardous must be made.

2. Boiler Cleanout

Power plant boilers are generally taken out of service and cleaned out once every 3 years

(an average of one unit every year per facility). The cleaning process generally consists of an initial rinse of an acid cleaning solution and one or two rinses of water, generating an average of several hundred thousand gallons of acid wash/rinse water during each cleaning. The initial rinsate stream frequently is characteristically hazardous, exhibiting the TC for lead and chromium plus the characteristic of corrosivity.

The rinsate from this process is combined in a tank (or potentially, several tanks), usually temporary tanks brought on-site for the cleaning process, and then either discharged to surface impoundments prior to NPDES discharge (which commingled wastes would normally be exempt from RCRA Subtitle C by virtue of the Bevill Amendment) or directly fed to the boilers (a practice typically raising no issues of LDR applicability since no land disposal is involved). The issue in question is whether waste is considered generated after each rinse (acid and water) or at the end of the cleaning of the boiler when the rinsates have been combined; in other words, whether a determination is made for each rinse or for combined rinses. If the latter, then the rinsate would be hazardous waste (and as one consequence, potentially prohibited from land disposal) only if the combined rinsates exhibit a characteristic. Note that this is not strictly an LDR issue but presents the issue of whether a unit is regulated, in this case the tank that receives the rinsate.

The Agency is today clarifying that, specific to power plant boiler cleanout (and potentially, to other sporadic cleaning activities involving multiple rinses), generation is at the completion of the entire cleanout process. EPA believes that the mass loading of hazardous constituents from the process to the environment will not be affected by this determination, since a given amount of cleanout fluid and water is needed to complete the task in every case. Cf. 60 FR at 11716 noting that in such situations the underlying policy of the prohibition on dilution is not implicated. The agency views the cleanout of the boilers as one process and therefore does not consider the mixing of acid rinse and water rinse as impermissible dilution but as a single waste rinsate resulting from the single cleanout process. This waste is subject to regulation if it exhibits a characteristic, and subject to LDR prohibitions if it exhibits a characteristic and is going to be land disposed.

Today's clarification of the point of generation for boiler cleanout is limited to the situation in which the entire quantity of boiler cleanout rinses are contained in a single container so that hazardous waste and LDR determinations can be made based upon the commingling of all the rinses together. If, for example, a temporary tank is brought on-site but does not have sufficient capacity to handle the estimated several hundred thousand gallons of rinsate at once, the waste will likely have to be managed in separate loads. In such instances, the generator will still be required to make hazardous waste and LDR determinations for each separate load.

In adopting today's interpretation, EPA emphasizes that this type of cleaning is a batch

operation occurring at widely-spaced intervals and involving temporary storage units (i.e. units that are removed from the premises after receiving the rinsate). Thus, the interpretation does not ever apply where a surface impoundment receives rinsate (see, e.g., *Chemical Waste Management v. EPA*, 976 F. 2d at 20 n. 4 (placement of any amount of characteristic waste in a surface impoundment makes the unit a regulated unit even if diluted to non-characteristic levels afterwards)). The interpretation also does not apply where there are permanent storage units involved. EPA also notes the evident point that if commingled rinses still exhibit a hazardous waste characteristic, the receiving tank is a regulated unit. Persons owning or operating such tanks have the same obligations as other generators to determine whether the waste exhibits a characteristic. See 262.11.

3. Sludge From High TOC (Total Organic Carbon) D001 Treated in Tank Based Systems

Many generators introduce waste into tank-based wastewater treatment systems where the resulting effluent is discharged to a POTW or to navigable waters, and the resulting wastewater treatment sludge is land disposed. At times, the waste that is placed in the tank-based system exhibits the ignitable characteristic. If the organic content of the wastewater is sufficiently high, the liquid waste--when first released--can meet the definition of nonwastewater found in 40 CFR Part 268.2(d).

The fact situation of concern can involve releases of high TOC ignitable wastes (which have a designated method of treatment), raising a question of whether that treatment standard for high TOC waste still applies to sludge generated from the wastewater treatment, even if the sludge is not itself high TOC ignitable waste.

It is EPA's view that the sludge in this situation should be viewed as a new treatability group. Put another way, the change of treatability group principle applies to situations where liquid wastes which are technically nonwastewaters are inadvertently placed in wastewater treatment systems in small quantities, for legitimate wastewater treatment, thereupon becoming wastewaters (as defined in 268.2(f) of the rules), and subsequently generating a sludge. See 58 FR 29871, May 24, 1993 ("In the Third Third final rule, EPA stated that for characteristic wastes, each change of treatability group in a treatment train marked a new point of generation for determining if a characteristic waste was prohibited from land disposal").

Consequently, because the sludge generated from the tank-based wastewater treatment system is a different treatability group from the wastewater from which it is generated, it would be considered to be a newly generated waste that should be evaluated at its point of generation to determine if it is hazardous, and if so, to then determine the appropriate LDR standard. (Also, please note that elsewhere in today's notice the Agency clarifies that the LDR de minimis

exemption applies to small, inadvertent, releases of characteristic waste into wastewater treatment systems. As a practical matter, the de minimis exemption probably makes the question moot, because larger releases would not typically occur since they would likely interfere with wastewater treatment systems operation.)

4. Tank Rinsate

An issue arises when high-TOC ignitable wastes are stored in tanks, and some residue from these wastes remains in the tanks after the tanks are emptied and rinsed. The initial high-TOC ignitable waste is considered a nonwastewater with the treatment standard of CMBST (combustion) or RORG (recovery of organics). However, it is EPA's view that the rinsate from an empty tank (see 47 FR 1250, January 11, 1982, for guidance on empty waste tanks) is a newly generated wastewater and the high-TOC ignitable waste treatment standards do not attach. The rinsate must be evaluated at its point of generation, i.e., after the complete rinsing of the empty tank, and, if it exhibits a characteristic (or for some reason is listed independently) it is subject to treatment standards for that characteristic (or listed waste), rather than to the form of the waste from which it originated. This determination also applies to tanks that are used to collect wastewaters that are listed solely because they exhibit a characteristic (i.e., ignitability, corrosivity, or reactivity). EPA has stated that the existing rule, which provides that the dilution prohibition does not apply to wastewaters listed solely because they exhibit a characteristic, remains in effect. See 61 FR 15662.

D. POLYM Method of Treatment for High-TOC (Total Organic Carbon) Ignitable D001 Wastes

Summary: Today's rule establishes an alternative treatment standard of POLYM (polymerization) for high-TOC D001 wastes originally intended as chemical components in the commercial manufacture of plastics. In the polymerization treatment process (POLYM), the wastes are reacted to produce a chemically stable plastic in the same manner that commercial plastics are formed.

Discussion: The National Marine Manufacturer's Association contacted EPA with concerns that the May 1993 Interim Final Rule prohibited the practice of polymerizing excess polyester/styrene waste left over from the manufacture of modular shower stalls and recreational boats, among other things. EPA proposed to add polymerization (POLYM) to the set of required methods of treatment designated as BDAT for high-TOC ignitable (D001) wastes resulting from commercial polymerization processes. (60 FR 43679, August 22, 1995.) In these manufacturing processes, polyester/styrene reacts with methyl ethyl ketone (MEK) peroxide in a mold to form fiberglass. The ignitable waste polyester/styrene and MEK peroxide are the wastes of concern.

Small quantities of polyester/styrene monomers and MEK peroxide wastes can be reacted together to create fiberglass scraps. The scraps are inert and do not exhibit the hazardous waste characteristics of toxicity, ignitability, corrosivity, or reactivity. It is this practice that is referred to as polymerization for the purposes of this rule. The waste polyester/styrene monomers and MEK peroxide are currently regulated as high-TOC ignitable wastes (40 CFR 268.9) for which the current standard is treatment by CMBST (combustion) or by RORGS (recovery of organics) before land disposal. Neither CMBST nor RORGS allows for polymerization (as an exclusive treatment method) of high-TOC ignitable wastes. The Agency believes that the practice of polymerizing high-TOC ignitable waste polymers and monomers which are chemical components in the manufacture of plastics to a noncharacteristic inert mass adequately minimizes threats posed by disposal of the waste.

Today EPA is establishing POLYM as an alternative to CMBST or RORGS only for those high-TOC D001 wastes originally intended as chemical components in the commercial manufacture of plastics. POLYM requires the addition of the same polymerizing component or catalyst to the deactivated high-TOC D001 monomer stream intended for land disposal. POLYM is defined as "formation of complex high-molecular weight solids through polymerization of monomers with high-TOC D001 nonwastewaters which are chemical components in the manufacture of plastics."

EPA acknowledges that POLYM is not as effective at destroying all of the hazardous constituents of the materials as CMBST, the specified treatment standard for high-TOC D001 nonwastewaters. However, as defined, POLYM is the same process that is used in the actual manufacturing of plastic products such as water pipe and watercraft. To allow materials and a process to be used to construct water pipe and boat hulls, but prohibit the same process to be used to treat excess materials from those same processes does not make sense. In addition, the treatment of these chemical components using POLYM does convert an ignitable waste into a non-ignitable solid prior to disposal. Treatment occurs as the organic materials react to form a hard, inert material. Data submitted by the Composites Institute (see CI Memo 20 DEC 96) show that of the Appendix VIII constituents that are present in scrap uncured polyester resins, greater than 50% of the constituents are chemically converted by the polymerization process to form a part of the solid polymer. The remaining constituents are physically bound in the solid polymer matrix. The Agency believes that the low quantities of Appendix VIII constituents are sufficiently bound in the polymer matrix so as to minimize the threats posed by disposal of the noncharacteristic inert mass of scrap material. Below is a table showing the Appendix VIII constituents typically found in scrap uncured polyester resins:

Appendix VIII constituents	Maximum % in uncured resin
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Methyl methacrylate	10.0
Antimony trioxide	3.0
Dibutyl phthalate	1.8
Butyl benzyl phthalat	1.05
Dimethyl phthalate	1.05
Methyl ethyl ketone peroxide	1.05
Diocetyl phthalate	0.75
Methyl ethyl ketone	0.09
P-benzoquinone	0.05
Maleic anhydride	(¹)
phthalic acid esters NOS	(¹)
phthalic anhydride	(¹)

¹ Trace.

Of the constituents listed in the table above, methyl methacrylate (a monomer) and methyl ethyl ketone peroxide (a catalyst), are chemically converted by the polymerization process and form part of the solid polymer.

EPA has decided to promulgate POLYM as a treatment standard rather than dealing with this issue on an individual basis via Determination of Equivalent Treatment (DET) petitions. As defined, equivalency need not remove every single molecule of constituents as the comparison technology to be considered equivalent. A similar issue involving high-TOC ignitable waste was addressed in a Determination of Equivalent Treatment (see DET IBM Essex Junction, VT). In that determination, the high-TOC waste was being treated to a slightly lower level than combustion. EPA did so, in part, because the treatment process was achieving very substantial destruction of hazardous constituents, and otherwise assuring that the special concerns regarding

treatment of high-TOC ignitable wastes, such as interference with wastewater treatment systems, were not present. Similarly, in this instance, POLYM will destroy most of the hazardous constituents present and substantially immobilize those that remain. In addition, there is no possibility that this treatment method will interfere with wastewater treatment. Finally, EPA notes that the POLYM process appears to be as efficient as the other type of allowable treatment method for high-TOC ignitable wastes, namely RORGS (recovery of organics). Thus, EPA believes that the POLYM process evaluated here, along with CMBST and REORG, satisfies the section 3004(m) requirement that threats be minimized by treatment, and also could satisfy the equivalency standard in 268.42(b).

A number of commenters have solicited EPA to expand the definition of POLYM to include other types of polymerization processes. EPA appreciates the suggestions of the commenters. However, the Agency does not currently have enough data to evaluate the effects of expanding the definition. The Agency will consider the idea of expanding the definition of POLYM and solicits any data that commenters may have regarding additional methods of polymerization. Further, under 268.42(b), persons may petition the Agency for a determination of equivalent treatment for their specific polymerization process, if it is not included in today's rule.

Finally, in response to inquiries, EPA notes that POLYM treatment (or for that matter, most types of treatment) can occur at the site of generation without having to obtain a RCRA permit, provided treatment occurs in tanks, containers or containment buildings and these units comply with the substantive standards set out in 40 CFR 262.34 (standards for so-called 90-day generator tanks, containers, and containment buildings). See 51 FR at 10168 (March 24, 1986). EPA notes further that these standards for 90-day units may include compliance with the RCRA air emission standards set out in subparts AA, BB, and CC of part 265 (assuming the waste satisfies the applicability criteria set out in these rules). See generally, 61 FR at 59934-35 (Nov. 25, 1996) and 59 FR 62896 (Dec. 6, 1994). In addition, POLYM treatment occurring in units requiring a permit could be subject to the corresponding standards for air emissions found in Part 264 subparts AA, BB and CC.

E. Decision To Retain Current Treatment Standard for Multi-Source Leachate (Waste Code F039)

In the Phase IV proposed rule, EPA suggested that with the promulgation of the Universal Treatment Standards (UTS), there was no longer a need for the separate list of constituents for multisource leachate (F039) in the Treatment Standards for Hazardous Wastes table at 40 CFR 268.40. EPA proposed that F039 would be treated to meet all the UTS for the constituents at Sec. 268.48, with the exceptions of fluoride, vanadium, and zinc, which are not underlying hazardous constituents.

Several commenters, however, pointed out that such an action would be more than a simplification of existing treatment standards. Rather, it would add several constituents to those for which EPA has set treatment standards in F039, without notice and an opportunity for comment. The Agency has reexamined the F039 list of constituents and agrees with commenters that changing F039 to cross reference the UTS constituents at Sec. 268.48 would add regulated constituents to F039. This was not the intent of the proposed change. Therefore, the Agency is not promulgating any change to F039 in this final rule. The treatment standard levels for the hazardous constituents in F039 are identical to the UTS for those constituents, so retaining the current treatment standard constituent list for F039 does not decrease environmental protection in comparison with changing the standard.

V. Status of Proposed Provisions on Leaks, Sludges, and Air Emissions From RCRA-Equivalent Treatment of Decharacterized Wastewaters in Clean Water Act Surface Impoundments

In the August 22, 1995 Phase IV proposal, EPA discussed three options for ensuring that underlying hazardous constituents in decharacterized wastes were not released to the environment via leaks, sludges, and air emissions from surface impoundments in systems regulated by the Clean Water Act or Safe Drinking Water Act (60 FR 43655). (Decharacterized wastes are wastes which initially exhibited a hazardous characteristic of ignitability, corrosivity, reactivity, or toxicity when generated but are no longer characteristic). On March 16, 1996, the President signed the Land Disposal Program Flexibility Act of 1996, which provides that the wastes in question are no longer prohibited from land disposal once rendered nonhazardous. As a result, on April 8, 1996, EPA withdrew its treatment standards for these wastes (61 FR 15660). Today EPA announces that it will not finalize, at this time, the provisions for leaks, sludges, and air emissions that EPA proposed on August 22, 1995 (60 FR 43655-43677). Furthermore, the treatment standards for TC metal wastes discussed in the proposal accompanying today's rule do not apply to TC metal wastes if the characteristic is removed and the wastes are subsequently treated in a unit whose discharge is regulated by the Clean Water Act or, for underground injection wells, the Safe Drinking Water Act.

However, the Land Disposal Flexibility Act does mandate EPA to undertake a study to determine any potential risks posed by cross-media transfer of hazardous constituents from these surface impoundments. The findings of this study, begun by the Agency in April, 1996, may result in proposed regulations for these units, if risks are in fact found that would warrant such regulation.

VI. Decision Not To Ban Nonamenable Wastes From Biological Treatment

EPA is not prohibiting certain decharacterized wastes from land-based wastewater

treatment systems on the basis of whether the constituents in those wastes are "amenable" to biological treatment. As is discussed in the April 8, 1996 partial withdrawal notice to the LDR Phase III final rule (61 FR 15660), the Land Disposal Program Flexibility Act of 1996, signed by the President on March 26, 1996, provides that the wastes in question are no longer prohibited from land disposal once rendered nonhazardous. Because they are decharacterized before they enter the impoundment, these wastes are no longer prohibited wastes under RCRA.

VII. Capacity Determinations for Wood Preserving Wastes

A. Introduction

This section summarizes the results of the capacity analysis for the wastes covered by this rule. For background information on data sources, methodology, and details of the capacity analysis for each group of wastes covered in this rule, see "Background Document for Capacity Analysis for Land Disposal Restrictions, Phase IV--Wood Preserving Wastes (Final Rule)."

In general, EPA's capacity analysis focuses on the amount of waste to be restricted from land disposal that is currently managed in land-based units and that will require alternative treatment as a result of the LDRs. The quantity of wastes that are not managed in land-based units (e.g., wastewater managed only in RCRA exempt tanks, with direct discharge to a Publicly Owned Treatment Works (POTW)) is not included in the quantities requiring alternative treatment as a result of the LDRs. Also, wastes that do not require alternative treatment (e.g., those that are currently treated using an appropriate treatment technology) are not included in these quantity estimates.

EPA's decisions on whether to grant a national capacity variance are based on the availability of alternative treatment or recovery technologies. Consequently, the methodology focuses on deriving estimates of the quantities of waste that will require either commercial treatment or the construction of new on-site treatment as a result of the LDRs. EPA attempts to subtract from the required capacity estimates the quantities of waste that will be treated adequately either on site in existing systems or off site by facilities owned by the same company as the generator (i.e., captive facilities).

B. Available Capacity

Available capacity was estimated for the three treatment technology categories: combustion, stabilization, and wastewater treatment that are expected to be used for the wastes in

today's rule. (Numerous other types of treatment also can meet the treatment standards for much of these wastes, although the Agency did not find it necessary to estimate the available capacity of these treatments. See the Background Document for further information.)

1. Thermal Treatment

EPA estimates that there are less than 50,000 tons per year of soil combustion capacity, approximately 144,000 tons per year of commercial sludge/solid combustion capacity, and 886,000 tons per year of commercial liquid combustion capacity available for Phase IV Wood Preserving Wastes. This accounts for treatment facilities without updated permits for the newly listed wastes or that likely will not wish to accept the wastes for other reasons (e.g. dioxin/furan monitoring requirements, low BTU, or other undesirable waste characteristics).

2. Stabilization

EPA estimates that there are approximately 1.1 million tons of available stabilization capacity, with most of it able to meet the treatment requirements for the newly listed wood preserving wastes.

3. Wastewater Treatment

EPA estimates that there are approximately 37 to 47 million tons per year of available wastewater treatment capacity. The various treatment technologies that form the basis of this capacity are routinely able to meet the treatment standards of the wood preserving wastewaters.

C. Required Capacity and Comparison With Available Capacity

EPA estimates that very small quantities of wood preserving wastewater (approximately 440 tons of organic wastewater and 13,000 tons of inorganic wastewater) will require alternative treatment capacity in order to comply with the LDRs. EPA estimates that less than 10,000 tons of nonwastewaters (8,700 tons of organic nonwastewaters and 1,300 tons of inorganic nonwastewaters) will require alternative treatment as a result of the LDRs.

EPA believes that combustion, combustion followed by stabilization, or stabilization will meet the treatment standards for nonwastewaters of wood preserving wastes. For wastes with

arsenic, although the basis of the treatment for arsenic is vitrification, EPA believes that the standard can also be met by stabilization. Also, in general, chemical precipitation will meet the treatment standards for the inorganic wastewater. EPA identified specific wastewater treatment technologies that support UTS for these wastes and concluded that the wastewater treatment practices at the wood preserving facilities can be optimized to meet the proposed limits. (Please see BDAT Background Document for details.) There is sufficient liquid and sludge/solid combustion capacity for both the organic wood preserving wastewaters and nonwastewaters. In addition, EPA believes that there is sufficient chemical precipitation capacity for the inorganic wastewater. Finally, ample stabilization capacity exists for the inorganic nonwastewaters. Therefore, EPA is not granting a variance for the newly listed wood preserving wastes.

Some commenters provided data on soil and debris contaminated with wood preserving wastes. The regulated communities are quite concerned about the availability of treatment capacity using established technologies as well as the potential for innovative technologies to provide additional treatment capacity. EPA has examined the available data and information submitted by commenters and from other sources such as Superfund Record of Decisions. The Agency estimated that combustion capacity available to treat soils and debris contaminated with newly listed wood preserving wastes is less than 50,000 tons per year. In contrast, EPA estimates that well over 100,000 tons per year of soil and debris may require additional combustion capacity. Furthermore, logistics issues may severely hamper the ability of site managers to obtain adequate alternative treatment in the near term. Therefore, given the lack of available capacity and other issues associated with soil and debris contaminated with F032, F034, and F035 wood preserving wastes, EPA is granting a two-year extension of the effective date for these wastes.

D. Mixed Radioactive Wastes

Despite the uncertainty about quantities of mixed radioactive wastes that will require treatment as a result of today's rule, any new commercial capacity that becomes available will be needed for mixed radioactive wastes that were regulated in previous LDR rulemakings and whose capacity extensions have already expired. Thus, EPA has determined that sufficient alternative treatment capacity is not available, and is granting a two-year national capacity extension of the effective date for radioactive wastes mixed with RCRA wastes for which standards are being promulgated today, including soil and debris.

E. Phase IV Wood Preserving Wastes Injected Into Underground Injection Control (UIC) Class I Wells Injected Into Class I Wells

EPA estimated the volume of waste regulated in today's rule that is currently injected into UIC wells. This volume is a conservative estimate based on highly complex non-segregable waste

stream mixtures, and it may be that the actual volume injected is less. A very small volume of newly listed wood preserving wastes (F032, F034 and F035) may be injected into Class I Wells. These wastes are either injected at wells located at the site of generation, or are sent off-site for injection in commercial Class I wells. These wells have existing no-migration determinations. However, even if an injection well has received a no-migration petition, it can inject a newly prohibited waste only if the waste is similar to wastes included in the initial no-migration petition. The new wastes must behave hydraulically and chemically in a similar manner to those already included in the initial petition demonstration such that they will not interfere with the containment capability of the injection zone and the location of the waste plume will not significantly differ from the initial demonstration. (See 40 CFR 148.20 (f) , and UIC Guidance No. 74.) Based on these principles, EPA has investigated whether the no-migration determination for the wells injecting these wood preserving wastes allow continued injection. If injection is not presently allowed due to the need to amend a petition, the well would not be providing any capacity, because none of these facilities operate treatment processes capable of achieving the treatment standard for these wastes.

EPA has determined that at least six commercial injection well facilities with no-migration petitions would be allowed to inject wood preserving wastewaters without needing to amend their petitions. The rationale for this determination is located in the RCRA docket. EPA has further determined that these wells have unused injection capacity exceeding the amount of wood preserving waste generated annually (EPA Regional communications in the RCRA docket). Thus, even if all wood preserving wastewaters presently injected would have to find new capacity, sufficient capacity exists. In addition, there is commercial wastewater treatment capacity that could accommodate some of this volume.

Based on this information, the Agency has reassessed its position since the proposed rule and decided not to grant a two-year national capacity extension of the effective date for wood preserving waste being injected at Class I facilities. As discussed above, there appears to be sufficient protective disposal capacity (i.e. approved no-migration disposal capacity) which can accommodate all of the currently-injected wood preserving wastewaters, even if all this wastewater will be diverted from injection wells currently used.

EPA notes further that commenters did not claim that there was insufficient capacity to manage these wastes. However, it should be noted that RCRA section 3004(h)(3) provides individual facilities opportunity to demonstrate that inadequate protective treatment or disposal capacity is available. Substantive standards are set out in 40 CFR Sec. 268.5 and in UIC Guidance No. 69.

F. Summary of Variance Determinations

Table 1 lists each category of RCRA wastes for which EPA is today setting LDR standards. For each category, this table indicates whether EPA is granting a national capacity extension of the effective date for land-disposed wastes or injected wastes managed by UIC Class I injection wells.

Table 1.--National Capacity Extensions of the Effective Date for Newly Listed and Identified Wastes

Waste description	Surface-disposed wastes	Deep well-injected wastes
Newly Listed Wood Preserving Wastes (F032, F034, F035)	No.	No.
Soil and Debris Contaminated with Newly Listed Wood Preserving Wastes	Two-year . .	N/A
Mixed Wood Preserving and Radioactive Wastes, Including Soil and Debris	Two-year . .	Two-year

VIII. Changes to Definition of Solid Waste to Exclude Processed Scrap Metal and Shredded Circuit Boards From RCRA Jurisdiction

Summary: As proposed on January 25, 1995 (FR 61 2338), EPA is today amending the definition of solid waste to exclude from RCRA jurisdiction two types of materials: processed scrap metal and containerized shredded circuit boards.

A. Processed Scrap Metal

1. Summary of Proposal

The Agency proposed the exclusion of processed scrap metal and shredded circuit boards being recycled from the Definition of Solid Waste in the January 25, 1996 proposed Phase IV LDR supplemental rulemaking. Currently, scrap metal being reclaimed is a solid waste, but completely exempt from RCRA Subtitle C regulations. The proposal would have amended the definition of solid waste to exclude processed scrap metal and containerized shredded circuit boards that are being recycled from RCRA jurisdiction. In the proposal, the Agency did not propose to make changes to the current definition of scrap metal: "bits and pieces of metal parts

(e.g., bars, turnings, rods, sheets, wire) or metal pieces that are combined together with bolts and soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled."

The proposal defined processed scrap metal as "scrap metal which has been manually or mechanically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials. Processed scrap metal includes but is not limited to scrap metal which has been bailed, shredded, sheared, melted, agglomerated (for fines, drosses and related materials which are not scrap metal prior to agglomeration) or separated by metal type." The Agency believes that processed scrap metal being recycled is distinct from other secondary materials defined as wastes when recycled due to established markets for the material's utilization, inherent positive economic value of the material, the physical form of the material, and absence of damage incidents attributable to the material, and is therefore sufficiently product-like that maintaining RCRA regulatory jurisdiction over this material is not necessary. A summary of the proposed exclusion from the definition of solid waste for shredded circuit boards being recycled follows the discussion of the exclusion from the definition of solid waste for processed scrap metal being recycled.

2. Modifications to the Proposal

The Agency received approximately twenty-five comments concerning the proposed scrap metal and shredded circuit board exclusions. The comments were generally supportive of the exclusions. A background document, the major comments received, and Agency responses on the proposed processed scrap metal exclusion can be found in the docket for this rulemaking. Comments on the shredded circuit board exclusion can also be found in this background document.

In response to comment on the proposed exclusion to the definition of solid waste for processed scrap metal being recycled, the Agency has made several modifications to the exclusion in the final rule. First, the Agency has expanded the exclusion to cover unprocessed home and unprocessed prompt scrap metal being recycled. Home scrap is scrap metal generated by steel mills, foundries, and refineries such as turnings, cuttings, punchings, and borings. Prompt scrap, also known as industrial or new scrap metal, is generated by the metal working/fabrication industries and includes such scrap metal as turnings, cuttings, punchings, and borings. These categories of scrap metal do not fit the definition of processed scrap metal found in the proposal because they often do not require a processing step before being sent for recycling. The Agency evaluated unprocessed home scrap and prompt scrap metal and found that these categories of scrap metal are substantially similar to processed scrap metal due to established markets for the material's utilization, inherent positive economic value of the material, the physical form of the material, and absence of damage incidents attributable to the material. Based on this analysis, the

Agency has expanded scope of the exclusion to include both unprocessed home and unprocessed prompt scrap metal. In the final rule, the term "excluded scrap metal" will be used to reflect this decision. Commenters also suggested the Agency evaluate obsolete scrap metal (scrap which is composed of worn out metal or a metal product that has outlived its original use, such as automobile hulks, railroad cars, aluminum beverage cans, steel beams from torn down buildings, and household appliances) using the same factors. The Agency has not found sufficient data to fully evaluate unprocessed obsolete scrap metal. Therefore, in today's final rule the Agency is not expanding the scope of the exclusion from the definition of solid waste to include obsolete scrap metal. Providing an exclusion from the definition of solid waste for obsolete scrap metal at this time would be premature and is better addressed in the Definition of Solid Waste rulemaking, due to be proposed in the near future.

Second, the Agency clarifies that the exclusion for processed scrap metal being recycled applies to scrap metal that has undergone a processing step (as defined in the preamble to the proposed rule) regardless of who does the processing. In other words, a processing step may be performed by the generator, an intermediate scrap handler (e.g. broker, scrap processor), or a scrap recycler. Once the scrap metal has undergone a processing step, it may qualify for today's exclusion.

Third, the Agency has added chopping, crushing, flattening, cutting and sorting, processes typically used in the processing of scrap metal for recycling, to the definition of processed scrap metal in today's final rule. In today's final rule, the definition of processing reads: "manually or physically altered to either separate it into distinct materials to enhance economic value or to improve the handling of materials. Additionally, to avoid confusion, the definition of processed scrap metal has been reworded to clarify the status of agglomerated fines, drosses and other related materials. Therefore, in today's final rule, the category of processed scrap metal now includes but is not limited to scrap metal which has been baled, shredded, sheared, chopped, crushed, flattened, cut, melted, or separated by metal type (i.e., sorted), and, fines, drosses and related materials which have been agglomerated." Note that circuit boards that are shredded and being sent for recycling are covered under the exclusion from the definition of solid waste for shredded circuit boards being recycled (261.4(a)(13)) see discussion following) and are not covered under the definition of excluded scrap metal.

B. Shredded Circuit Boards

1. The Proposal

In the proposed rule, EPA proposed to exclude shredded circuit boards being reclaimed from the definition of solid waste in order to facilitate their recovery. 61 F.R. 2339, 2361. The

proposed exclusion was conditioned on the storage of the shredded circuit boards in containers prior to recovery that would be adequate to prevent a release of the boards to the environment. This condition was specified as a performance standard rather than a design standard to allow the handler maximum flexibility in selecting the method of containment. Today, EPA is finalizing this exclusion as proposed with an additional limitation that shredded circuit boards excluded from RCRA jurisdiction be free of mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries.

2. Exclusion for Shredded Circuit Boards Conditioned on Containerized Storage Prior to Recovery

EPA explained in the proposal that shredded circuit boards merit exclusion from RCRA regulation in order to facilitate their recovery when they are properly stored in containers to prevent their release to the environment. As presented in the proposal, the necessity for the proposed exclusion for shredded circuit boards is that the process of shredding the circuit boards causes the boards to lose the scrap metal exemption (see 40 CFR Sec. 261.6(a)(3)(ii)) that currently applies to used whole circuit boards. This scrap metal exemption allows used whole circuit boards being recycled to be shipped in commerce without being subject to RCRA regulation including generator manifesting and export requirements. The process of shredding the boards produces small fines from the whole board which are dispersible and do not meet the RCRA regulatory definition of scrap metal. The application of RCRA regulatory provisions to shredded boards may present serious disincentives to their recovery. As explained in the proposal, generator manifesting and export requirements may result in significant delays in shipments of shredded boards to recovery operations such as smelters. Many intermediate precious metal reclaimers, e.g. shredders, operate on a short cash flow and depend on prompt payment for shipments of shredded circuit boards in order to pay the generators of the used circuit boards for supplying them to the intermediate reclaimers.

For the following reasons, EPA believes that shredded circuit boards destined for reclamation when properly containerized and free of mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries are an appropriate secondary material to be excluded from RCRA regulation. As discussed in the proposal, shredding is beneficial to the recovery process. Shredding improves the recovery of the boards by improving handling of shredded boards through increasing the bulk density of the boards in the container during shipment. Shredding also improves the assaying of the shipment for base metal and precious metal content by homogenizing the load thus assuring a representative sample is taken for the assay. Shredding also destroys proprietary information from generators or manufacturers of the boards thus better assuring confidentiality to the generator or manufacturer when making a decision to recycle. Some generators may be concerned about proprietary information contained in used whole circuit boards being transferred to competitors once the boards are out of the generator's control.

Second, shredded boards have qualities which are similar to primary materials such as

virgin mineral concentrates that are processed and refined for base metal and precious metal values. These qualities satisfy the criteria EPA considers when evaluating whether a partially-reclaimed solid waste is commodity-like and is not part of the waste management problem and thus is appropriate to exclude from RCRA subtitle C jurisdiction through issuance of a variance. EPA believes that these criteria are relevant in determining whether a general exclusion is justified. See 40 CFR 261.30(c) & 261.31(c). These criteria are: (1) The degree of processing the material has undergone and the degree of further processing that is required, (2) the value of the material after it has been reclaimed, (3) the degree to which the reclaimed material is like an analogous raw material, (4) the extent to which an end market for the reclaimed material is guaranteed, (5) the extent to which a material is managed to minimize loss and (6) other relevant factors (such as the presence of cyanide or other foreign materials).

Regarding the first criterion, shredded circuit boards have been processed through shredders, hammer mills and similar devices to decrease their size. Value is added to the boards, as indicated above, because the boards are easier to handle, assay and ship without concerns of generator confidentiality that might exist if the boards were shipped to the smelters as whole boards. Further processing for the shredded boards includes both smelting and refining to extract base metals such as copper and precious metals such as gold, silver and platinum group metals. And while a substantial amount of further processing remains, EPA believes that shredded circuit boards can be thought of as secondary feedstocks similar to primary ore concentrates that have undergone beneficiation and are destined for primary mineral processing and refining.

Regarding the second criterion of the value of the material after it has been reclaimed, shredded circuit boards generally have positive economic value (i.e., the smelter pays the shredder for the assayed base and precious metal value of the shipment). The typical price range for shredded circuit boards is between a negative \$0.25 per lb. and \$5 per lb. One recycling company reported an annual average price of shredded circuit boards of \$1.50 per pound which is greater than the current market price for refined copper metal.

Regarding the third criterion of how the partially reclaimed material compares to the analogous raw material, recyclers have indicated that shredded circuit boards typically have assays of that average 10 percent copper, between one-half and one-third that of primary copper concentrates. Shredded circuit board copper assays reported in literature evaluated in completion of this rule ranged between 11 percent and 18 percent copper. Shredded circuit boards also frequently contain precious metal values such as gold, silver or platinum that enhance the economic value of the material. Moreover, the reported recycling efficiency for copper, gold, silver and platinum exceeds 90 percent for this type of material.

Although toxic metal content for primary copper concentrates is variable depending on the ore body it comes from, reported assays for circuit boards are comparable in lead and lower in arsenic content than reported primary copper concentrate assays. Although shredded circuit boards are comparatively dispersible in comparison to primary copper concentrates, the conditional requirement for the exclusion stipulates that the shredded circuit boards must be stored in containers sufficient to prevent a release to the environment prior to recovery reduces

any greater likelihood of release from shredded boards in comparison to primary copper concentrates.

The fourth criterion EPA uses to evaluate partially-reclaimed secondary materials is the extent to which an end market is guaranteed for the material. Continuous demand from primary smelters for base metals and precious metals from shredded circuit boards should result from the positive economic value of the boards, the relative ease of handling and assaying of the boards and the diminishing quantities of primary copper ore concentrates. According to the Bureau of Mines Mineral Commodity Summaries 1994, reported and apparent consumption for copper, silver and platinum group metals has either remained constant or increased between 1989 and 1993. Reported consumption of gold decreased slightly between 1989 and 1993 from 115 metric tons and 100 metric tons. Secondary gold production decreased slightly over the same period from 158 metric tons to 130 metric tons. The price of gold declined over the same period from \$382 per troy ounce to \$355 per troy ounce. By 1996, the price of gold has increased to over \$380 per troy ounce.

The fifth criterion EPA uses to evaluate partially-reclaimed materials is the extent to which the material is managed to minimize loss. The proposed exclusion is conditioned on the proper storage of shredded circuit boards in containers prior to recovery. As mentioned in the proposal, the shredded boards are usually stored in super sacks (sacks that are reinforced woven resin and designed to accommodate bulk shipments), gaylord containers (also known as tri-wall boxes composed of three layers of cardboard with two layers of corrugation) and 55 gallon drums. Open bulk shipments of board by rail, truck or barge are not within the scope of this exclusion. In addition to the storage requirement, the economic value of the boards also provides an incentive for handlers to prevent releases to the environment. At an average market value of \$1.50 per pound for one recycler, the incentive to prevent releases is substantial. The Agency notes that containerization in and of itself was not the only reason the Agency concluded that shredded circuit boards should be excluded from the definition of solid waste. The other five factors supported this determination as well.

Finally, EPA considers other relevant factors when evaluating the exclusion of partially-reclaimed materials from RCRA jurisdiction through the variance. In the context of shredded circuit boards, other relevant factors include: (1) The presence of both materials possibly attached to printed circuit boards that are ordinarily outside of the definition of scrap metal such as mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries, and (2) the frequency of foreign materials mixed with but not part of the circuit board itself. EPA's concern about these materials is discussed below.

3. Limitation on Mercury Switches, Mercury Relays, Nickel-Cadmium Batteries and Lithium Batteries

Printed circuit boards may contain or be incorporated into electronic products which contain mercury switches, mercury relays, nickel-cadmium batteries, and lithium batteries. EPA is concerned about the potential environmental impact of these materials that are associated with

printed circuit board production and management after the boards are spent. Ordinarily, commercial printed circuit board recyclers, both intermediate processors (e.g. shredders) and smelters, do not want mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries in shipments of shredded boards sent from the intermediate processor to the smelter. However, because these items may be very small, they may, on occasion, escape visual inspection and become shredded along with printed circuit boards. When this happens, EPA is concerned about the potential release of mercury or cadmium to the environment. For this reason, EPA is limiting the scope of the exclusion for shredded boards to shipments that are free of mercury switches, mercury relays, nickel-cadmium batteries or lithium batteries. Free of these materials means that mercury switches, mercury relays, nickel-cadmium batteries and lithium batteries are not or have not been part of the batch of circuit boards shredded to add value. In addition, EPA reiterates that in enforcement actions that it is the respondent in the action who bears the burden of proof in documenting that a material for which an exclusion is claimed from the definition of solid waste meets the appropriate regulatory definition or exclusion. 40 CFR 261.2(f). Shredded circuit boards that are not free of mercury switches, mercury relays, nickel-cadmium batteries, and lithium batteries when reclaimed are solid wastes. This is so because these used shredded circuit boards are spent materials. Spent materials being reclaimed are solid wastes that, when they exhibit a characteristic or are listed, are also hazardous wastes. 40 CFR 261.1(b)(1), 261.2(c)(3). As stated in the proposal, EPA established in 1992 that whole used circuit boards could be considered scrap metal. The whole used circuit boards are therefore exempt from RCRA regulation. See 40 CFR 261.6(a)(3)(ii) stating scrap metal being recycled is exempt from RCRA regulation. (Please note that whole used circuit boards which contain mercury switches, mercury relays, nickel-cadmium batteries, or lithium batteries also do not meet the definition of scrap metal because mercury (being a liquid metal) and batteries are not within the scope of the definition of scrap metal. See 50 F.R. 614, 624 (January 4, 1985).) As stated in the proposal shredded circuit boards do not meet the definition of scrap metal because the shredded material contains fines which are too small to qualify as scrap metal. Shredded circuit boards that are not free of mercury switches, mercury relays, nickel-cadmium batteries, and lithium batteries would be subject to applicable parts of RCRA regulation, 40 CFR Parts 260 through 266, Part 268, Part 270, Part 273 and Part 124. Shredded circuit boards with economically recoverable quantities of precious metals are still eligible for conditional exemption from regulation under 40 CFR Part 266 Subpart F. This provision allows recyclable materials containing an economically recoverable amount of precious metals to be exempt from many RCRA regulatory provisions. However, these materials are still subject to manifesting, export and speculative accumulation requirements. 40 CFR 266.70.

4. Clarification of Regulatory Status of Secondary Materials Associated With the Generation or Management of Circuit Boards

Several commenters requested clarification in today's rule about the current regulatory status of secondary materials associated with the generation or management of printed circuit boards. These materials include: spent solder baths (pot dumps), sweeps, baghouse dust, and solder dross. These commenters also requested exclusion of these materials from RCRA jurisdiction in today's rule.

Spent solder baths, also known as pot dumps, are solidified pieces of tin-lead solder baths used in the production of printed circuit boards. Prior to 1993, EPA had classified spent solder baths as spent materials, which, absent the scrap metal designation, would be fully regulated under RCRA hazardous waste regulation. In 1993, EPA issued a letter to the Lead Industries Association stating that spent solder baths meet the definition of scrap metal and are therefore exempt from RCRA regulation under the regulatory exemption for scrap metal being recycled. This interpretation continues to be the Agency view.

Sweeps refer alternatively to a powdered material that is a residue of thermal recovery of precious metal-bearing secondary material (often ash that is crushed into particulate form in a ball mill or similar device) or particulate material that is collected from firms handling precious metals such as jewelers and metal finishers. Sweeps have been previously classified by EPA as a by-product.² As such, when sent for reclamation, sweeps are not solid waste and are excluded from RCRA jurisdiction regulation when considered hazardous solely by exhibiting a characteristic. Characteristic by-products are not solid wastes when reclaimed. 40 CFR 261.2(c)(3). In contrast, when sweeps are derived from source material that meets the description of a listed hazardous waste, the sweeps are solid wastes that are also hazardous wastes and are regulated under the appropriate RCRA regulation provisions. 40 CFR 261.2(c)(3). For example, often combustible material such as a rag, filter or paper is used to clean up a secondary material such as a spent solvent that may: (1) contain precious metals and (2) meets one of the F001 through F005 listing descriptions for solvents. The rag, filter or paper will be burned to an ash that is homogenized in order to assay its precious metal content. The ash when crushed is turned into a sweep. The sweep carries the F-listed hazardous waste code that was associated with the original source material (i.e., solvent). Listed by-products, in contrast to characteristic by-products, are solid and hazardous wastes when reclaimed.

EPA has classified baghouse dust from precious metal recovery furnaces as a sludge.³ As with the by-product classification for sweeps, baghouse dust is not a solid and hazardous waste when it would be considered hazardous only for exhibiting a characteristic such as toxicity. However, if the source material to the furnace contained a listed hazardous waste, then the baghouse dust would be considered a solid and hazardous waste due to its classification as a listed sludge being reclaimed. Also as with the sweeps, even if the baghouse dust is a listed sludge, it may still be conditionally exempt from RCRA regulation under 40 CFR Part 266 Subpart F if it contains economically recoverable levels of precious metals.

Finally, EPA currently classifies solder dross as a characteristic by-product when reclaimed. As such, this material is already excluded from the definition of solid waste and not

² August 26, 1992 memorandum from Sylvia K. Lowrance, Director, U.S.E.P.A., Office of Solid Waste to Waste Management Division Directors U.S.E.P.A., Regions I-X on the Regulatory Status of Printed Circuit Boards.

³ Ibid.

regulated under the RCRA regulations. Therefore, including solder dross in today's final rule would be duplicative.

IX. 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 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 were 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 unauthorized 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.

Today's treatment standards for wood preserving wastes are being promulgated pursuant to sections 3004 (d) through (k), and 3004(m), of RCRA (42 U.S.C. 6924 (d) through (k), and 6924(m)). Therefore, the Agency is adding today's rule to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to HSWA. States may apply for 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 modified to indicate that this rule is a self-implementing provision of HSWA.

B. Abbreviated Authorization Procedures

In the August 22, 1995, LDR Phase IV proposed rule, EPA proposed a set of streamlined authorization procedures that would apply to new rules that were minor or routine in nature. This procedure was designed to expedite the authorization process by reducing the scope of a State's submittal, for authorization, to a State certification and copies of applicable regulations and statutes. EPA would then conduct a short review of the State's request, primarily consisting of a completeness check (see 60 FR 43686 for a full description of the proposed procedures). In the

HWIR-Media proposed rule, EPA proposed another set of abbreviated authorization procedures for more significant rulemakings, called Category 2 (see 61 FR 18780, April 29, 1996). In this latter proposal, EPA designated the procedures outlined in the Phase IV proposal as Category 1. In that proposal, EPA also presented an expanded discussion on the need for and the intent of the streamlined procedures. EPA also proposed a set of modified Category 1 procedures for the authorization of a proposed rule for mineral processing wastes on January 25, 1996 (see 62 FR 2338).

Although EPA is firmly committed to streamlining the RCRA State authorization procedures, the Agency has decided not to finalize the proposed Category 1 authorization procedures in today's notice. EPA believes that public comments from the August 22, 1995, and January 25, 1996, proposals and comments submitted for the recent HWIR-contaminated media proposal should all be considered before finalizing new procedures for authorization. This full consideration will enable EPA to make the best decision regarding how the authorization process should work. EPA intends to address all significant public comments for all three notices and finalize streamlined authorization procedures when the HWIR-Media rule is promulgated.

C. Effect on State Authorization

Because today's Phase IV LDR rule is being promulgated under HSWA authority, those sections of today's rule that expand the coverage of the LDR program (e.g., to newly listed wood preserving wastes) would be implemented by EPA on the effective date of today's rule in authorized States until their programs are modified to adopt these rules and the modification is approved by EPA. These new treatment standards also result in a more stringent Federal program than before. Therefore States are required to adopt them in accordance with the requirements below.

Because today's rule is promulgated pursuant to HSWA, a State submitting a program modification may apply to receive 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 final authorization are described in 40 CFR 271.21. It should be noted that all HSWA interim authorizations will expire January 1, 2003. (See § 271.24 and 57 FR 60132, December 18, 1992.)

Section 271.21(e)(2) requires that States with final authorization must modify their programs to reflect Federal program changes and to 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 section 271.21(e). This deadline can be extended in certain cases (see section 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 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 most cases, EPA expects that it 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 may, but 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 Sec. 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.

D. Less Stringent Requirements

Section 3009 of RCRA allows States to impose standards that are more stringent than the Federal program (see 40 CFR 270.1(i)). Thus, for those Federal changes that are less stringent or reduce the scope of the Federal program, States are not required to modify their programs. EPA views the parts of today's rule other than the new treatment standards for newly listed wood preserving wastes to be less stringent. However, since these other parts of today's final rule make significant improvements to the LDR program, EPA strongly encourages States to adopt and become authorized for them.

X. Regulatory Requirements

A. Regulatory Impact Analysis Pursuant to Executive Order 12866

Executive Order No. 12866 requires agencies to determine whether a regulatory action is "significant." The Order defines a "significant" regulatory action as one that "is likely to result in a rule that may: (1) Have an annual effect on the economy of \$100 million or more or adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order."

The Agency estimated the costs of today's final rule to determine if it is a significant regulation as defined by the Executive Order. The analysis considered compliance cost and economic impacts for newly listed and identified wastes affected by this rule. This rule covers

three wood preserving wastes (F032, F034, and F035). EPA has determined that this rule is significant according to the definition in Executive Order 12866. Accordingly, this rule has been reviewed by the Office of Management and Budget.

Detailed discussions of the methodology used for estimating the costs, economic impacts and the benefits attributable to today's final rule, followed by a presentation of the cost, economic impact and benefit results may be found in the background document, "Regulatory Impact Analysis of the Final Phase IV Land Disposal Restrictions Rule," which was placed in the docket for today's final rule.

1. Methodology Section

The Agency estimated the volumes of waste affected by today's rule to determine the national level incremental costs (for both the baseline and post-regulatory scenarios), economic impacts (defined as the difference between the industrial activity under post-regulatory conditions and the industrial activity in the absence of regulation), and benefits (including estimation of pollutant loadings reductions, estimation of reductions in exceedences of health-based levels, and qualitative description of the potential benefits.) The procedure for estimating the volumes of newly listed wood preserving wastes affected by today's final rule is detailed in the background document "Regulatory Impact Analysis of the Final Phase IV Land Disposal Restrictions Rule for Wood Preserving Wastes, F032, F034 and F035," which was placed in the docket for today's final rule.

2. Volume Results

The Agency has estimated that 469 active facilities generate an estimated range of 3,860 tons to 18,808 tons annually of newly listed wood preserving wastes including F032, F034, and F035 nonwastewaters. The Agency has estimated that active 469 facilities generate an estimated range of 3,860 tons to 18,808 tons annually of newly listed wood preserving wastes including F032, F034, and F035 nonwastewaters. In addition the Agency has estimated that there are approximately 1000 inactive or abandoned wood preserving sites that have contaminated soil and debris that may require some type of remediation. One Agency estimate for the total volume of wood preserving contaminated soil and debris requiring either in-situ or ex-situ treatment is 37 million tons based on an extrapolation of the average quantity of excavated soils from wood preserving Superfund sites. For purposes of the capacity analysis in today's rule, the Agency is using an alternate estimate of over 100,000 tons as the basis of setting the national capacity variance for wood preserving soil and debris.

3. Cost Results

EPA estimated the incremental treatment cost attributable to Phase IV LDRs to total between \$3.1 million and \$17.7 million per year for generators of newly listed wood preserving wastes. In addition, EPA has estimated that administrative requirements for reporting and record

keeping from today's rule will result in a cost of \$0.2 million per year for owners and operators of inactive and abandoned wood preserving sites. This estimate is based on the costs of thermal destruction and stabilization of F032 and F034 non-wastewaters; the costs of stabilization of F035 non-wastewaters; and the incremental cost of disposing of the residuals from the treatment of the 3,860-18,808 tons of waste.

Today's final rule provides a two year capacity variance during which cleanups of these sites may continue without being affected by the Land Disposal Restriction treatment standards promulgated in today's rule. This provision will reduce the costs of managing media contaminated by these listed wastes to the extent that facility operators and site managers take advantage of it. Also, many sites are using in-situ remedies where no soil is excavated at the site. This type of remediation does not trigger any of the requirements promulgated in today's rule.

Prospectively, future rulemakings such as the Hazardous Waste Identification Final Rule for contaminated media may result in quantities of contaminated soil being removed from RCRA jurisdiction or subject to less rigorous cleanup levels than the current universal treatment standards. Inactive and abandoned wood preserving sites may avail themselves of exemptions from today's promulgated treatment standards such as a no-migration petition (40 CFR Part 268.6) or site specific treatability variances (40 CFR Part 268.44(h)). Further reductions in treatment cost will accrue to the extent that (1) EPA acts to remove media contaminated with these listed wastes from RCRA jurisdiction and (2) facility operators and site managers petition for, and EPA grants, these no-migration petitions and treatability variances. For the foregoing reasons, EPA does not believe that incremental treatment costs will accrue to contaminated media cleanups at inactive or abandoned wood preserving sites. Accordingly, EPA has not estimated incremental treatment costs that would result from the selection of a more expensive remedy in order to avoid triggering LDR treatment requirements. Although EPA believes that this scenario is unlikely, such costs are possible.

With respect to media contaminated with listed wood preserving wastes, EPA's estimate of the costs of today's final rule includes only the administrative costs of applying for treatability variances which the Agency has the discretion to grant subsequent to this action. EPA estimates that there are 35 million tons of such contaminated media that incur administrative costs for treatability variances, waste analysis plans, and other RCRA activities. The Agency will estimate the volume and cost of remediating contaminated media as affected by the HWIR Contaminated Media final rule. This will include the evaluation of all soils and sludges that would otherwise have been treated in-situ whose management and treatment costs could change, either because of provisions of the HWIR Contaminated Media final rule; changes in relative prices for alternative treatment technologies; or increases in market prices of treatment resulting from such shifts in demand. EPA will use the same baseline for estimating these costs that the Agency uses to estimate cost savings.

4. Economic Impact Results

The Agency has estimated the economic impacts of today's final rule to be small. EPA

conducted an initial screening analysis of the impacts of the Phase IV LDR rule on small wood preserving facilities. Results of the initial screening analysis indicate that the cost of compliance for the majority of active wood preserving facilities that use inorganic wood preservatives and generate F035 wastes is less than one percent of total their estimated revenues. In contrast, active wood preserving facilities that use creosote and pentachlorophenol as a preservatives and generated F032 and F034 wastes have been estimated to incur upper bound compliance costs that may exceed one percent of this subsector's revenues.

Some active wood preserving facilities that use creosote and pentachlorophenol as preservatives may incur upper bound compliance costs that will exceed one percent of their estimated revenues. EPA believes, however, that in looking at the affected universe of active wood preserving facilities, today's final rule will not constitute a significant impact to a substantial number of them. First, only 18 or roughly 4 percent of over 469 wood preserving facilities are expected to incur compliance costs that exceed 2 percent of their revenues or more than 25 percent of their long run profits. Of the remaining 49 facilities or 10 percent with upper bound estimated compliance costs exceeding 1 percent of their revenue, none are expected to incur compliance costs exceeding 2 percent of firm revenues or 25 percent of long term profits. Second, industry information suggests that there is a trend within the wood preserving industry away from using pentachlorophenol as a preservative. Product substitution to other nontoxic or toxic preservatives resulting in less expensive treatment of wastes may result in lower costs to these wood preserving facilities. Finally, data collected to estimate the upper bound quantity of F032 generated at these facilities included values for mixed F032/F034/F035 wastes (meaning that the generator reported combined volumes for F032 and other wood preserving wastes) such that the total volume of F032 is probably much lower than the data suggests.

For inactive and abandoned wood preserving sites that require remediation, EPA believes that there should not be a significant economic impact resulting from today's rule. Of the estimated 1000 sites, based on the frequency of wood preserving Superfund cleanups, EPA projects that over 200 inactive and abandoned sites will use in-situ remedies and thus not incur any costs under today's rule. In addition, EPA projects that the remaining 800 sites will incur only administrative costs associated with recordkeeping and reporting requirements that average \$240 in annualized cost per site. Given that the reported average cost of cleaning up wood preserving Superfund sites is \$9.3 million,⁴ EPA believes that these administrative costs should not significantly affect remedial activities at inactive and abandoned wood preserving sites.

5. Benefit Estimate Results

EPA has not performed analysis sufficient to estimate risks to actual individuals or

⁴ Shreekant Gupta, George Van Houtven, and Maureen L. Cropper, "Do Benefits and Costs Matter in Environmental Regulation?", in *analyzing Superfund, Economics, Science and Law*, ed. Richard L. Revesz and Richard B. Stewart (Washington, D.C.: Resources for the Future, 1996), p. 97.

populations exposed to these listed wastes under conditions of Subtitle C management without LDRs. However, EPA has completed a qualitative benefits analysis of the types of benefits that may result from today's rule. This analysis is described in greater detail in the regulatory impact analysis for newly identified listed wood preserving hazardous waste placed in today's docket. Benefits for this final rule as measured by individual or population risk reduction require substantially more information than the Agency has available now. Further, site specific information on waste characterization, hydrogeological parameters, meteorological conditions and demographic patterns would be needed for a representative number of facilities before national estimates of population risk could be calculated. The Agency does not have sufficient information to complete a quantitative individual or population risk estimate.

While waste management rules to protect ground water have been promulgated in the past to control otherwise unacceptable individual risks, it is unusual to predict high 'population risks' unless there is an unusually large water supply well impacted by the facility, simply because ground water contamination generally moves slowly and locally. It has been the agency's experience that regulations with land disposal restrictions have been found to produce relatively small, quantifiable population risk reductions to individuals exposed to contaminated groundwater via private wells. For example, in the analysis of Land Disposal Restrictions Phase II (40 CFR Parts 148, et al.) for organic toxicity wastes, some of the individual risk were in the range of 10^{-4} , the population risk reductions were found to be only about 0.22 cases of cancer per year.

If population densities and prevalence of private ground water wells around wood preserving facilities are similar to other waste management facilities, it is the Agency's expectation that land disposal restrictions for hazardous wood preserving wastes would also achieve relatively small, quantifiable population risk reductions. For these reasons and the data limitations cited above, the Agency has not attempted to address the quantification of population risk reduction for this final rule.

Nevertheless, the Agency has concluded that LDR rules like today's rule may produce benefits in the area of ecological risk reduction and reduced natural resource damage. EPA has not developed a quantitative assessment of these benefits categories because of budgetary and data limitations.

B. Regulatory Flexibility Analysis

Pursuant to the Regulatory Flexibility Act of 1980, 5 U.S.C. 601 et seq., when an agency publishes a notice of rulemaking, for a rule that will have a significant effect on a substantial number of small entities, the agency must prepare and make available for public comment a regulatory flexibility analysis that considers the effect of the rule on small entities (i.e.: small businesses, small organizations, and small governmental jurisdictions).

In assessing the regulatory approach for dealing with small entities in today's proposed rule, the Agency had to consider that due to the statutory requirements of the RCRA LDR

program, no legal avenues exist for the Agency to provide relief from the LDR's for small entities. The only relief available for small entities is the existing small quantity generator provisions and conditionally exempt small quantity generator exemptions found in 40 CFR 262.11-12, and 261.5, respectively. These exemptions basically prescribe 100 kilograms (kg) per calendar month generation of hazardous waste as the limit below which one is exempted from complying with the RCRA standards.

Given this statutory constraint, the Agency was unable to frame a series of small entity options from which to select the lowest cost approach; rather, the Agency was legally bound to regulate the land disposal of the hazardous wastes covered in today's rule without regard to the size of the entity being regulated. For the reasons stated above in the economic impact discussion of section X.A, I hereby certify that today's final rule will not have a significant impact on a substantial number of small entities in the wood preserving sector.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMBRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, Tribal, and local governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. When a written statement is needed for an EPA rule, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, giving them meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising them on compliance with the regulatory requirements.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any one year. EPA has estimated that the total potential cost to State, local, and Tribal governments would not exceed approximately \$200,000 per year over ten years. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA.

D. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request (ICR) document has been prepared by EPA: OSWER ICR No. 1442.14 would amend the existing ICR approved under OMB Control No. 2050-0085. This ICR has not been approved by OMB and the information collection requirements, although they are less stringent than those previously required by the EPA, are not enforceable until OMB approves the ICR. EPA will publish a document in the Federal Register when OMB approves the information collection requirements showing the valid OMB control number. Until then, persons are not required to respond to collections of information in this ICR.

Copies of this ICR may be obtained from Sandy Farmer, OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2136); 401 M St., S.W.; Washington, D.C. 20460 or by calling (202) 260-2740. Include the ICR number in any request.

The annual public reporting and recordkeeping burden for this collection of information is estimated to be reduced by 8 hours per response. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and comply with any previously applicable instructions and requirements, train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.

Send comments on the Agency's burden reduction, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection of techniques to the Director, OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2136); 401 M St., S.W.; Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St., N.W., Washington, D.C. 20503, marked "Attention: Desk Officer for EPA." Include the ICR number in any correspondence.

XI. Environmental Justice

A. Applicability of Executive Order 12898

EPA is committed to address environmental justice concerns and is assuming a leadership role in environmental justice initiatives to enhance environmental quality for all residents of the

United States. The Agencies goals are to ensure that no segment of the population, regardless of race, color, national origin, or income bears disproportionately high and adverse human health and environmental effects as a result of EPA's policies, programs, and activities, and all people live in clean and sustainable communities.

B. Potential Effects

Today's rule is intended to reduce risks of disposing hazardous wastes, and to benefit all populations. This rule is not expected to cause any disproportionate impacts to minority or low income communities versus affluent or non-minority communities.

XII. Submission to Congress and General Accounting Office

Under 5 U.S.C. 801(a)(1)(A) as added by the Small Business Regulatory Enforcement Fairness Act of 1996, EPA submitted a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the General Accounting Office prior to publication of the rule in today's Federal Register. This rule is not a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects

40 CFR Part 148

Administrative practice and procedure, Hazardous waste, Reporting and recordkeeping requirements, Water supply.

40 CFR Part 261

Environmental protection, Hazardous waste, Recycling, Reporting and recordkeeping requirements.

40 CFR Part 268

Environmental protection, Hazardous waste, Reporting and recordkeeping requirements.

40 CFR Part 271

Administrative practice and procedure, Hazardous materials transportation, Hazardous waste, Penalties, Reporting and recordkeeping requirements.

Dated: April 18, 1997.

Carol M. Browner,
Administrator.