

waste, or require you to meet additional conditions to claim a conditional exemption, for serious or repeated noncompliance with any requirement(s) of subpart N of this part.

§ 266.360 If you lose the transportation and disposal conditional exemption for a waste, can the exemption be reclaimed?

(a) You may reclaim the transportation and disposal exemption for a waste after you have received a return receipt confirming that we have received your notification of the loss of the exemption specified in § 266.355(a) and if:

(1) You again meet the conditions specified in § 266.315 for the waste; and
 (2) You send a notice, by certified delivery, to us that you are reclaiming the exemption for the waste. Your notice must be signed by your authorized representative certifying that the information provided is true, accurate, and complete. The notice must:

- (i) Explain the circumstances of each failure.
- (ii) Certify that each failure that caused you to lose the exemption for the waste has been corrected and that you again meet all conditions for the waste as of the date you specify.
- (iii) Describe plans you have implemented, listing the specific steps that you have taken, to ensure that conditions will be met in the future.
- (iv) Include any other information you want us to consider when we review your notice reclaiming the exemption.

(b) We may terminate a reclaimed conditional exemption if we find that your claim is inappropriate based on factors including, but not limited to: you have failed to correct the problem; you explained the circumstances of the failure unsatisfactorily; or you failed to implement a plan with steps to prevent another failure to meet the conditions of § 266.315. In reviewing a reclaimed conditional exemption under this section, we may add conditions to the

exemption to ensure that transportation and disposal activities will protect human health and the environment.

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 261 and 268

[FRL-6975-2]
RIN 2050-AE07

Hazardous Waste Identification Rule (HWIR): Revisions to the Mixture and Derived-From Rules

AGENCY: Environmental Protection Agency (EPA).
ACTION: Final rule.

SUMMARY: Today's action finalizes the retention of the mixture rule and the derived-from rule in the Resource Conservation and Recovery Act (RCRA), with two revisions. The mixture and derived-from rules ensure that hazardous wastes that are mixed with other wastes or that result from the treatment, storage or disposal of hazardous wastes do not escape regulation and thereby cause harm to human health and the environment.

EPA is finalizing two revisions to the mixture and derived-from rules. These revisions would narrow the scope of the mixture and derived-from rules, tailoring the rules to more specifically match the risks posed by particular wastes. The first revision is an expanded exclusion for mixtures and/or derivatives of wastes listed solely for the ignitability, corrosivity, and/or reactivity characteristics. The second revision is a new conditional exemption from the mixture and derived-from rules for "mixed wastes" (that is, wastes that are both hazardous and radioactive).

DATES: These final regulations are effective on August 14, 2001.

ADDRESSES: Supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The Docket Identification Number is F-2001-WHWF-FFFFF. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, it is recommended that the public make an appointment by calling 703 603-9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost \$0.15/page. The index and some supporting materials are available electronically. See the "Supplementary Information" section for information on accessing them.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at 800 424-9346 or TDD 800 553-7672 (hearing impaired). In the Washington, DC, metropolitan area, call 703 412-9810 or TDD 703 412-3323.

For more detailed information on specific aspects of this rulemaking, contact Tracy Atagi, Office of Solid Waste 5304W, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460-0002, 703-308-8672, atagi.tracy@epa.gov.

SUPPLEMENTARY INFORMATION: The index and many of the supporting materials are available on the Internet. You can find these materials at <<http://www.epa.gov/epaoswer/hazwaste/id/hwirwste/index.htm>>.

Affected Entities

Entities potentially affected by this action are generators of industrial hazardous waste, and entities that treat, store, transport and/or dispose of these wastes. This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action.

SIC code	NAICS code	List of potentially affected US Industrial Entities
Revision to 40 CFR 261.3 Definition of hazardous waste		
2800	32xxxx	Chemicals & allied products manufacturing.
2819	Five possible codes	Industrial inorganic chemicals manufacturing.
2821	325211	Plastics materials & resins manufacturing.
2833	325411	Medicinal chemicals & botanicals manufacturing.
2834	325412	Pharmaceutical preparations manufacturing.
2851	32551	Paints & allied manufacturing.
2869	Five possible codes	Industrial organic chemicals manufacturing.
2879	32532	Pesticides & agricultural chemicals manufacturing.
3089	Four possible codes	Plastics products manufacturing.
3241	32731	Hydraulic cement products manufacturing.
3479	Four possible codes	Fabricated metal coating & allied services
3711	Five possible codes	Motor vehicle & passenger car bodies manufacturing.
4212	562111 & 562112	Local trucking services (industrial waste shipment).
4953	Five possible codes	Refuse (industrial waste) treatment/disposal services.

SIC code	NAICS code	List of potentially affected US Industrial Entities
7389	36 possible codes	Business services.
7532	811121	Auto repair & auto paint shops.
9511	92411	Waste management.
9711	811121	National security (military bases).

Explanatory Notes:

- (1) SIC= 1987 Standard Industrial Classification system (US Department of Commerce's traditional code system last updated in 1987).
- (2) NAICS= 1997 North American Industrial Classification System (US Department of Commerce's new code system as of 1997).
- (3) Refer to the Internet website <http://www.census.gov/epcd/www/naicsdev.htm> for additional information and a cross-walk table for the SIC and NAICS codes systems.

This table lists those entities that EPA believes could be affected by this action, based on industrial sectors identified in the economic analysis in support of this final rule. A total of about 120 entities are expected to benefit from the proposed revisions to 40 CFR 261.3 in the 17 industrial sectors listed above,

but primarily in the chemicals and allied products sector (i.e., SIC code 28, or NAICS code 325). Other entities not listed in the table also could be affected. To determine whether your facility is regulated by this action, you should examine 40 CFR parts 260, 261 and 268 carefully in concert with the amended

rules found at the end of this **Federal Register** document. If you have questions regarding the applicability of this action to a particular entity, consult the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

ACRONYMS

Acronym	Definition
3MRA	Multimedia, Multipathway and Multireceptor Risk Assessment
APA	Administrative Procedures Act
BDAT	Best Demonstrated Available Technology
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CMA	Chemical Manufacturers Association
CWA	Clean Water Act
DOT	Department of Transportation
EPA	Environmental Protection Agency
HSWA	Hazardous and Solid Waste Amendments of 1984
HWIR	Hazardous Waste Identification Rule
ICR	Information Collection Request
IRIS	Integrated Risk Information System
LDR	Land Disposal Restriction
LLMW	Low Level Mixed Wastes
LLRWDF	Low Level Radioactive Waste Disposal Facility
MACT	Maximum Achievable Control Technology
NPDES	National Pollution Discharge Elimination System
NRC	Nuclear Regulatory Commission (NRC)
NTTAA	National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
ORD	Office of Research and Development
OIRM	Office of Information and Resources Management
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
PBMS	Performance Based Measurement System
QA/QC	Quality Assurance / Quality Control
RCRA	Resource Conservation Recovery Act
RFA	Regulatory Flexibility Act
RfD	Reference Dose
RfC	Reference Concentration
RIC	RCRA Docket Information Center
SBREFA	Small Business Regulatory Enforcement Fairness Act
TC	Toxicity Characteristic
TCLP	Toxicity Characteristic Leaching Procedure
TDD	Telecommunications Device for the Deaf
TSDF	Treatment, Storage, and Disposal Facility
UMRA	Unfunded Mandates Reform Act
UTS	Universal Treatment Standards

Outline

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 - Executive Order 13175: Consultation and Coordination with Indian Tribal Governments
 - Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks
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- XIII. What technical correction is EPA making in today's rulemaking?

Background

I. What Law Authorizes These Rules?

These rules are promulgated under the authority of Sections 2002(a), 3001, 3002, 3004, and 3006 of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), 42 U.S.C. 6912(a), 6921, 6922, 6924, 6926.

II. Which Hazardous Waste Identification Rules Is EPA Finalizing Today?

Today, EPA is finalizing retention and revision of the mixture and derived-from rules, previously set forth in 40 CFR 261.3(a)(2)(iii), 261.3(a)(2)(iv) and 261.3(c)(2)(i), and proposed at 64 FR 63382 (November 19, 1999). The mixture and derived-from rules are a part of the RCRA rules that define which wastes are considered to be hazardous and therefore subject to RCRA Subtitle C rules. The mixture and derived-from rules identify as hazardous those wastes that originate from RCRA hazardous waste listed under 40 CFR part 261 (referred to as "listed hazardous wastes"). Under the mixture rule, a mixture of a solid waste with one or more listed hazardous wastes is a hazardous waste. Under the derived-from rule, any solid waste generated from the treatment, storage, or disposal of a listed hazardous waste remains regulated as a hazardous waste. These derived-from wastes include wastes such as sludges, spill residues, ash, emission control dust, and leachate generated from listed hazardous wastes.

The mixture and derived-from rules that are being finalized today include two revisions to these rules. For the first revision, we have narrowed the applicability of the derived-from rules by excluding derivatives of wastes listed solely for the characteristics of ignitability, reactivity, and/or corrosivity when they no longer exhibit any characteristic of hazardous waste. Mixtures of wastes listed solely for the characteristic of ignitability, reactivity, and/or corrosivity which no longer exhibit any characteristic of hazardous waste continue to be excluded under today's rules. In summary, under today's final rules, all wastes listed solely for an ignitability, reactivity and/or corrosivity characteristic (including mixtures, derived-from and as generated wastes) are excluded once they no longer exhibit a characteristic.

For the second revision, we are also finalizing a conditional exemption for certain low-level mixed waste (i.e., waste that is both radioactive and

hazardous) from the mixture and derived-from rules, provided the mixed waste is handled in accordance with 40 CFR part 266, Subpart N. This Subpart, which is being published as a final rule elsewhere in today's **Federal Register**, explains the eligibility requirements for this exemption, and includes several conditions and requirements for the exempted waste.

III. What Is the Legal History of These Rules?

EPA promulgated the mixture and derived-from rules in 1980 as part of the comprehensive "cradle to grave" requirements for managing hazardous waste. 45 FR 33066 (May 19, 1980). Numerous industries that generate hazardous wastes challenged the 1980 mixture and derived-from rules. In December 1991, the D.C. Circuit Court of Appeals vacated the rules because they had been promulgated without adequate notice and opportunity to comment. *Shell Oil Co. v. EPA*, 950 F. 2d 741 (D.C. Cir. 1991). The court, however, suggested that EPA might want to consider reinstating the rules pending full notice and comment in order to ensure continued protection of human health and the environment.

In response to this decision, we promulgated an emergency rule reinstating the mixture and derived-from rules as interim final rules without providing notice and opportunity to comment. 57 FR 7628 (March 3, 1992). We also promulgated a "sunset provision" which provided that the mixture and derived-from rules would remain in effect only until April 28, 1993. Shortly after, we published a proposal containing several options for revising the mixture and derived-from rules. See 57 FR 21450 (May 20, 1992). The May 1992 proposal and the time pressure created by the "sunset provision" generated significant controversy. In response, Congress included in EPA's fiscal year (FY) 1993 appropriation several provisions addressing the mixture and derived-from rules. Public Law No. 102-389, 106 Stat. 1571. First, Congress nullified the sunset provision by providing that EPA could not promulgate any revisions to the rules before October 1, 1993, and by providing that the reinstated regulations could not be "terminated or withdrawn" until revisions took effect. However, to ensure that we could not postpone the issue of revisions indefinitely, Congress also established a deadline of October 1, 1994 for the promulgation of revisions to the mixture and derived-from rules. Congress made this deadline enforceable under RCRA's citizen suit provision, section 7002.

On October 30, 1992, we published two notices, one removing the sunset provision, and the other withdrawing the May 1992 proposal. (See 57 FR 49278, 49280). We had received many comments criticizing the May 1992 proposal. The criticisms were due, in a large part, to the very short schedule imposed on the regulation development process itself. Commenters also feared that the proposal would result in a "patchwork" of differing State programs because some states might not adopt the revisions. This fear was based on the belief that States would react in a negative manner to the proposal and refuse to incorporate it into their programs if finalized. Finally, many commenters also argued that the risk assessment used to support the proposed exemption levels failed to provide adequate protection of human health and the environment because it evaluated only the risks of human consumption of contaminated groundwater and ignored other pathways that could pose greater risks. Based on these concerns, and based on EPA's desire to work through the individual elements of the proposal more carefully, we withdrew the proposal.

Subsequently, a group of waste generating industries challenged the March 1992 action that reinstated the mixture and derived-from rules without change. *Mobil Oil Corp. v. EPA*, 35 F.3d 579 (D.C. Cir. 1994). The court rejected this challenge, holding that the fiscal year (FY) 1993 appropriations act made the challenge moot because it prevented both us and the courts from terminating or withdrawing the interim rules before we revised them, even if we failed to meet the statutory deadline for the revisions.

We did not meet Congress' October 1, 1994 deadline for revising the mixture and derived-from rules. In early October 1994, several groups of waste generating and waste managing industries filed citizen suits to enforce the October 1 deadline for revising the mixture and derived-from rules. Two of the cases were consolidated and a third was dismissed with the plaintiffs being added as intervenor to the consolidated cases. *Environmental Technology Council v. Browner*, C.A. No. 94-2119, 94-2436 (TFH) (D.D.C.). The U.S. District Court for the District of Columbia entered a consent decree resolving the consolidated cases. The consent decree, as subsequently amended, required the Administrator to sign a proposal to revise the mixture and derived-from rules by November 13, 1995 and a notice of final action on the proposal by February 13, 1997, and it

also specified that the deadlines in the 1992 appropriations act do not apply to any rule revising the separate regulations that establish jurisdiction over media contaminated with hazardous wastes. On November 13, 1995, the Administrator signed the proposed Hazardous Waste Identification Rule to revise the mixture and derived-from rules, which was published in the **Federal Register** on December 21, 1995. (60 FR 66344). It proposed a set of exemption levels for hundreds of hazardous constituents, many of which were based on a complex multipathway risk assessment. The notice also proposed to revise the derived-from rule to exclude wastes listed because they exhibited the characteristics of ignitability, corrosivity and/or reactivity from the definition of hazardous waste, and solicited comment on the concept of providing a separate exemption for hazardous wastes mixed with low level radioactive wastes.

We received extensive comments, many critical, on the 1995 proposal, particularly with respect to the scientific risk assessment supporting the proposed concentration-based exemption from the mixture and derived-from rules. As a result of the comments, we concluded that considerable work needed to be done to resolve the complex scientific and technical issues raised. On April 11, 1997, the District Court entered an order amending the consent decree in *Environmental Technology Council v. Browner*. The amended decree provided us with additional time to perform further scientific risk assessment work and required us to ask for comment on specific issues. On November 19, 1999, we published a proposal requesting comment on revisions to the mixture and derived-from rules, and discussed and requested comment on the issues specified in the consent decree. Today's final rulemaking completes our legal obligation regarding revisions to the mixture and derived-from rules.

IV. How Do the Final Rules Compare to Those Proposed on November 19, 1999?

As we proposed, we are retaining both the mixture and derived-from rules, and the revisions to those rules that we are finalizing today are for the most part the same as those we proposed in November 1999. Our rationale and basis for today's final rulemaking is set forth in Sections VII, VIII, and IX of this preamble.

The first revision amends the regulations under 40 CFR 261.3 for wastes listed in 40 CFR part 261, subpart D solely because they exhibit a characteristic of hazardous waste. Under current regulations, such listed wastes

as generated or treated are considered hazardous under RCRA Subtitle C, even when the waste does not exhibit a characteristic, unless they are delisted. However, mixtures are considered non-hazardous if the waste no longer exhibits any characteristic.

In the November 19, 1999 notice, we proposed to amend the scope of and expand the applicability of the current exclusion. The notice proposed a clarifying change to the scope of the exclusion to include those wastes listed in part 261, subpart D only for a characteristic of ignitability corrosivity, or reactivity. The notice also proposed to expand the applicability of the exclusion so all these materials would be excluded from hazardous waste regulation if they are decharacterized and meet the appropriate treatment standards. The notice stated that most of the currently regulated waste eligible for this exclusion is listed as F003, but would also include certain K-, P- and U-listed wastes (See 64 FR 63390-63391, November 19, 1999).

The exclusion applies when a generator determines that the waste, whether as generated or after treatment, does not exhibit any characteristic. This exclusion is self implementing, with no additional recordkeeping and reporting requirements.¹ EPA is finalizing this exclusion as it was proposed. With respect to the applicability of land disposal restrictions (LDR) in Part 268, EPA is clarifying that when a waste has been listed solely because it exhibits a characteristic of ignitability, corrosivity, and/or reactivity AND that waste does not exhibit any hazardous waste characteristic *at the point of generation*, then that waste is not subject to the LDR requirements. Wastes that are characteristic at the point of generation and then are subsequently decharacterized are still subject to LDR requirements. For information on the major public comments and EPA's responses and rationale for this exclusion, please see Section VIII of this preamble. For discussion of the LDR issue in particular, please see Section VIII.D.

The second revision to the mixture and derived-from rules involves mixed waste (i.e., wastes that are both hazardous and radioactive). Under this revision, mixed waste is conditionally exempt from the mixture and derived-from rules, provided the mixed waste is

¹ However, under 40 CFR 268.7(a)(7)(a) generator must still put a one-time notification in the facility files describing the waste generation, regulatory exclusion, and disposition of the waste(s). According to 40 CFR 268.7(a)(8), this notification must be kept for at least three years.

handled in accordance with 40 CFR part 266, Subpart N.

The regulatory language in 40 CFR part 266, Subpart N, which we are promulgating in a separate final rule published elsewhere today, conditionally exempts hazardous waste mixed with low-level radioactive wastes (low-level mixed wastes/LLMW) from the storage, treatment in tank, transportation, and disposal requirements of RCRA. In addition, hazardous waste mixed with Naturally Occurring and/or Accelerator-produced Radioactive Material (NARM mixed waste) can be exempted from transportation and disposal requirements. The Nuclear Regulatory Commission (NRC) or its Agreement State licensed LLMW generators can store, or treat LLMW in storage tanks without RCRA Subtitle C permits if all exemption conditions are met. Treated LLMW or NARM mixed waste could be disposed at a low level radioactive waste disposal facility (LLRWDF) regulated by the NRC or its Agreement State if all exemption conditions are met. The rationale for conditionally exempting LLMW from the mixture and derived-from rules is the same as that for creating the conditional exemption from the RCRA regulatory definition of hazardous waste for LLMW.

We are largely finalizing the mixed waste exemption from the mixture and derived-from rules as proposed. However, to address public comments on the need for more clarity of this exemption, we have revised the regulatory language and have moved it to its own subsection (40 CFR 261.3(h)). As used in section 261.3(h), the term "eligible radioactive mixed waste" refers to hazardous waste containing radioactive waste that meets the eligibility criteria and conditions of part 266, subpart N. In addition, we have made some changes to the new Subpart N from what we proposed. Those changes are explained in the mixed waste final rule, published elsewhere in the **Federal Register** today. For information on the public comment regarding the exemption, and EPA's responses please see Section IX of this preamble.

V. When Will the Final Rules Become Effective?

Today's rules become effective August 14, 2001. Pursuant to section 3010(b)(1) of RCRA, the Administrator finds that the regulated community does not need six months to come into compliance with today's rulemaking, because today's action retains rules already in effect, and expands an exclusion that reduces regulatory burden.

VI. What Other Changes to the Hazardous Waste Identification Rules Is EPA Continuing To Pursue?

EPA continues to pursue an exemption from hazardous waste management that we discussed in the November 19, 1999 HWIR **Federal Register** notice (64 FR 63382). That exemption, also known as the Hazardous Waste Identification Rule (HWIR) exemption, would exempt listed hazardous wastes that meet chemical-specific exemption levels² from the definition of hazardous waste. The HWIR exemption would help address concerns that the mixture and derived-from rules result in over-regulation, since listed hazardous waste remains under Subtitle C jurisdiction regardless of constituent concentration or presence in the waste, either before or after treatment. This concern was exacerbated with the passage of HSWA in 1984. HSWA set Land Disposal Restrictions (LDR) requiring best demonstrated available technology (BDAT) treatment for all listed hazardous wastes prior to disposal. In cases where a specific listed wastestream contained relatively innocuous constituents, or very low concentrations, BDAT treatment requirements were felt to be overly protective, and unnecessarily expensive. The Agency believes that an HWIR exemption process would help reduce the potential over-regulation of low risk hazardous waste while, at the same time, reducing the time and resource burden on industry and government. An exemption process would also reduce the burden on the ongoing delisting program. In the 1995 HWIR proposal, we estimated cost savings ranging from \$75 million to \$99 million, based on exemption levels proposed at that time. Given that the modeling for exemption levels is undergoing major revision, it is not possible at this time to estimate the cost savings from a future constituent-based exemption.

We plan to develop the HWIR exemption levels based on results from the Multi-media, Multi-pathway and Multi-receptor risk assessment (3MRA) Model. The model evaluates simultaneous chemical exposures across several environmental media and multiple exposure pathways to human and ecological receptors in order to estimate the health and ecological effects in the vicinity of waste disposal units that may receive exempt listed hazardous waste. We presented the

² An "exemption level" in this context is a specific chemical concentration. If all chemicals in a waste are below their exemption levels, then the waste would be considered non-hazardous.

underlying methodology and assumptions for the 3MRA Model in the **Federal Register** (64 FR 63382, November 19, 1999). However, because of technical difficulties arising from the complexity of the modeling effort, we were unable to propose exemption levels in that notice. Since then, we have made numerous revisions to correct and improve the model.

On July 18, 2000, EPA made available in a Notice of Data Availability (NODA) the model results for 36 chemicals, using an updated version of the model (65 FR 44491). The NODA, and referenced background information placed in the docket, explained technical changes made to the model since the November 19, 1999 **Federal Register** notice. Finally, the NODA extended the comment period for the November 19, 1999 HWIR exemption discussion until October 16, 2000.

We are currently reviewing the public comments and will decide if further revisions to the HWIR risk assessment (3MRA) model are necessary. We also are continuing independent testing and external peer review of the HWIR risk assessment model.

In addition to the HWIR risk assessment, the November 19, 1999 **Federal Register** notice discussed options for implementing the HWIR exemption. We also plan to review the comments relating to implementation. Before using the revised risk assessment to support a final rulemaking on the HWIR exemption, we will publish a proposal to allow public comment on a unified package.

In another effort to better calibrate risk and regulatory standards, the Agency is also developing two targeted exemptions from the hazardous waste mixture and derived-from rules: one for certain solvents destined for wastewater treatment and discharge under the Clean Water Act, and another for slagged combustion residues from hazardous waste combustors. Other targeted exemptions are being assessed for later development (see Section X of this preamble for further discussion). We also plan to continue on-going efforts to streamline the existing delisting process.

Major Comments

VII. What Were the Major Comments on Retaining the Mixture and Derived-From Rules, and How Has EPA Responded to Them?

EPA received several dozen comments on the issue of retaining the mixture and derived-rules for both the 1995 and 1999 HWIR proposals. Below is a summary of three major issue areas

raised in the comments, and EPA's responses. For more detailed comment responses, please see *Hazardous Waste Identification Rule: Revisions to the Mixture and Derived-From Rules Response to Comments Document*.

A. Need for the Mixture and Derived-From Rules

(1)(a) Summary of the Comments on the Need for the Mixture and Derived-From Rules

EPA received comments from 38 commenters in response to both the 1995 and the 1999 HWIR proposals specifically concerning the necessity of the mixture and derived-from rules. Of those comments, 14 were received from industry, seven were from industry associations, eight were from State Agencies, five were from waste management companies, two were from waste management associations, one was from a Federal Agency and one was from a consultant.

The States and waste management associations supported the retention of the mixture and derived-from rules, while the industry commenters generally believed that the mixture and derived-from rules were unnecessary. A summary of the specific issues raised by commenters is provided below.

Twelve commenters explicitly supported the retention of the mixture and derived-from rules. Many of the State commenters said that the rules were necessary to capture mixtures and derivatives of listed hazardous wastes in the universe of regulated hazardous wastes in order to protect human health and the environment. The commenters noted that without these rules, it would be possible to alter a particular waste to the point that it no longer meets the listing description without detoxifying, immobilizing, or otherwise actually treating the waste. One industry association commenter also supported the retention of the mixture and derived-from rules, noting that although it is not a perfect solution, the approach has been used for the last 15 years in a generally effective manner.

One waste management association commenter also strongly supported the retention of the mixture and derived-from rules. The commenter believed the mixture and derived-from rules were necessary because they prevented many wastes that clearly were hazardous and that posed substantial threats to human health and the environment from escaping RCRA controls only because they are mixtures or derivatives that no longer fit an original listing description. The commenter noted that generators send their listed hazardous wastes to

treatment facilities for initial treatment to reduce the toxicity and/or mobility of some, but not all, toxic constituents in the waste. The commenter also agreed that EPA's experience with delisting petitions further supported the rationale for the mixture and derived-from rules.

Twenty-six commenters did not support the retention of the mixture and derived-from rules. Some asserted that eliminating the derived-from rule would be a common sense reform of RCRA to reduce unnecessary over-regulation of many wastes. Many industry commenters and industry associations commented that the mixture and derived-from rules unnecessarily continue to regulate low-risk material resulting in significant waste management costs with no associated environmental benefit, thus also affecting the credibility of EPA. Several of the comments cited EPA's 1992 HWIR proposal, saying that "millions of tons of mixtures and derived-from residuals that must be managed as hazardous waste * * * may actually pose quite low hazards." (57 FR 21451, May 20, 1992). The Department of Defense acknowledged the need to retain the mixture and derived-from rules; however, the commenter noted that the mixture and derived-from rules have been a source of over-regulation for low-risk wastes.

Several commenters asserted that the mixture and derived-from rules have no continued viability, particularly in light of the technological advances that have developed since the rules were first promulgated in 1980. They noted that since 1980, the regulated community has made considerable improvements in the treatment, storage, and disposal of hazardous waste. In their view, the result is that the risks that formerly may have been associated with the management of hazardous waste have been reduced significantly or eliminated, such that the universe of waste that may have warranted Subtitle C regulation in 1980 has been reduced significantly. Six commenters agreed with the U.S. Court of Appeals observation in *Shell Oil Co. v. EPA*, 590 F.2d 741, 752 (D.C. Cir. 1991) that, "the derived-from rule becomes counterintuitive as applied to processes designed to render wastes nonhazardous. Rather than presuming that these processes will achieve their goals, the derived-from rule assumes their failure." Commenters also noted that the hazardous waste characteristics, particularly the Toxicity Characteristic, would continue to ensure proper management of high risk wastes under RCRA.

Several commenters stated that when compared to established standards, a waste material is either hazardous or it is not and it is not necessary to consider the origin of the material. The consultant noted that the mixture rule is completely unnecessary and isn't scientifically appropriate because if the compound or element in the waste needs to be controlled in a certain environment, it doesn't matter what the source is. Therefore, a regulation should set the limit for that environment for that compound or element and the mixture and derived-from rules should be eliminated. One commenter believed that the continued inflexible application of the mixture and derived-from rules has served only to bring to light the self-defeating complexity of the program.

(1)(b) EPA Response To Comments on the Need for the Mixture and Derived-From Rules

EPA acknowledges that the mixture and derived-from rules apply regardless of the concentrations and mobilities of hazardous constituents in the waste. We have implemented and will continue to pursue actions to reduce any overregulation of low-risk wastes arising from the mixture and derived-from rules. Nevertheless, EPA believes that retention of the mixture and derived-from rules are necessary to ensure protection of human health and the environment. When EPA determines that a waste should be listed as hazardous, we consider several different factors, including the toxicity of the chemicals in the waste, the persistence of those toxic chemicals, and the degree to which the chemicals bioaccumulate in the environment. As discussed below, the act of mixing a hazardous waste with another waste, or storing, treating, and disposing of that waste does not necessarily remove the hazard posed by these toxic chemicals. Under RCRA, EPA has an obligation to ensure that the risk posed by a hazardous waste is controlled from the cradle to the grave. Both the mixture and derived-from rules are needed to make sure that this obligation is carried out.

Concerns About Deliberate Evasion

When EPA originally promulgated the mixture and derived-from rules in 1980, one of our main concerns was that, without these rules, generators could deliberately evade regulation by taking advantage of a "loophole" in the hazardous waste identification process. (45 FR 33084, 33095 (May 19, 1980)). Specifically, we believed that without the mixture and derived-from rules, generators could potentially alter their waste so that it no longer meets the

listing description without detoxifying, immobilizing, or otherwise effectively treating the waste.

Despite the progress that has been made in environmental compliance in the past twenty years, this concern remains, and the comments of EPA's co-regulators, the State governments, echo this continuing concern. EPA agrees with those industry comments that claim many companies are more environmentally aware and responsible than they were in the past. However, there will always be some entities who might try and exploit gaps in the regulatory system. Absent the mixture and derived-from rules, there would be a potentially significant gap in the coverage of the hazardous waste listings.

For example, without a "mixture" rule, generators of hazardous wastes could potentially evade regulatory requirements by mixing listed hazardous wastes with other hazardous wastes or nonhazardous solid wastes to create a "new" waste that arguably no longer meets the listing description, but continues to pose a serious hazard. Similarly, without a "derived-from" rule, hazardous waste generators and hazardous waste treatment, storage, and disposal facilities (TSDFs) could potentially evade regulation by minimally processing or managing a hazardous waste and claiming that the resulting residue is no longer the listed waste, despite the continued hazards that could be posed by the residue even though it does not exhibit a characteristic. A hazardous waste regulatory system under which it could be argued that hazardous waste could leave the system as soon as it was modified to any degree by being mixed or marginally treated would be ineffective and unworkable. Such a system could act as a disincentive to adequately treat, store and dispose of listed hazardous waste.

In addition, as explained below, even if generators or TSDFs do not deliberately try to evade hazardous waste regulations, certain waste mixtures and derived-from wastes could pose substantial present or potential hazards if mismanaged. We, therefore, continue to believe that the mixture and derived-from rules are necessary to capture wastes that would pose unacceptable risks to human health and the environment.

Regulating Hazardous Waste Mixtures

Mixing hazardous waste with another waste may dilute, and sometimes mask, the concentrations of toxic constituents in the listed waste, but does not necessarily address the hazards posed by these constituents. Some of the

comments focused on diluted wastewaters as an example of mixtures that are potentially "low risk." Of the "millions of tons" of waste that EPA estimated would be exempted under the 1995 HWIR proposal because they may pose low risks, 99% of the waste by volume is wastewater (60 FR 66415, December 21, 1995). Wastewaters are generally disposed either in an underground injection control well regulated under the Safe Drinking Water Act (SDWA) or to the environment under the Clean Water Act (CWA). Because discharged hazardous wastewaters must meet CWA standards, some commenters believe that these wastewater mixtures should be excluded from hazardous waste regulation prior to their discharge.

We have several concerns with this argument. The management of wastewater mixtures is already largely exempt from most RCRA requirements. The two main requirements that remain under RCRA are that the wastewaters must be managed in tanks, and the treatment sludge must be managed as a hazardous waste once removed from the tank. Continued management of these wastewaters in tanks is usually needed to avoid infiltration to groundwater of concentrations of toxic constituents that pose unacceptable risks. Even when they meet their CWA discharge limits, mismanaged wastes could pose unacceptable risks through the groundwater pathway, which is not addressed by the CWA. Sludges from wastewater treatment need to be managed as hazardous waste, because they can contain the same persistent and toxic chemicals (e.g., heavy metals) that originated in the wastewaters. Each of these points is discussed in more detail below.

RCRA section 1004(27) already excludes industrial wastewater discharges subject to CWA section 402 regulation from the definition of "solid waste" under RCRA. See also, 40 CFR 261.4(a)(2). In addition, wastewater treatment units, as defined in 40 CFR 260.10 (i.e., tanks), are excluded from almost all RCRA regulation (see 40 CFR 264.1(g)(6); 265.1(c)(10); and 270.1(c)(2)(v)). RCRA has historically deferred to the Clean Water Act and its oversight in properly regulating hazardous wastewaters discharged by CWA wastewater treatment systems or other point sources subject to CWA discharge requirements, including storage in wastewater treatment units prior to discharge. However, with the exception of sewage sludge, the CWA does not apply to sludges which are a byproduct of wastewater treatment. To the extent treatment of listed hazardous wastewaters generates sludges, those

sludges are considered hazardous by the derived-from rule (as discussed below).

Furthermore, to the extent that additional hazards may be associated with wastewaters managed in such systems (including risks via inhalation pathway and risks via groundwater ingestion when treatment takes place in surface impoundments),³ the Agency considers such wastes as hazardous and within RCRA jurisdiction until discharged. While wastewaters must meet CWA requirements at the point of discharge, they can still have high concentrations of constituents during the management of the waste.

Even after hazardous wastewaters have been treated to meet CWA standards, they could still have the potential to pose unacceptable risks to human health and the environment when managed in surface impoundments or other retention ponds (or otherwise managed on the land, i.e., during a spill) prior to discharge to the receiving water body. Both surface impoundments and retention ponds can have high potential for discharge of the wastewaters they contain to underlying groundwater (see RCRA sections 1002(b)(7) and 3005(j)). Discharge treatment requirements based on State water quality standards are calculated by taking the nature of the effluent and the receiving water body into account. An effluent treated to meet water quality standards for a surface water body could leach into groundwater, depending on the hydrogeology of the site, if subsequently held in a surface impoundment or retention pond prior to discharge. This leachate could undergo a lesser degree of dilution in groundwater than in the intended surface water body, potentially posing unacceptable risks to groundwater users through a drinking water well. This risk is not accounted for under the current federal CWA standards.⁴ Therefore, EPA continues to believe that retaining

³ The Revised Air Characteristic Study (EPA 530-R-99-019a) published August 1999 suggests that potential risks emanating from wastewaters managed in wastewater treatment tanks may be of regulatory concern and may represent a regulatory gap because of the existing exclusions for wastewater treatment units from control requirements.

⁴ The current federal National Pollution Discharge Elimination System (NPDES) program under the CWA does not require permitting authorities to issue permits for discharges of wastewater to groundwater (See 40 CFR 122.1 and 122.2). The exception is those instances in which a discharge to surface water may occur via a hydrologic connection between a groundwater and surface water. In addition, some states have chosen to exceed federal program requirements and do issue such permits. See also U.S. EPA NPDES, Permit Writers' Manual, United States Environmental Protection Agency, Office of Water, December 1996. EPA-833-B-96-003.

jurisdiction over hazardous wastewaters under RCRA prior to their NPDES-permitted discharge is necessary to ensure protection of human health and the environment.

Another reason why these wastewaters should not be categorically designated as non-hazardous prior to discharge is because that would effectively exclude their treatment sludges as well (by avoiding the application of the derived-from rule).⁵ As explained below in more detail, treatment sludges from these dilute wastes cannot be assumed to be low risk. In fact, treatment sludges can contain high levels of the very chemicals (e.g., heavy metals) that caused the original waste to be listed. In these cases, the hazard that was identified as the original basis of listing has not been removed; it has merely been transferred to another type of waste matrix (i.e., from a water to a solid).

In sum, EPA has excluded (through the wastewater treatment unit exclusions) hazardous wastewaters from regulation where we believe there is a reasonable basis to do so, grounded in the protection of human health and the environment, and the statute excludes from RCRA jurisdiction industrial wastewater discharges subject to CWA discharge permits. But based on the available data, EPA believes that a blanket wastewater exclusion from regulation is not warranted. Instead, EPA will continue to develop approaches (e.g., targeted exemptions and HWIR exemption levels) to address wastewaters that are be considered low risk.

Regulating Derived-From Wastes

As explained in 40 CFR 261.3(c)(2)(i), any solid waste derived from the treatment, storage, or disposal of a hazardous waste is also considered a hazardous waste. Specific examples of these derived-from wastes include sludges, spill residues, ash, emission control dust, and leachate. For derived-from wastes that change location but are otherwise unmodified, the question of their continued regulation is more straightforward. Because such waste would have the same levels of toxic constituents and presumably the same potential exposure patterns as the waste that was evaluated for the original hazardous listing determination, it

would pose the same unacceptable risk as the original waste.

Other types of derived-from wastes may have a different physical form than the original waste, but still present the same chemical hazard. Leachate derived from the disposal of hazardous waste, for example, can contain the same chemicals as found in the original waste. When EPA analyzed leachate for purposes of promulgating effluent guidelines for landfill leachate (65 FR 3007, January 19, 2000), we found that wastewater generated as a result of a particular industrial operation can have a similar pollutant profile to leachate generated by a landfill receiving the bulk of their waste from that same operation (65 FR 3008, 3012, January 19, 2000). During treatment, chemicals in hazardous wastewater are transferred to the sludge, which is disposed of in the captive landfill. Once the sludge is disposed in a landfill, persistent chemicals in this sludge can then transfer to the leachate, which, when managed in a wastewater treatment unit, transfers them once more to sludge. Although changed in form, the treatment sludge (and leachate) could still pose similar unacceptable risks as the originally listed waste, depending on actual concentrations and exposure patterns.

We also found considerable differences between the leachate samples from hazardous and those from non-hazardous waste landfills in both numbers of constituents of concern and their concentrations. Hazardous waste landfill leachate contained a greater number of constituents than non-hazardous waste landfill leachate, and constituents found in both hazardous and non-hazardous waste landfill leachate were generally present in hazardous waste landfill leachate at concentrations an order of magnitude higher than those found in non-hazardous waste landfill leachate.⁶ Absent a risk assessment, it is not possible to determine whether the levels of these constituents pose unacceptable risk. However, the presence of such constituents creates a continuing concern regarding leachate derived from hazardous waste.

The other broad category of derived-from waste are treatment residues. At least six commenters cited the D.C. Circuit Court of Appeals observation in *Shell Oil Co. v. EPA*, 590 F.2d at 752 that "the derived-from rule becomes counterintuitive as applied to processes

designed to render wastes nonhazardous." However, the presumption that treatment always renders hazardous waste nonhazardous is overly simplistic. This presumption does not take into account all products of treatment. Even treatment that operates properly is often designed to isolate a hazardous residual. For example, wastewater treatment designed to produce a sufficiently clean effluent for discharge is also designed to move the hazardous constituents from the wastewater into the sludge. The resulting de-watered sludge, while much lower in volume than the original hazardous wastewater, has the potential to have much greater concentrations of hazardous chemicals. As explained above, once the sludge is disposed in a landfill, persistent chemicals in this sludge can then transfer to the leachate, which, when managed in a wastewater treatment unit, transfers them once more to sludge.

The derived-from rule thus ensures that the chemicals in the originally listed waste that are transferred to another matrix when the waste is managed remain under RCRA Subtitle C control. Without the derived-from rule, a hazardous wastewater could be treated so that hazardous constituents are moved to the sludge. If the generator could claim that the resulting sludge, regardless of chemical concentration, no longer meets the listing description, then that sludge could be handled as non-hazardous waste, and placed in an unlined industrial landfill, or sent to a land application unit.⁷ The resulting leachate would not necessarily be collected. Instead, those chemicals that first caused the waste to be listed could potentially now enter the environment and, depending on the actual chemical concentrations and exposure patterns, could pose unacceptable risks.

Other types of treatment, which result in combining wastes with different chemical concentrations, can result in dilution of those chemicals, but may not adequately address the hazard they could pose. As mentioned earlier in the discussion on regulating mixtures, combining wastewaters for centralized treatment is often a legitimate treatment practice, but the diluting effect of such treatment does not address the transfer of persistent chemicals to the sludge.

Finally, treatment that reduces the amount of organic chemicals in a waste does not typically address the risk from

⁵ These wastes would still be subject to the hazardous waste characteristics of 40 CFR Part 261, Subpart C, but, as explained later in this preamble section, such coverage would not address all the unacceptable risks potentially posed by the chemicals in these wastes.

⁶ Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category, EPA-821-R-99-019, U.S. EPA, January 2000.

⁷ These wastes would still be subject to the hazardous waste characteristics of 40 CFR Part 261, Subpart C, but, as explained later in this preamble section, such coverage would not address all the unacceptable risks potentially posed by the chemicals in these wastes.

metals in the waste. For example, biological treatment and incineration, which are among the most aggressive forms of treatment, are designed to reduce or destroy organic chemicals. However, these types of treatment do not address heavy metals and may form chemical by-products (e.g., dioxins) that could pose unacceptable risks, if not managed properly. For example, baghouses on combustion devices serve to collect hazardous constituents that would otherwise be emitted to the air from the combustion process, and the dust that is removed from the baghouses predictably contains metals that were in the original waste. In response to industry comments, EPA will explore specific approaches for dealing with biological treatment residues and has already begun considering an alternative approach to address combustion residues (See Sections X.C. and X.D. of this preamble.) EPA will also continue to develop approaches (e.g., targeted exemptions and HWIR exemption levels) to exempt other waste streams that are currently captured by the derived-from rules but pose low risks.

Historic Information on Mixture and Derived-From Wastes

As we discussed in the 1999 proposal, EPA's experience with the delisting program further supports retaining the mixture and derived-from rules as a necessary part of hazardous waste identification. Generators can petition EPA under 40 CFR 260.22 to exclude a waste produced at a particular facility from the definition of hazardous waste. Such petitions must demonstrate that the waste does not meet any of the criteria for which it was listed nor has other attributes that might result in the waste being hazardous.

Over the 20-year period from 1980 through 1999, EPA reviewed over 900 petitions to delist wastes, and granted delistings to 136 waste streams generated at 115 separate facilities. Most of the petitions (i.e., more than 600) were withdrawn or mooted before the review was complete; 108 were denied. Most of these denials were based on lack of information. In at least 13 of the 36 cases where enough information is available in the source documentation to determine whether a waste was a mixture or derivative, we denied delisting petitions for mixtures or residuals of listed waste because risk analyses indicated that the toxicity and leaching potential of hazardous chemicals in those wastes posed unacceptable risk to human health. These mixture and derived-from wastes had potentially hazardous levels of a wide range of chemicals including

barium, cadmium, chromium, lead, mercury, nickel, benzene, benzo(a)pyrene, cyanide, chloroform, 1,1-dichloroethane, 1,1-dichloroethylene, 2,4-dinitrotoluene, methylene chloride, trichloroethylene, and vinyl chloride.⁸

We have also identified possible damage cases associated with mixture and derived-from wastes. For example, there are Superfund sites that contain mixture and derived-from wastes (See 50 FR 658). We have identified at least twenty sites that may have involved the mismanagement of mixture and derived-from wastes.⁹ The sites identified include cases of extensive contamination of soils and groundwater with metals (e.g., arsenic, lead, mercury), cyanide, and organics (e.g., benzene, toluene, and xylenes). It is very difficult to identify the full range of damage cases that specifically involve waste mixtures or derivatives since neither EPA nor other parties track or categorize waste based on its status under the mixture or derived from rules.

The legislative history of RCRA also provides examples of damage cases caused from disposal of mixture and derived-from hazardous wastes. In introducing the purpose of Subtitle C, the House Committee on Interstate and Foreign Commerce cited seven pages of damage cases, stating, "The most effective way of illustrating the dangers of improper hazardous waste disposal is perhaps to cite actual instances of damage caused by current hazardous waste disposal practices. The following section is merely illustrative of the problem. Far more cases could be cited, even more have gone unreported." H.R. Rep. No. 94-1491 (94th Cong. 2d Sess. 1976) 17-23. Of the 59 instances described in the House Committee Report, at least 40 involved spills, leachate or runoff from landfills, lagoons or waste storage facilities. Leachate and run-off are derived-from wastes, as are spills from storage and disposal facilities, and some of the sources contained mixtures of hazardous and non-hazardous solid wastes.

Intrinsic Chemical Properties of RCRA Hazardous Waste "Mixtures" and "Derived-From" Wastes

We also analyzed the information in EPA's National Hazardous Waste

⁸ U.S. EPA *Evaluation of Hazardous Waste Delisting Program*, December 2000; and *Analysis of the Delisting Petition Data Management System*, U.S. EPA, September 1998). EPA Docket 99-WH2P-FFFFF.

⁹ EPA 2000. *Releases of Hazardous Constituents Associated with Mixture and Derived-from Wastes (An Update)* U.S. EPA, April 2000.

Constituent Survey (NHWCS) Database to assess the intrinsic physical and chemical properties of RCRA hazardous waste "mixtures" and "derived-from" wastes. The purpose of the NHWC Survey was to collect descriptive information about the identity and measured concentrations of chemical constituents contained in RCRA hazardous wastes. The NHWCS was a one-time, voluntary participation mail survey we administered in 1996, providing a single-year "snapshot" of the intrinsic physical and chemical properties of RCRA hazardous wastes. It is EPA's most comprehensive and current database about hazardous waste constituents. We benchmarked the 1996 survey to data already collected in our 1993 Biennial Reporting System (BRS) database—which contains data provided by the 1993 universe of RCRA hazardous waste large quantity generators—by pre-loading survey questionnaires with the known 1993 BRS data for the NHWC survey facilities, and asking facilities to verify the known BRS data, as well as to provide new data about the known chemical constituents in the RCRA hazardous wastes they managed (constituent data are not contained in the BRS database). This analysis is presented as a technical supplement to this rulemaking for purpose of public understanding of the intrinsic nature of these two groups of wastes, which we currently regulate as RCRA hazardous. This supplemental analysis corroborates the substance of our proposed rule (64 FR 63382-63461, Nov. 19, 1999).

Although the survey results apply to a subset of the total universe of waste and should not be extrapolated to the larger universe of RCRA hazardous waste generators, the information provides valuable insight into the types and levels of chemicals that could be present in such wastes. A large number of waste streams captured in the NHWCS were identified by their generators as mixtures of solid waste and hazardous waste or derived-from hazardous wastes. The analysis revealed that potentially hazardous chemical constituents, have been and can be present in wastes mixed with or derived-from, RCRA hazardous wastes. Although this analysis is not a quantitative risk assessment, this conclusion is supported by the presence of persistent, bioaccumulative, and toxic (PBT) chemicals in these two waste groups, some of which are at relatively high concentrations. Consequently, we continue to be concerned about the potential risks posed by the mismanagement of RCRA hazardous

waste "mixtures" and "derived-from" wastes.

For more information about this analysis, please see the background document *Analysis of RCRA "Mixtures and Derived-from" Hazardous Waste Constituent Data*, which is available to the public from the RCRA Docket. The NHWCS database is available to the public via the Internet at <http://www.epa.gov/epaoswer/hazwaste/id/hwirwste/economic.htm>.

Regulatory Coverage by the Toxicity Characteristic

EPA also does not agree with comments that the mixture and derived-from rules are not necessary because the Toxicity Characteristic (TC) provides regulatory coverage of these wastes. The TC currently sets regulatory levels for only 40 chemicals. (see 40 CFR 261.24). On the other hand, the hazardous waste listings are based on hundreds of different chemicals. (see Appendix VII to 40 CFR Part 261). In addition, the TC levels are the result of laboratory analyses to predict whether a waste is likely to leach chemicals into groundwater at hazardous levels, not the result of a comprehensive risk assessment. Depending on the actual constituents in a waste and their concentrations, wastes with constituents that fall below TC levels can still pose unacceptable risks to human health and the environment if mismanaged. (55 FR 11799). EPA has listed wastes based on the presence of constituents below the TC levels. For example, in the final listing decision for spent hydrotreating and hydrorefining catalysts from refinery operations, we analyzed the potential risk from arsenic and benzene using input leachate concentrations capped at TC regulatory levels. The results of this analysis suggested unacceptable risks posed by these wastestreams from concentrations below the TC regulatory levels (63 FR 42154). The mixture and derived-from rules are necessary for capturing such wastes that could pose unacceptable risks from chemicals without TC levels and for risks not addressed by the TC approach.

Conclusion

When EPA determines that a waste is capable of posing a hazard to human health or the environment when improperly managed, that determination is based on consideration of several different factors, including the toxicity, persistence, degradability in nature, the potential of chemicals to bioaccumulate in tissue, flammability, corrosiveness, and other hazardous characteristics and related factors. The act of mixing, storing, disposing or even treating the

waste does not guarantee removal of the hazard posed by these chemicals, nor does it remove EPA's obligation to ensure that the hazards presented by the waste continue to be controlled from the cradle to the grave, even when it is transferred to another waste matrix. Nevertheless, EPA will continue to develop approaches to exempt low-risk wastes from full Subtitle C regulation, as appropriate. Since the original promulgation of the mixture and derived-from rules, we have invited suggestions as to better ways of handling the difficult issues associated with the mixing, treating, storing, disposing, and otherwise managing waste following its generation. See 45 FR 33095 (May, 19, 1980). We have considered and are continuing to pursue suggestions for targeted exemptions (e.g., the CMA suggestions discussed at Section X of the preamble) as well as a risk-based exit level approach to identifying low-risk wastes.

B. Legality of the Mixture and Derived-From Rules

EPA received comments in response to both the 1995 and 1999 HWIR proposals on RCRA Subtitle C jurisdiction over mixtures and derivatives from the management of listed hazardous wastes. Of the 42 commenters who specifically commented on the statutory authority for these rules, 38 were received from industry (including utilities and trade associations), two were from waste management companies, one was from a waste management association and one was from an individual commenter. Almost all these comments expressed the view that EPA lacked statutory authority to promulgate these rules, although other commenters who generally supported retention of the mixture and derived-from rules expressed the view that these wastes are properly under RCRA Subtitle C jurisdiction.

The waste management association agreed that EPA had statutory authority under RCRA to promulgate the mixture and derived-from rules in 1980, and that EPA also had ample authority to retain the basic rules now without change. The commenter, citing *Shell Oil Corp. v. EPA*, believed that the rules were consistent with EPA's legal authority under RCRA section 3001 to determine when wastes are hazardous based on listing criteria, and under RCRA sections 3002-3004 to impose regulatory standards until wastes have ceased to pose a hazard to the public.

As noted, most commenters expressed the view that EPA is acting beyond its statutory authority by retaining the

mixture and derived-from rules. These comments asserted three main points: (1) Mixture and derived-from wastes do not meet the statutory definition of hazardous under RCRA section 1004(5); (2) EPA has not met the requirements under section 3001, 42 U.S.C. Section 6921 and 40 CFR 261.10 and 261.11 for designating wastes as hazardous; and (3) EPA has no authority under sections 3002-3004 of RCRA to designate wastes as hazardous. A summary of each of these specific issues raised by commenters, and EPA's response to these issues, is provided below. For more information on these comments and EPA's responses, please see *Hazardous Waste Identification Rule: Revisions to the Mixture and Derived-From Rules Response to Comments Document*.

(1)(a) Comment: Mixture and Derived-From Wastes Do Not Meet the Statutory Definition of Hazardous Under RCRA Section 1004(5)

Numerous commenters from industries, industry associations, utility companies, utility company associations and waste management companies generally believed that the mixture and derived-from rules were too broad and swept in many wastes which did not meet the statutory definition of hazardous wastes, and that the derived-from rule in particular was not supported by statutory authority. One commenter even felt that the derived-from rule was a "legal fiction" because treatment residuals must be managed as if the treatment had not occurred. Commenters noted that EPA only was authorized under the Resource Conservation and Recovery Act (RCRA) to designate as hazardous waste those solid wastes that EPA determined may (1) cause, or significantly contribute to an increase in mortality or serious illness, or (2) pose a substantial present or potential hazard to human health or the environment when improperly managed (RCRA section 1004(5), 42 U.S.C. 6903(5)). Commenters expressed the view that EPA can regulate under Subtitle C only those solid wastes that EPA determined pose substantial hazards per the language in Section 1004(5) of RCRA. Many commenters also noted that, in their view, many of these wastes pose minimal or no threat to the environment and public health. The majority of these commenters believed that EPA made no attempt to demonstrate that derived-from wastes met the statutory definition of hazardous waste. Instead, these commenters believed EPA simply drew conclusions that these materials were

hazardous waste, even though many derived-from wastes had not met the statutory definition of hazardous waste. They also noted that EPA has admitted that many derived-from wastes pose little risk to human health or the environment. Therefore, they claim that the derived-from rule was not a legally valid approach to regulating materials that result from the management of hazardous waste.

(1)(b) EPA Response

While we agree that the mixture and derived-from rules capture some waste that may actually pose quite low hazard, we have implemented and continue to pursue approaches (such as today's revisions) to exclude such waste from full Subtitle C regulation. Nevertheless, these rules are a necessary component of cradle-to-grave waste management, to protect human health and the environment from unacceptable risks. EPA does not agree with comments that mixtures and derivatives do not meet the definition of "hazardous waste" in section 1004(5) of RCRA, nor do we agree that Congress did not intend these wastes to be regulated under Subtitle C of RCRA.

The definition of hazardous waste is a broad definition which encompasses solid wastes or combinations of solid wastes which, because of their "quantity, concentration, or physical, chemical, or infectious characteristics may * * * pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed." Because they originate from waste that has already been determined to be hazardous, EPA has a reasonable basis to conclude that mixtures and derivatives could also pose a potential or present hazard to human health or the environment if not properly managed. The original listing of the waste already establishes the reasons, i.e., the "quantity, concentration, or physical, chemical, or infectious characteristics" for having identified the listed waste as hazardous. It is reasonable to conclude, without information to the contrary, that both mixtures and derivatives of such wastes may pose a substantial potential or present hazard to human health or the environment if not properly managed, and therefore fall under the definition of hazardous waste in RCRA section 1004(5).

Nothing in the section 1004(5) definition of hazardous waste requires EPA to prove that every member of a category of waste poses a hazard. In fact, many waste listings describe categories or "classes" of hazardous wastes

because they cover a range of materials that are not identical in composition.

EPA also does not agree with commenters' assertion that wastes derived from the treatment, storage, or disposal of listed hazardous wastes in particular do not meet the section 1004(5) definition. As explained in section VII.A.2, residuals from the treatment of hazardous wastes can contain higher concentrations of the chemicals that led to the hazardous waste listing in the first place, and therefore may pose a present or potential hazard to human health or the environment if improperly managed. Indeed, the objective of many forms of treatment is precisely to isolate and collect hazardous constituents, often in concentrated form, for further management. For example, de-watering of waste, e.g., to make it easier to transport, is a form of treatment that often does not significantly change the character of the waste other than to leave it in a more compact and concentrated form. At the more aggressive end of the treatment spectrum, baghouses on hazardous waste combustion devices collect hazardous constituents that would otherwise be emitted to the air from the combustion process, creating dust that predictably contains any metals that were in the original wastes as well as products of incomplete combustion. Congress specifically expressed concern in RCRA about treatment residues created by federal and state pollution control laws, RCRA 1002(b)(3). The potential for persistent hazardous constituents in treatment residues and the Congressional findings in the RCRA statute support EPA's conclusion that residuals from the treatment, storage and disposal of listed hazardous waste may pose a substantial present or potential hazard.

EPA acknowledges that not all mixtures and derivatives pose hazards to human health and the environment (see, e.g. 57 FR 21451). There are mechanisms to address this fact, and we are continuing to pursue approaches to exempt low-risk wastes. First, RCRA and EPA regulations provide for the delisting of listed hazardous waste. RCRA 3001(f); 40 CFR 261.20 and 40 CFR 261.22. Since the federal delisting program took effect in 1980, EPA has excluded an estimated 45 million tons of waste, resulting in an estimated cumulative cost savings between \$1.1 billion and \$1.3 billion dollars (in 1999 dollars). In 2000 alone, we estimate cost savings of approximately \$105.4

million.¹⁰ In the 1995 HWIR proposal, EPA stressed the continued need for the delisting program, although we also acknowledged that it had not provided an efficient solution to the regulation of low-risk wastes. However, as discussed in Section VIII.C of this preamble, since the delisting program was delegated to the EPA Regions on October 10, 1995, a number of innovations have been adopted that have greatly improved the efficiency and effectiveness of the delisting program. EPA will continue these efforts and others in order to keep improving the delisting process.

In addition, as EPA has identified specific mixtures and derived-from wastes which no longer meet the definition of hazardous waste, and has therefore established a number of exclusions in 40 CFR 261.3. Currently, there are over a dozen types of hazardous waste mixtures and residuals excluded or conditionally exempted under section 261.3. See the "Table of Revisions to 40 CFR 261.3" in Section VII.C.2 of this notice for a list of these exclusions. This is in addition to other exclusions and conditional exclusions set forth in 40 CFR 261.4 as well in other parts of the hazardous waste regulations.

Furthermore, as discussed in Section VI of this notice, EPA is continuing work to develop exit levels for listed hazardous wastes, so that listed wastes can become "delisted" automatically, under a self-implementing procedure. But, as also explained in Section VI of this notice, that is a complex undertaking and, despite best efforts, EPA is not able at this time to propose a technically supported concentration-based exemption.¹¹ Also, as explained in Section X of this preamble, we are also investigating and will actively pursue other specific exemption proposals.

EPA continues to believe, as it did in 1980, that it would be virtually impossible to try to identify all possible waste mixtures and treated wastes and assess their hazards individually. EPA's rule reasonably retains jurisdiction over both broad classes and places the burden of proof on the regulated community to show that a particular waste has ceased to present a hazard.

Even if all listed hazardous waste mixtures and derivatives could not be

¹⁰ U.S. EPA *Evaluation of Hazardous Waste Delisting Program*, December 2000.

¹¹ Congressional report language accompanying EPA's FY 2001 appropriations act directs EPA to submit the HWIR model to an independent peer review, and respond publicly to the findings of the peer review prior to using it to establish regulatory determinations. S. Rep. No. 106-410 at 90 (2000). EPA is currently in the process of preparing for that peer review.

said to meet the statutory hazardous waste definition, at the very least it is reasonable and consistent with RCRA to presume that mixtures and derivatives of listed hazardous wastes remain hazardous under the definition, unless that presumption is rebutted through the delisting process. As discussed further in the next section, Congress established clear standards for hazardous waste identification, but did not speak specifically to the issue of the circumstances under which mixtures and derivatives of listed hazardous wastes should be regulated. Under these circumstances, EPA must interpret and implement the statute in a way that effectuates the statutory objectives. The mixture and derived-from rules are the only implementation approach that EPA is aware of at this time that effectuates the protective purposes of RCRA.

(2)(a) Comment: EPA Has Not Met the Requirements Under Section 3001, 42 U.S.C. 6921 and 40 CFR 261.10 and 261.11 for Designating Wastes as Hazardous

These commenters also disagreed with EPA's claim of authority under section 3001 (60 FR at 66348, 64 FR 63390). The commenters believed that EPA had not followed the required procedures or made the findings required by RCRA to identify "mixture and derived-from wastes" as hazardous. They noted that sections 3001(a) and (b) outline a two-step process for classifying wastes as hazardous. EPA first must specify criteria to determine if the waste is "hazardous," 42 U.S.C. 6921(a), which is defined as presenting a substantial present or potential hazard to human health or the environment 42 U.S.C. 6904(5). Once the criteria are established—as they have been in 40 CFR 261.10 and 261.11—the commenters stated that EPA must apply these criteria to identify a characteristic of hazardous waste or to list a waste as hazardous. In these commenters' view, the mixture and derived-from rules identify a broad class of wastes as hazardous without regard to the criteria established by EPA. Also, they noted that the proposal did not discuss how mixtures and derived-from wastes pose a substantial present or potential threat to human health or the environment, nor did EPA discuss concentration levels, mobility, persistence, or any other objective factors of hazardousness that are listed in the statute or the regulations.

In addition, numerous commenters from industries, industry associations, utility companies and utility company associations disagreed with EPA identifying mixture and derived-from

wastes as a "class" under 40 CFR 261.11 (60 FR at 66348, 64 FR at 66390). They believed that such identification required a finding that EPA had reason to believe that individual wastes within the class "typically or frequently are hazardous" under the definition at RCRA section 1004(5) (see 40 CFR 261.11(b)). Commenters noted that EPA's own longstanding practice was that, in a class-wide listing determination, "typically or frequently" meant that more than 50 percent of the samples taken from that class exhibited some or all of the 40 CFR 261.11(a) criteria (see, e.g., 56 FR 48020, Sept. 23, 1991 and 45 FR 33114, May 19, 1980). The commenters stated that EPA historically has required that samples of a waste class contain concentrations of toxic constituents at 100–1000 times specified health-based numbers to be considered as posing a "substantial hazard" under 40 CFR 261.11(a)(3) (see, e.g., 56 FR 48018, Sept. 23, 1991 and 57 FR 21453, May 20, 1992). They noted that EPA generally requires that wastes typically and frequently contain toxic constituents at "many times" health-based levels and that such constituents be mobile and persistent. The current proposal made no reference to these prior practices, nor did it offer evidence that EPA collected or analyzed any samples or otherwise attempted to demonstrate that 50 percent—or any substantial percentage—of mixtures or treatment residues met any of the specific criteria of § 261.11(a). Also, they commented that the proposal offered nothing responsive to the 100–1000 times health-based numbers requirement. In addition, they noted that the class must have "sufficient uniformity" to apply the criteria in 40 CFR 261.11 (45 FR 33114). The commenters felt that it was obvious that the class of mixture and derived-from wastes was anything but uniform, a point admitted by EPA (45 FR 33095–96, "the potential combinations of listed wastes and other wastes are infinite"). Therefore, the class did not have the requisite uniformity needed to be classified as hazardous.

(2)(b) EPA Response

EPA does not agree with comments that the Agency lacks statutory authority under RCRA Section 3001 for either the mixture rule or the derived-from rule. We have the statutory authority to promulgate these rules as part of the authority to "develop and promulgate criteria for identifying the characteristics of hazardous waste and for listing hazardous waste." Among the criteria are the provisions of 40 CFR 261.3, which provide generally

applicable criteria for the identification of hazardous waste. The mixture and derived-from rules are included in section 261.3(a)(2), which states that a solid waste is a hazardous waste if "[i]t meets any of the following criteria." These rules ensure that listed hazardous wastes that are mixed with other wastes or treated in some fashion do not escape regulation as hazardous waste until EPA has made some determination that they no longer threaten human health or the environment. This section also includes the exclusions from the definition of hazardous waste, including those promulgated today, where EPA has made specific findings on the record that the excluded wastes are no longer hazardous under the criteria set forth in the exclusions. We will continue to pursue additional approaches to exempt low-risk wastes, as appropriate.

The commenters' position rests largely on the assumption that mixtures and derivatives of wastes are entirely new and distinct substances from the originally listed waste, leading to the apparent conclusion that EPA must make a separate, record-based finding of hazardousness for each of the infinite variations of mixtures and derivatives generated from the wastes EPA has listed. EPA disagrees. In upholding the "contained-in policy," the U.S. Court of Appeals for the D.C. Circuit deferred to EPA's conclusion that a listed hazardous waste cannot be presumed to change character when it is mixed with an environmental medium. *Chemical Waste Management v. EPA*, 869 F.2d 1526, 1539 (1989). We believe that the same reasoning applies to the mixture rule. Similarly, as discussed in Section VII.A.2, waste management residuals can contain constituents from the originally listed waste at even higher concentrations than the original waste and, therefore, may pose a hazard. Indeed, EPA views the mixture and derived-from rules as applications of the general principle that "a hazardous waste will remain a hazardous waste" unless it is excluded through a regulatory process. 40 CFR 261.3(c)(1). See *Chemical Waste Management*, 869 F.2d at 1539 (upholding contained-in policy as interpretation of § 261.3(c)(1)).

EPA's approach is consistent with Congress' intention that hazardous waste be regulated for the long term under a comprehensive regulatory program. One of the findings upon which the 1976 RCRA legislation was based was that "hazardous waste presents, in addition to the problems associated with nonhazardous solid waste, special dangers to health and requires a greater degree of regulation than does nonhazardous solid waste."

Public Law No. 94-580, section 1002(5). With enactment of the Hazardous and Solid Waste Amendments (HSWA) in 1984, Public Law No. 98-616, Congress strengthened that provision and added three more findings: "the placement of inadequate controls on hazardous waste management will result in substantial risks to human health and the environment; if hazardous waste management is improperly performed in the first instance, corrective action is likely to be expensive, complex, and time consuming; certain classes of land disposal facilities are not capable of assuring long-term containment of certain hazardous wastes * * *". RCRA section 1002(b)(5), (6), (7). Similarly, when RCRA was enacted in 1976, Congress stated one of the objectives of the Act was "regulating the treatment, storage, transportation, and disposal of hazardous wastes which have adverse effects on health and the environment." Public Law No. 94-580, 1003(a)(4). This provision too was replaced with a stronger statement by HSWA, that an object of the statute is "assuring that hazardous waste management practices are conducted in a manner which protects human health and the environment." (Emphasis added.) RCRA 1003(a)(4). Further, HSWA added as national policy that hazardous waste "should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment." RCRA 1003(b). It is clear that Congress' principal objective under Subtitle C was protecting against threats to human health and the environment caused by hazardous waste. We acknowledge that such a goal does not imply that all mixtures and derived-from wastes must be regulated under full Subtitle C requirements, regardless of the potential risks they pose, but we believe that it is reasonable to regulate these wastes until it is shown that such wastes do not pose a hazard.

The D.C. Circuit Court of Appeals has characterized RCRA as establishing "a 'cradle-to-grave' regulatory structure overseeing the safe treatment, storage and disposal of hazardous waste." *United Technologies Corp. v. EPA*, 821 F.2d 714, 716 (D.C. Cir. 1987). The mixture and derived-from rules are a necessary part of this approach, by maintaining jurisdiction over mixtures and derivatives of already listed waste. Without these rules, as explained in Section VII.A.(2), the "cradle-to-grave" structure would have a major loophole, undermining the objectives of RCRA.

The delisting provision supports the mixture and derived-from rules as a means to address wastes that could pose unacceptable risks. In amending RCRA

section 3001 in 1984, Congress enacted subsection (f) to require the Agency to "consider factors (including additional constituents) other than those for which the waste was listed" if the Agency "has a reasonable basis to believe that such additional factors could cause the waste to be a hazardous waste." The legislative history shows that Congress was concerned that both as generated wastes and wastes resulting from treatment were exiting the Subtitle C system while still hazardous. "The delisting process allows petitioners (usually individual hazardous waste generators or treatment facilities) the opportunity of showing that their wastes are significantly different—because of treatment, or because they are generated in a different process—from listed wastes of the same type. * * * Under this amendment, there would no longer be a risk that delisting a waste means releasing waste which may still be hazardous from regulation." H.R. Rep. No. 98-198 Part I (May 17, 1983). Congress made this change because it believed that under its previously existing delisting regulations, EPA allowed wastes that remained hazardous to exit the Subtitle C system. S. Rep. No. 98-284 (Oct. 28, 1983). The language and legislative history reflect Congress' assumption that treatment derivatives from listed wastes *would* remain subject to Subtitle C absent a delisting.

The land disposal restrictions (LDR) provisions of the statute further demonstrate that the mixture and derived-from rules are consistent with Congress' intent. The statute authorizes EPA to promulgate regulations establishing levels or methods of treatment, "if any," that substantially diminish the toxicity or mobility of the hazardous waste, and provide that the waste may thereafter be disposed of in a land disposal facility that "meets the requirements of [Subtitle C]." RCRA section 3004(m). This section demonstrates two things. (1) Congress contemplated the possibility that there may be hazardous wastes for which no form of treatment would be adequate; and (2) Congress assumed that waste that was treated according to the promulgated treatment standards would nonetheless still be disposed of in a Subtitle C (hazardous waste) facility. This provision is at odds with the commenters' assertion that, once treated, a hazardous waste becomes a fundamentally different waste and is unregulated unless EPA undertakes a separate rulemaking to list the treated waste.

Other provisions of the 1984 amendments to RCRA relating to land disposal provide further support for the

mixture and derived-from rules. See, e.g., section 3004(o) (establishing minimum technological requirements for land-based hazardous waste management units); section 3004(p) (establishing groundwater monitoring requirements); section 3005(c)(3) (requiring 5-year permit reviews for land disposal facilities); section 3005(e)(2), (3) (establishing interim status termination dates for certain non-compliant land disposal facilities); section 3005(i), (j) (establishing specific additional requirements for certain land-based units); section 1002(b)(7) (finding that certain classes of land disposal facilities are not capable of assuring long-term containment). Some commenters suggest that treatment residuals from listed hazardous wastes do not remain hazardous. We believe it is unlikely Congress would have created such stringent requirements for land disposal, if it intended for treatment residuals to escape Subtitle C regulation.

Taken to the extreme, the view that mixtures containing listed wastes should not be regulated as hazardous wastes would imply that most listed hazardous wastes, even if they reached a management unit in "pure" form, would cease to be hazardous once they entered the unit, since most units contain mixtures of different wastes. However, the RCRA statute clearly assumes that units would not only receive, but continue to contain, hazardous waste. See, e.g. section 3005(j)(11) and (12)(A). Moreover, the comprehensive requirements mandated for hazardous waste management units, including the technical standards of section 3004 and the permitting regime of section 3005, could be undermined if facilities receiving listed hazardous wastes could argue that their management units are subject to this scheme only as long as they are receiving the waste, but that they become exempt thereafter since the units do not contain hazardous waste.

Various provisions in RCRA appear to contemplate that at least some hazardous waste mixtures and derivatives would themselves be hazardous. See, e.g., section 3004(d)(2)(A), (B) (addressing liquid hazardous wastes, "including free liquids associated with any solid or sludge," suggesting that liquid derivatives of hazardous waste would themselves be hazardous). Another example is the language in section 3005(b), which requires permit applicants to provide information regarding hazardous wastes and "combinations of * * * hazardous waste and any other solid waste" to be

managed at the permitted facility, as well as information regarding the site at which the "products of treatment" of hazardous waste will be managed.

Finally, the appropriations act provision that EPA is implementing with today's rule requires that the mixture and derived-from rules would continue in effect while EPA developed revisions to the regulations. Public Law No. 102-389, 106 Stat. 1571 (October 1992). That provision instructed EPA to "promulgate revisions to paragraphs (a)(2)(iv) and (c)(2)(i) of 40 CFR 261.3, as reissued on March 3, 1992 * * *". Congress expressed no intent that these rules be rescinded or replaced.

We also disagree with commenters' assertion that the mixture and derived-from rules violate the "two-step process" of section 3001(a) and (b) for hazardous waste identification. It is true that the statute requires EPA to promulgate criteria for hazardous waste identification (section 3001(a)) and, based on those criteria, to identify characteristics of hazardous waste and to list hazardous wastes (section 3001(b)). In general, EPA has done this in separate steps. See 40 CFR part 261, Subpart B (criteria) and Subparts C and D (characteristics and lists). However, the statute does not preclude EPA from creating self-implementing criteria, as EPA has done with the mixture and derived-from rules. EPA does not interpret 3001(b) as imposing an obligation on EPA to undertake a separate waste identification rulemaking step following the development of self-implementing criteria. Alternatively, the mixture and derived-from rules could be viewed as a simultaneous exercise of EPA's 3001(a) and 3001(b) authority. Nothing in the statute prevents EPA from simultaneously, in combined regulations, establishing the criteria for waste identification, and identifying the characteristics of hazardous waste and listing waste.

We agree with commenters who point out that EPA has not used the class listing process under 40 CFR 261.11(b) to list mixtures and derived-from wastes as a class. However EPA does not agree that mixtures and derivatives must be individually listed or identified as hazardous wastes before being subject to Subtitle C jurisdiction. As previously stated, mixtures and derivatives are identified as hazardous waste by virtue of containing or coming from wastes that have been listed pursuant to the criteria in 40 CFR 261.11. EPA cannot presume that the hazardous constituents that are the basis of the original listing are always eliminated or rendered nontoxic simply because a waste is

mixed with other wastes or managed in some fashion.

(3)(a) Comment: EPA Has No Authority Under Sections 3002-3004 of RCRA To Designate Wastes as Hazardous

Several commenters from industries, industry associations, utility companies, utility company associations and waste management companies also disagreed with EPA's claim of authority under sections 3002-3004 of RCRA. They argued that these sections of RCRA provide for hazardous waste management standards for generators, transporters, and treatment, storage and disposal facilities, not for identifying hazardous wastes. Instead, that role is unambiguously carried out by section 3001. 42 U.S.C. 6921, and in previous promulgations and in litigation, EPA relied primarily on section 3001 to justify the mixture and derived-from rules.

(3)(b) EPA Response

In citing sections 3002-3004 in the discussion of EPA's statutory authority, we did not intend to imply that these sections by themselves provide statutory authority for the mixture and derived-from rules. Rather, our intent was to explain that these sections inform the process of identifying hazardous waste under section 3001 because the purpose of identifying a solid waste as hazardous is to ensure that it is managed properly.

The statute directs EPA to regulate hazardous waste generators (section 3002(a)), hazardous waste transporters (section 3003(a)), and hazardous waste treatment, storage, and disposal facilities (section 3004(a)) "as necessary to protect human health and the environment." It is our view that this informs the decision of when waste should be identified as hazardous and therefore subject to the regulatory requirements of Subtitle C. In deciding whether to identify a waste as hazardous under section 3001, EPA considers whether Subtitle C controls on the waste are necessary to protect human health and the environment. We have therefore consistently interpreted section 3001 to give us broad flexibility in fashioning criteria for hazardous wastes to enter or exit the Subtitle C regulatory system. See, *Military Toxics Project v. EPA*, 146 F.3d 948, 958 (D.C. Cir. 1998). As discussed above, this interpretation is consistent with the statutory purpose of protecting human health and environment by establishing a comprehensive hazardous waste regulatory program. (RCRA sections 1002, 1003).

In addition to providing the context in which the determination of whether a

waste "should be subject to the requirements of Subtitle C," sections 3002-3004 allow us to continue to impose requirements on waste handlers until wastes have "cease[d] to pose a hazard to the public." *Shell Oil Co. v. EPA*, 959 F.2d 741, 754 (D.C. Cir. 1991). See also *Chemical Manufacturers Assoc. v. EPA*, 919 F.2d 158, 162-65 (D.C. Cir. 1990) (EPA may regulate the disposal of nonhazardous wastes in a hazardous waste impoundment under section 3004) and *Chemical Waste Management, Inc. v. EPA*, 976 F.2d 2, 8, 13-14 (D.C. Cir. 1992) (EPA may require further treatment of wastes under section 3004 even though they cease to exhibit a hazardous characteristic). Without the mixture and derived-from rules, EPA could not effectively carry out its obligation under sections 3002-3004 to protect human health and the environment. Thus, in addition to the specific authority of section 3001, the mixture and derived-from rules are authorized under section 2002(a)(1), which empowers the Administrator to "prescribe * * * such regulations as are necessary to carry out his functions" under RCRA.

C. Regulatory Cost of the Mixture and Derived-From Rules

(1) Summary of Comments on the Regulatory Cost of the Mixture and Derived-From Rules

EPA received comments from five commenters in response to both the 1995 and the 1999 HWIR proposals concerning the regulatory cost of the mixture and derived-from rules. Of those comments, four were received from industries, and one was from an industry association. The commenters generally argued that the rules constituted over-regulation of low-risk wastes causing high costs and heavy burdens with little benefit to human health and the environment. A summary of the specific issues raised by commenters is provided below.

One industry commenter argued that the rules have added significant costs to the operation of manufacturing facilities throughout the nation, while providing insignificant benefits to human health and the environment. The commenter noted that the generation of large quantities of hazardous wastewaters based solely on the practice of efficient, centralized wastewater treatment has led the company to evaluate the segregation of hazardous and non-hazardous wastewaters, to prevent the attachment of a "hazardous" label to those non-hazardous wastewaters. Such a segregation would require a second treatment facility and much re-piping,

with the net result that millions of dollars would be expended and there would be no improvement in the wastewaters ultimately discharged to the environment through two, rather than one, discharge points. All that would be achieved is an apparent reduction in hazardous waste generation which does not, in reality, represent a decrease in waste generation, treatment or discharge, but rather a reporting game and artificial waste minimization driven by EPA requirements. It is this kind of "game" that compromises the credibility of both EPA and the regulated community and imposes a significant burden on the regulated community.

Another industry commenter noted that managing the residuals as if they were listed hazardous waste was significantly more expensive than managing the waste in accordance with solid waste regulations. For example, in 1995 transportation and disposal of ash from a hazardous solids incinerator cost approximately \$185,000. In comparison, the ash could be managed in a state permitted Subtitle D landfill as non-hazardous waste for about \$25,000. Another industry stated that these rules have resulted in significant expense that has diverted resources away from greater environmental opportunities.

One association commenter stated that the rules frequently cause waste codes to be carried through and applied to wastes that are fundamentally different from the original waste considered in the development of the listing classification. The commenter noted that there are many instances in which the risk associated with the original listed waste simply does not carry through in the same way, and that the composition and nature of any risk posed by these materials often bears little or no relationship to the original listed waste. Specific examples cited include (1) Wastewaters where most of the arsenic has been precipitated and removed, (2) debris from hazardous waste refractories undergoing repair, and (3) wastewaters that had received ethylene oxide as part of an emergency incident. The costs and impacts of this automatic waste-code carry-through are quite significant. Much of the industry operates through smaller "batch"

processes, while the regulations are crafted for a continuous manufacturing process. And, in many operations, delisting the mixture is not an option, as the facility can only store the mixture on-site for 90 days, which is not enough time for a delisting.

An industry association also stated that the costs imposed by the rules from a number of member companies are easy to identify: on-site storage costs, paperwork and administrative costs, higher shipping and transportation costs, and higher treatment, storage and disposal costs. And, these are the same types of costs analyzed and tallied by EPA in documenting the cost savings it attributes to the modified exemption for hazardous wastes listed solely for a characteristic of ignitability, corrosivity and/or reactivity. The commenter also stated that another significant cost of the current regulatory regime was the extra time and effort required to evaluate and apply the rules in the real world. Even after 20 years, facilities still have difficulty evaluating when, whether and why certain waste streams must be managed as Subtitle C hazardous wastes under this approach.

2. Response to Comments on Regulatory Cost of the Mixture and Derived-From Rules

We agree that the mixture and derived-from rules have captured wastes that could safely be managed outside of RCRA Subtitle C regulation. As explained below, we have addressed specific cases of such over-regulation through targeted rulemaking in the past, and we will continue to explore options for exempting wastes that do not warrant Subtitle C regulation. However, we do not agree that hazardous waste regulation of mixture and derived-from waste provides no additional protection of human health and the environment. For example, as we discuss in Section VII.A, wastewaters prior to discharge may contain constituents at levels that could pose unacceptable risks if they are mismanaged. Furthermore, the mixture and derived-from rules address cross-media transfer of persistent hazardous chemicals from the wastewater to the treatment sludge.

One way of reducing the regulatory burden available to individual waste generators is the delisting process.

Generators have the option of petitioning the Agency under 40 CFR 260.20 and 40 CFR 260.22 to exclude their wastes from the lists of hazardous wastes in subpart D of part 261 if they believe those wastes no longer pose risk to human health and the environment. Since the delisting program was delegated to the EPA Regions on October 10, 1995, a number of innovations have been adopted that have greatly improved the efficiency and effectiveness of the delisting program. In particular, EPA Region VI's award-winning program has created a process that produces a decision within an average of 180 days, provides a streamlined application checklist, proactively coordinates with State personnel, and includes a user-friendly, stand-alone software program that produces an updated, state-of-the-art assessment of risks associated with delisting a petitioned waste. In addition, EPA and the applicant now work together to develop an initial application that can be approved without the need for major revisions, which is a major factor in reducing the processing time. EPA will continue these efforts and others in order to keep improving the delisting process. Since 1980, EPA has excluded an estimated 45 million tons of waste, resulting in an estimated cumulative cost savings between \$1.1 billion and \$1.3 billion (in 1999 dollars). In 2000 alone, we estimate cost savings of approximately \$105.4 million.¹²

In addition, EPA has taken steps since the mixture and derived-from rules were promulgated in 1980 to further reduce the scope, and therefore the cost, of these rules when appropriate. As one commenter to the 1999 proposal pointed out, eighteen months after the original mixture and derived from rules, EPA promulgated the first of several exclusions for low-risk waste from the definition of hazardous waste. Over the past twenty years, EPA has developed exclusions and/or tailored regulations to reduce the regulatory cost for more than a dozen types of hazardous waste mixtures and residuals. (see table below)

¹² U.S. EPA *Evaluation of Hazardous Waste Delisting Program*, December 2000.

REVISIONS TO 40 CFR 261.3 THAT HAVE REDUCED THE REGULATORY COST OF THE MIXTURE AND DERIVED-FROM RULES

CFR citation	Hazardous waste(s) affected	Year promulgated (FR citation)
40 CFR 261.3(a)(2)(iv)(A) and (B)	Certain solvents managed in wastewater treatment systems.	1981 (46 FR 56582)
40 CFR 261.3(a)(2)(iv)(C)	Certain petroleum wastes discharged to the refinery oil recovery sewer.	1981 (46 FR 56582) Additional wastes added in 1998 (63 FR 42184)
40 CFR 261.3(a)(2)(iv)(D)	De minimis losses of commercial chemical product.	1981 (46 FR 56582)
40 CFR 261.3(a)(2)(iv)(E)	Certain laboratory wastewaters	1981 (46 FR 56582)
40 CFR 261.3(a)(2)(iv)(F) and (G)	Certain carbamate wastewaters	1995 (60 FR 7848)
40 CFR 261.3(a)(2)(v)	Used oil	1992 (57 FR 41611)
40 CFR 261.3(c)(2)(ii)(A)	Certain waste pickle liquor sludges	1984 (49 FR 23284)
40 CFR 261.39(c)(2)(ii)(B)	Wastes derived from burning certain oil-bearing wastes as fuel.	1987 (52 FR 11819)
40 CFR 261.3(c)(2)(ii)(C)	Wastes derived from high temperature metals recovery of certain hazardous wastes.	1992 (57 FR 37263)
40 CFR 261.3(c)(2)(ii)(D)	Certain types of biological treatment sludge ...	1995 (60 FR 7848)
40 CFR 261.3(c)(2)(ii)(E)	Certain types of catalyst inert support media ..	1998 (63 FR 42184)
40 CFR 261.3(f)	Certain types of debris contaminated with a hazardous waste.	1992 (57 FR 37264)

In each of these revisions to 40 CFR 261.3, EPA considered the case-specific circumstances of the waste affected and, through the formal rulemaking process, determined that these wastes merited special consideration under the hazardous waste identification rules. In many cases, these wastes still warranted enough concern to impose specific management and other implementation requirements. For example, the solvent exclusions in 40 CFR 261.3(a)(2)(iv)(A) and (B) require that (1) these wastes are managed in a system the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act, and (2) the total weekly usage of these solvents divided by the average weekly flow of the wastewater into the treatment works would not exceed a specific regulatory level (either 1 ppm or 25 ppm).

Under today's final rule, EPA has continued the effort to reduce the burden from the mixture and derived-from rules where appropriate by excluding wastes listed solely for ignitability, corrosivity, and/or reactivity, once the waste no longer exhibits any of the hazardous waste characteristics (40 CFR 261.3(g)). We are also finalizing a conditional exemption for mixed waste from the mixture and derived-from rules, provided the mixed waste is handled in accordance with 40 CFR part 266, Subpart N. (40 CFR 261.3(h))

Finally, over the past twenty years EPA has promulgated numerous rules establishing exclusions or conditional exemptions from the solid and hazardous waste definitions, and from regulatory requirements for particular wastes and management practices. These exemptions are part of EPA's

overall effort to avoid unnecessary regulation of waste.

EPA plans to continue work on other types of hazardous waste exemptions, including the additional targeted exemptions for certain categories of wastes and management practices, and the concentration-based exemptions (HWIR exemption) discussed in the November 19, 1999 proposal. We also plan to continue on-going efforts to streamline the existing delisting program.

In regard to the specific examples of over-regulation claimed by one commenter (see comment # WH2P-00035, page 10), it is difficult for EPA to fully evaluate these cases without more specific data. For example, in the case of wastewaters where most of the arsenic has been precipitated and removed, it is not clear whether there are any other hazardous constituents of concern in the treatment sludge, and whether the residual arsenic might still pose a risk (depending on waste volume and management method). In the case of contaminated bricks from hazardous waste refractories undergoing repair, it would appear that the exclusion for debris [40 CFR 261.3(f)] could address this concern. Finally, for wastewaters that had received ethylene oxide as part of an emergency incident, while it is true that ethylene oxide eventually breaks down to ethylene glycol, this reaction is not instantaneous. When released into water, ethylene oxide will primarily be lost by three processes: volatilization, hydrolysis and biodegradation. The half-lives of these reactions range from a few hours to up

to 20 days.¹³ Ethylene oxide itself is toxic, and if these wastewaters were automatically considered non-hazardous, they could present a substantial risk, depending on actual concentrations and exposure patterns. Both low level chronic exposure and acute high levels of ethylene oxide can lead to a broad spectrum of neurological effects. Also, inhalation studies have shown that exposure to ethylene oxide can result in a wide range of carcinogenic effects, and NIOSH considers ethylene oxide to be a potential occupational carcinogen.¹⁴ Therefore, EPA does not agree that such a mixture should be automatically excluded from hazardous waste regulation. More importantly, since the purpose of this rulemaking is not to evaluate individual wastestreams, EPA does not believe this example demonstrates that the mixture and derived-from rules themselves are unnecessary as a general matter.

EPA understands that the RCRA regulations, in particular the waste identification regulations, can be difficult to understand. We have attempted to use plain language in drafting today's revised regulatory language, and will continue to make regulatory language more accessible to readers in the future. In addition, we believe that the mixture and derived-from rules are more straightforward than the alternative of having to evaluate each combination and permutation of

¹³ Agency for Toxic Substances and Disease Registry. (1990). Draft Toxicological Profile for Ethylene Oxide.

¹⁴ National Institute for Occupational Safety and Health. (1989). Ethylene Oxide Sterilizers in Health Care Facilities, Engineering Controls and Work Place Practices. DHHS (NIOSH) No. 89-115.

listed waste on a case-by-case basis. We believe this alternative would create uncertainty for the regulated community, state agencies, the public, and the courts, as various stakeholders press conflicting views as to whether a particular waste does or does not continue to meet the listing description.

VIII. What Were the Major Comments on the Revision to 40 CFR 261.3 To Exclude Wastes Listed Solely for Ignitability, Corrosivity, and/or Reactivity, and How Has EPA Responded to Them?

Most commenters generally supported revisions to 40 CFR 261.3 to various degrees. Chemical-producing industries as well as Federal government agencies who commented were unanimous in support. Most states supported the proposed revisions to the rules to varying degrees. Below are summaries of the major comment issue areas for this proposed exclusion. For more detailed comment responses, please see *Hazardous Waste Identification Rule: Revisions to the Mixture and Derived-From Rules Response to Comments Document*.

A. Eligibility of Waste Listed for the Toxicity Characteristic

(1) Comments on Eligibility of Waste Listed for the Toxicity Characteristic

EPA received comments from 12 commenters in response to both the 1995 and the 1999 proposals concerning inclusion of wastes listed solely for the toxicity characteristic in the expanded exclusion. Of those comments, four were received from industry, two were from industry associations, four were from utility companies or utility company associations, one was from a Federal Government Agency, and one was from an industry consultant. A summary of the specific issues raised by commenters is provided below.

While supporting the proposed exclusion, these commenters urged EPA to modify the proposal so the exclusion would apply to wastes listed due to any of the four characteristics, including the toxicity characteristic. Commenters asserted that it was not logical to limit the exclusion for derived-from wastes to three of the four characteristics, regardless of the fact that no listed wastes are listed solely on the basis of the toxicity characteristic. One commenter stated that it appears as if EPA suspects that wastes containing TC constituents below the toxicity characteristic are not really safe. A few commenters noted that in the future, wastes that may be listed solely for the toxicity characteristic should be eligible

for the exclusion. Another commenter also noted that the proposed regulatory language does not provide for any additional hazardous waste characteristics that might be promulgated in the future. Commenters suggested that EPA replace references to ignitability, corrosivity, and reactivity in the proposed regulatory language for 40 CFR 261.3(g) with references to any characteristic of hazardous waste identified in subpart C, reflecting the approach and language used in the current mixture rule.

Several commenters noted that EPA did not offer an explanation for omitting wastes listed solely because they exhibit the characteristic of toxicity from eligibility for the proposed exclusions that would be granted by 40 CFR 261.3(g). EPA did explain that, since no listings to date have been based on the toxicity characteristic, EPA was proposing to limit the new revision to the derived-from rule to wastes listed because they exhibit only the characteristics of ignitability, corrosivity, or reactivity. However, the commenters believed it is confusing to give no explanation for proposing the elimination of an existing exclusion from the mixture rule, even if no wastes now exist that are eligible for the exclusion. Therefore, the commenters recommended that the preamble for the final rule contain such an explanation.

(2) EPA Response to Comments on the Eligibility of Waste Listed for the Toxicity Characteristic

EPA does not agree that wastes listed solely for the toxicity characteristic (TC) should be eligible for the exclusion. As we discussed in the 1995 HWIR proposal, wastes may still pose some risk concerns even when TC constituents are present below TC levels (60 FR 66369, December 21, 1995).

The hazards that the TC regulation addresses, carcinogenicity and chronic chemical toxicity via contaminated groundwater/drinking water, have fewer clear thresholds than the other characteristics. Wastes that exhibit the characteristics of ignitability, corrosivity or reactivity typically pose acute hazards which can be addressed by application of appropriate treatment to decharacterize the waste. For example, ignitable liquid waste or waste chemical oxidizers can be treated by combustion, and the ash treatment residue poses no ignitability threat to landfills. Similarly, strong acid or basic wastes, if effectively neutralized, generate residues that pose no threat of skin damage. Waste explosives or highly reactive chemicals that are denatured or reacted-out under controlled conditions also generate

residues that pose no explosion or reaction threat.

The TC chemicals have less clear thresholds below which they pose little or no hazard for several reasons. Toxic chemicals pose a risk that is typically dependent on a range of factors, and assessment of hazard from toxicity is much more complex, and involves many more variables, than assessment of hazard from the other three characteristics. A waste that does not exhibit the toxicity characteristic for a particular chemical may nonetheless pose a substantial hazard depending on such factors as the volume of the waste, the exposure route being assessed, and the amount of dilution and attenuation that is assumed prior to exposure. These factors, along with others, are taken into account in making hazardous waste listing determinations based on toxicity. See 40 CFR 261.11(a)(3). In addition, as persistent chemicals move through the environment, they can accumulate, posing long-term chronic risks even at levels below those set for the toxicity characteristic. Thus, the toxicity characteristic is not designed to capture all of the wastes that might present a substantial hazard for the TC constituents. Rather, the TC is designed to capture wastes that may pose a substantial hazard, without the need to conduct a waste-specific risk assessment. In fact, when EPA promulgated the TC regulation, we stated that the regulation is intended to identify “* * * broad classes of wastes which are clearly hazardous * * *”. We also noted that “wastes that do not exhibit the hazardous waste characteristics are not necessarily non-hazardous.” (55 FR 11799, March 29, 1990). In identifying TC hazardous wastes as “clearly hazardous” the agency was identifying a universe of wastes that it believed may pose high enough risk so as to *always* require classification as hazardous. In noting that non-TC wastes are not necessarily non-hazardous, the agency both recognized the non-threshold (i.e., continuous) nature of TC constituent risks, and recognized that wastes falling just below the TC values may pose risks that are just below a “clearly hazardous” designation, and which may sometimes warrant classification as hazardous. EPA has in fact listed wastes based on toxicity where the waste did not fail the TCLP for the constituent of concern. (see, for example, the final petroleum waste listing, 63 FR 42154 (August 6, 1998)).

EPA’s decision to not exclude wastes listed solely for the TC could potentially affect the regulation of certain inorganic wastes that EPA has recently proposed

to list as hazardous. (65 FR 55684, September 14, 2000). The issue had been purely theoretical before that point because no waste had ever been listed for the TC. In the inorganics listing determination proposal, however, EPA proposed to list baghouse filters from antimony oxide production for the TC. Despite the fact these wastes fail the TC for lead and arsenic, they are not always being managed as Subtitle C hazardous waste, nor are these wastes always treated to the appropriate LDR standards. By listing them, we would clarify their regulatory status. In the preamble to the inorganics listing proposal, EPA noted that proposed revisions to the mixture and derived-from rules did not include an exclusion for wastes listed for the TC (65 FR 55705). EPA did not receive any public comments in response to this discussion in the Inorganics Listing proposal.

B. Toxicity of Wastes Listed for Ignitability, Corrosivity, and/or Reactivity

(1) Comments on Toxicity of Wastes Listed for Ignitability, Corrosivity, and/or Reactivity

EPA received two comments in response to the 1999 proposal concerning the potential toxicity of waste under the proposed expanded exclusion to the mixture and derived-from rules. One was from a waste management association and one from a State agency. A summary of the specific issues raised by commenters is provided below.

The commenters believed that EPA must evaluate the properties carefully, especially the toxicity, of the 29 compounds proposed to be excluded. They assert that some of these wastes are acutely hazardous and merit a thorough review to ensure that the exclusion is appropriate. The waste management association noted that EPA had not performed an evaluation of the negative environmental impact associated with eliminating these codes. Ignitable, corrosive, and reactive wastes could contain substantial levels of toxic constituents that could be low enough not to exhibit a characteristic of ignitability, corrosivity or reactivity, yet high enough to cause environmental damage. One damage case or Superfund site can cause damages far in excess of the \$4.6 million estimated savings predicted by EPA. The waste management association further argued that EPA's Hazardous Waste Characteristics Scoping Study (Nov. 15, 1996) identified numerous gaps in the current RCRA identification of characteristic wastes. The commenter

believed that gaps were so serious that EPA should not be proposing to eliminate any listing that was based on a characteristic until the deficiencies identified in the 1996 Scoping Study were addressed fully. Also, EPA must not eliminate any listing once the characteristic is removed, because the underlying hazardous constituent still represents a substantial threat even after LDR treatment.

(2) EPA Response to Comments on Toxicity of Wastes Listed for Ignitability, Corrosivity, and/or Reactivity

EPA continues to believe that wastes that were listed only for the characteristics of ignitability, corrosivity, and reactivity should become excluded once they no longer exhibit any characteristic, including the toxicity characteristic. While it is true that these wastes could contain constituents that were not considered in the original listing determination, EPA does not believe this possibility, without information demonstrating some particularized basis for concern, warrants continued regulation of the waste under Subtitle C once it is decharacterized. This is because of the unique nature of listings based on the three characteristics in question. (See the discussion, in Section VIII.A. above, regarding the differences between wastes listed for the toxicity characteristic and wastes listed for the characteristics of ignitability, corrosivity and reactivity). These listings are unlike toxicity-based listings, which involve development of detailed risk assessments and consideration of a range of technical factors. See 40 CFR 261.11(a)(3). In contrast, the basis for listings based on one of these characteristics is simply that the waste exhibits the relevant characteristic (see 40 CFR 261.11(a)(1)).

Listings that are based on 40 CFR 261.11(a) criteria increase the clarity and certainty of the applicability of the Subtitle C system to these wastes. By listing the waste, EPA clarifies that it is hazardous without the need for a site-by-site demonstration that the waste in fact exhibits the characteristic, thereby simplifying implementation and enforcement regarding these wastes. EPA does not believe these listings should alter the basic principle that a characteristic waste should not be regulated as hazardous if it no longer exhibits the characteristic. Consistent with this approach, EPA provided in 1981 an exemption from the mixture rule for wastes listed for one of these characteristics that no longer exhibits the characteristic (see 46 FR 56582,

November 17, 1981). Today's rule provides a conforming change to the derived-from rule, which, because the 1981 rule only focused on mixtures, does not currently contain a comparable exemption. (see 60 FR 66349, December 21, 1995). The same rationale also supports the inclusion of as-generated waste in today's rule (although, since these wastes were listed solely on the basis of exhibiting a characteristic, EPA expects these wastes to exhibit the characteristic at the point of generation). Thus, EPA does not believe that the possibility that these wastes may contain additional hazardous constituents not considered in the original listing justifies continued regulation of the waste.

As stated earlier, EPA already excludes mixtures of these kinds of wastes, once the basis for listing these wastes has been removed. In addition, unlisted characteristic waste becomes non-hazardous when it ceases to be characteristic. Expanding the exclusion to non-mixtures that similarly do not exhibit the characteristic (particularly treatment residuals) would still be protective of human health and the environment. If there is any information that indicates that the original listing determination should have been based on toxicity risks, then the proper remedy is to amend the basis for listing the waste. The public can petition EPA to reconsider the basis for listing any such waste.

In regard to the toxicity of the listed chemicals themselves, EPA has examined the most recent toxicity data in IRIS concerning the chemicals in the 29 wastes listed solely for a characteristic, and does not believe these chemicals present a particular basis for concern. We found that fourteen of the chemicals have RfD's or RfC's available in IRIS. (This includes the eight F003 solvents discussed below—see Section VIII.C. of the preamble). EPA used these RfCs and RfDs to calculate conservative screening-level health-based numbers (HBN) for those chemicals, and compared them to the relevant Universal Treatment Standards (UTS) these chemicals would need to meet under Land Disposal Restrictions, in those cases in which numerical standards were available. For most of those chemicals, the relevant UTS standards are much *lower* than the conservative health-based numbers calculated for water and soil ingestion pathways. As discussed in Section VIII.C below, the level for one of the chemicals, n-butyl alcohol, is not significantly higher. Therefore EPA believes that excluding wastes that have

been listed solely for a characteristic of ignitability, corrosivity, or reactivity, when they have been decharacterized (i.e., exhibit none of the four hazardous waste characteristics), is protective of human health and the environment. However, in the future, if additional information becomes available, we may decide to reconsider the basis of listing for one or more of these wastes.

C. Eligibility of F003 Solvents for This Exclusion

(1) Comments on Eligibility of F003 Solvents for This Exclusion

EPA received comments from 17 commenters in response to the 1995 and 1999 proposals concerning the inclusion of F003 solvents in the expanded exclusion to the mixture and derived-from rules. Of those comments, five were from State Agencies, three were from utility companies or associations, four were from industries, two were from Federal Agencies, two were from waste management associations, and one was from an industry association. A summary of the specific issues raised by commenters is provided below.

About two-thirds of the commenters supported including F003 wastes in the proposed exclusion. However, one industry noted that this proposed revision would have little effect beyond eliminating the derived-from rule for a small number of wastes. Many commenters noted that if the solvent contained, before use, one or more of the toxic solvents specifically listed in F001, F002, F004, or F005, at 10 percent or more by volume, it would be regulated as that waste code. Therefore a blanket exclusion for all categories of F003 is appropriate because toxics, when present, will be addressed under other applicable waste codes. One State and two Federal commenters stated that any toxic solvents contained in an F003 spent solvent blend would not escape proper treatment because of the land disposal restrictions (LDR) program. They also noted that solvent mixtures/blends meeting the F003 listing description and containing a certain percentage of toxic solvents also will carry the waste code F001, F002, F004 and/or F005 and therefore, be subject to treatment requirements under the LDR program.

Four commenters did not support including F003 in the proposed exclusion. They argued that the listing description for F003 contains a reference to other solvent wastes (F001, F002, F004, or F005) that are listed for toxicity. Therefore, ignitability was not the only characteristic of concern. In addition, certain F003 solvents

themselves may also be toxic, upon consideration of new data developed since 1985. Specifically, the commenter cited a National Toxicology Program, National Institutes of Environmental Health Sciences, Management Statistics Report dated January, 1999 on the carcinogenicity of ethylbenzene (an F003 waste).

In addition, one State noted that in the April 30, 1992 proposal to revise the Hazardous Waste Identification Rule, EPA was considering a separate rulemaking to modify the basis for listing F003 and other wastes listed solely for a characteristic because of concerns about toxicity and/or carcinogenicity. If the chemicals in these wastes are either toxic or carcinogenic according to EPA's own determinations, they should be identified as such in 40 CFR part 261, subpart D.

Commenters also argued that F003 wastes "often" contain toxic constituents other than the solvents themselves. One commenter noted that EPA states in 50 FR 53317 (December 31, 1985) "In fact, solvents become spent when they have become contaminated with other materials, (i.e., heavy metals or toxic organic compounds) and must be disposed, reprocessed or reclaimed." EPA further states " * * * since spent solvents reasonably are likely to contain other toxicants at levels of regulatory concern, and since we have not evaluated those wastes for these toxicants, we believe it inappropriate to remove these solvents from the hazardous waste list." In addition, the waste management association commenter argued that as part of the economic impact analysis associated with the 1999 HWIR proposal, there have been 51 different hazardous constituents associated with the F003 waste code. The commenter believed that if EPA lacked toxicological data on any of these constituents, then F003 could not be eligible for the exclusion once the ignitability characteristic was removed and the waste exhibited no other hazardous waste characteristics.

(2) Response to Comments on Eligibility of F003 Solvents for This Exclusion

EPA agrees with those comments that support F003 waste remaining eligible for this exclusion. Because F003 waste that contains 10% or more of the other F-listed solvents (F001, F002, F004, and F005) would also bear those waste codes, such wastes would not be eligible for the exclusion. The exclusions applies only to F003 wastes that do not contain 10% or more of these other solvents.

EPA is aware of the recent carcinogenicity study (referenced in the public comments) that was performed by the National Toxicology Program on ethylbenzene. Ethylbenzene is included in the Agency's on-going Integrated Risk Information System (IRIS) project (63 FR 68285, December 10, 1998). A focus of the IRIS project is to update selected chemical assessments by incorporating new scientific information and methods. The IRIS project consists of a process that determines the Agency's consensus position on the potential adverse health effects that may result from chronic or lifetime exposures to environmental contaminants. The carcinogenicity study on ethylbenzene, together with any other recent toxicological data, will be evaluated by the Agency as part of this process. Until that evaluation is completed, EPA does not believe it is appropriate to draw regulatory conclusions based on the referenced study.

With respect to the commenters' more generalized concerns about the possibility of toxic constituents in F003 waste, as explained above, EPA does not believe this possibility justifies the continued regulation of a waste that was listed for the sole reason that it is ignitable, where the waste is no longer ignitable and exhibits no other hazardous waste characteristic. F003 waste is unique among the listed solvents: the other listed solvents were listed on the basis of toxicity. F005 solvents were listed for both ignitability and toxicity. In fact, EPA decided to move two listed solvents (methanol and methyl isobutyl ketone) that were originally proposed to be regulated under the F005 listing to the F003 listing because EPA determined that they did not pose a significant toxicity risk, although they are highly flammable (45 FR 74884, November 12, 1980).

Since then, EPA has analyzed the toxicity risks that might be posed by F003 solvents when de-characterized. The Agency has researched the most recent data concerning the F003 solvents in the IRIS data base. None of the solvents in the listing are classified as carcinogens, but eight of the nine possess reference concentrations (RfC) and oral reference doses (RfD) for non-cancer risk. EPA used these RfCs and RfDs to calculate conservative screening-level health-based numbers (HBN) for those chemicals, and compared them to the relevant Universal Treatment Standards (UTS) these chemicals would need to meet under Land Disposal Restrictions. For seven of the eight chemicals (including ethylbenzene) the relevant UTS standards are much *lower* than the

conservative health-based numbers calculated for water and soil ingestion pathways. The health-based number for the remaining chemical, n-butyl alcohol, is only slightly lower than the UTS standard (3.3 mg/L water ingestion HBN vs 5.6 mg/L wastewater UTS).¹⁵ Given the fact that the health-based numbers are conservative screening numbers, EPA does not believe this difference is of concern. Therefore EPA remains confident that excluding ignitable F003 solvents, when they have been decharacterized, is protective of human health and the environment.

Commenters also claimed that F003 solvents, because they are general use solvents, can carry with them various constituents other than the solvents themselves, and that this was a reason for listing the F003 solvents in the first place (see 50 FR 53317, December 31, 1985). EPA acknowledges that in the 1985 solvents final rule, we noted that additional toxic contaminants would likely be present in the spent solvent. We also stated, however, that we did not evaluate F003 wastes for other toxic constituents that could be present at levels of regulatory concern. Therefore, toxicity was a not a basis for listing F003 waste.

When the F003 listing was finalized in 1985, because it was listed solely for ignitability, mixtures of F003 waste and solid waste were eligible for the exemption for mixtures of waste listed for a characteristic that no longer exhibit any characteristic of hazardous waste. Expanding the exclusion to non-mixtures that similarly do not exhibit any characteristic would still be protective of human health and the environment. We do not think it makes sense to continue the anomaly of retaining regulation for non-mixtures of F003 wastes based on toxicity concerns when we have no record basis to support regulation for toxicity. Today's exclusion is also consistent with the approach taken in EPA's decision not to list 14 spent solvent wastes, in which EPA declined to focus on any toxic constituents other than those in the solvents themselves, despite the likelihood of other toxic constituents in the spent solvent waste. (63 FR 64372 (Nov. 19, 1998)).¹⁶

¹⁵ For the water ingestion pathway, EPA assumed a 71.8 kg adult with a 2.3 L/day intake (90th percentile), 350 days/yr frequency. For the soil ingestion pathway, EPA assumed a 16.6 kg child with 400 mg/day intake (upper percentile), 350 days/yr frequency. For more information, please see U.S. EPA *Analysis of Chemicals in Wastes Listed for Ignitability, Corrosivity, or Reactivity* memorandum to the docket from David Cozzie, Office of Solid Waste, November 22, 2000.

¹⁶ EPA's determination was upheld at *EDF v. EPA*, 210 F.3d 396 (D.C. Cir. 2000).

D. Applicability of Land Disposal Restrictions (LDRs) to Excluded Wastes

(1) Comments on Applicability of Land Disposal Restrictions (LDRs) to Excluded Wastes

EPA received comments from 20 commenters in response to both the 1995 and the 1999 proposals concerning the applicability of LDRs to excluded wastes. Of those comments, eight were received from industries, four were from industry associations, two were from Federal Government Agencies, two were from State Agencies, one was from a consultant, one was from a waste management association, one was from a waste management company, and one was from an individual commenter. A summary of the specific issues raised by commenters is provided below.

Several commenters supported the EPA's proposed revision to the mixture and derived-from rules provided that the excluded waste meets land disposal restriction (LDR) requirements. One industry association noted that LDR standards assure that the waste is well treated. One State Agency believed that having similar wastestreams comply with the same requirements will achieve regulatory consistency as well as protection of human health and the environment.

Several commenters supported EPA's proposed revisions to the rules but did not support meeting LDR requirements. One industry commenter stated that applying LDRs to a waste which is excluded because it no longer meets the hazardous waste criteria is unnecessarily burdensome, costly and is a contradiction of the RCRA program requirements.

Two commenters said that the applicability of LDRs to both wastewater and nonwastewater forms of wastes should be both clear and identical. They felt that there is no justification for managing these wastes inconsistently.

Several of the comments dealt with whether excluded waste would need to be treated to meet LDR treatment standards for all underlying hazardous constituents (UHCs) under the existing rules. They felt that EPA should clarify that it did not intend to revise application of the current LDR rules without any discussion of why such a change would be necessary. One commenter emphasized that EPA has not provided a compelling case for requiring testing for UHCs or a clear methodology for implementing the requirements that are proposed. They stated that since these wastes are listed, generators have not been required to obtain information on underlying hazardous constituents. Obtaining this

information would pose an undue burden for the generator, and they requested clarification on who would be responsible for verifying whether the waste in question meets the condition of the exclusion: the generator or the facility receiving the excluded waste.

Two industry association commenters referenced the Land Disposal Program Flexibility Act of 1996 (LDPFA) and its relationship to the proposed exclusion. Under LDPFA, solid wastes identified as hazardous based solely on a characteristic, are not prohibited wastes under the Land Disposal Restrictions program if they are managed in certain systems including a treatment system that subsequently discharges into waters of the United States pursuant to a CWA permit. The commenters further requested that EPA revise its proposed language modifying the mixture rule for wastes in proposed 40 CFR 261.3(a)(2)(ii) so that the land disposal restrictions program does not apply to wastes that are not prohibited. They argued that this revision is crucial to maintain the status quo for managing wastes listed solely for a characteristic in land-based units. Imposing the LDR program on such wastes would put many surface impoundments out of compliance because they are managing decharacterized listed wastes in land-based units that do not meet RCRA's minimum technology requirements.

(2) EPA Response to Comments on Applicability of Land Disposal Restrictions (LDRs) to Excluded Wastes

In proposing to expand the current exclusion for waste listed solely for a characteristic, EPA did not intend to change the way land disposal restrictions (LDRs) apply to the excluded waste. EPA agrees with those comments that support the continued application of LDR requirements to mixture and derived-from wastes listed solely for a characteristic of ignitability, corrosivity, or reactivity after they have become excluded. We are not imposing any new LDR requirements in this rule.

We agree that the treatment standards for UHC's do not apply in all cases, and have not changed the applicability of these requirements. In general, wastes that are both listed as hazardous waste and exhibit a characteristic only need to meet the treatment standard for the listed waste code. (40 CFR 268.9(b)). An exception occurs when the treatment standard for the listed waste code does not include a standard for the constituent that causes the waste to exhibit the characteristic. In this case, the waste must meet the treatment standards for all applicable listed and characteristic waste codes.

EPA disagrees with the comment that LDRs for wastewaters and nonwastewaters should be identical. We continue to support the existing different treatment standards for wastewaters and nonwastewaters. Such differences are based on waste treatability and differences in the Best Demonstrated Available Technology applicable to the waste.

Today's rule also does not broaden the applicability of LDRs. The revised language to 40 CFR 261.3 (g)(3) states, "Wastes excluded under this section are still subject to part 268 of this chapter (as applicable), even if they no longer exhibit a characteristic at the point of land disposal." When the requirements of 40 CFR part 268 would not otherwise apply to a waste (for example, during treatment of certain characteristic wastes in a land-based unit), today's rule does not change that fact. In the case of wastes listed solely for ignitability, corrosivity, and reactivity that do not exhibit a characteristic at the point of generation, these wastes are considered to never have been hazardous and are not subject to 40 CFR part 268.

E. Applicability of Contained-In Policy to Excluded Wastes

1. Comment on Applicability of Contained-In Policy to Excluded Wastes

One commenter, the Department of Defense (DoD), requested that EPA clarify the interaction of the contained-in policy to the RCRA wastes that are listed solely for ignitability, corrosivity, and/or reactivity characteristics.

2. EPA Response to Comment on Applicability of Contained-In Policy to Excluded Wastes

The contained-in principle is the basis for EPA's longstanding interpretation regarding application of RCRA Subtitle C requirements to mixtures of contaminated media and hazardous wastes. Under the "contained-in" policy, EPA requires that soil (and other environmental media) be managed as hazardous wastes so long as they contain listed hazardous waste or exhibit a characteristic of hazardous waste. EPA's application of the "contained-in" policy to regulate media containing hazardous waste was upheld by the D.C. Circuit Court of Appeals in *Chemical Waste Management v. EPA*, 869 F2d 1526, 1539-40 (D.C. Cir. 1989). See the LDR Phase IV final rule 63 FR 28556, 28621 (May 26, 1998) for a detailed discussion of the contained-in policy and the Agency's reason, at the time, not to

codify the contained-in policy for contaminated soil.

Today's final rule does not directly affect the implementation of the contained-in policy. However, wastes that are contained in contaminated media are eligible for the 40 CFR 261.3(g) exemption for wastes listed solely for a characteristic. Therefore, under today's final rule, contaminated media that contain a waste listed solely for a characteristic would no longer need to be managed as hazardous waste when it no longer exhibits a characteristic. However, consistent with the regulation of other decharacterized waste (and decharacterized contaminated media), it may remain subject to LDR requirements. (The final rule, by providing that wastes excluded under this section are subject to LDRs "as applicable," applies the current rules regarding LDR applicability to soil containing hazardous waste. See, 40 CFR 268.49. For a detailed discussion of this subject, see 63 FR 28556, 28617 (May 26, 1998).)

IX. What Were the Major Comments on the Revision to 40 CFR 261.3 for Mixed Wastes, and How Has EPA Responded to Them?

A. 1999 Proposed Revision to 40 CFR 261.3 for Mixed Waste

In the 1999 proposal, EPA proposed a change to 40 CFR 261.3 that would exclude certain eligible mixed wastes (i.e., wastes that are both hazardous and radioactive) when they met the conditions outlined in the proposed 40 CFR part 266, Subpart N, which appeared in a separate Federal Register Notice. 64 FR 63464 (Nov. 19, 1999). EPA received comments from nine commenters in response to the 1999 HWIR proposal concerning the conditional exclusion from the mixture and derived-from rules for mixed waste. The commenters supported EPA's proposed conditional exemptions for low-level mixed waste (LLMW). Many of these commenters believed that such an exemption was implicit in the mixed waste proposal and necessary for the proposed mixed waste conditional exemptions to function effectively. Many of these commenters also noted that EPA's proposal would help eliminate much of the current regulatory overlap associated with LLMW. One commenter added that since the implementation of LLMW management under RCRA, it had been difficult to find treatment/disposal capacity for its limited quantities of mixed waste, and the proposal would improve safety, efficiency, cost and timeliness of LLMW management. Several commenters

encouraged EPA to expedite its implementation.

However, two commenters (both Federal agencies) were concerned with the proposed regulatory language for implementing a conditional exemption from the mixture and derived-from rules for mixed waste. The commenters believed it would be more appropriate to pursue regulatory relief for low-level mixed waste (LLMW) via the standards proposed for 40 CFR part 266, Subpart N rather than within the definition of hazardous waste in 40 CFR 261.3. This proposed exemption within 40 CFR 261.3 would provide an inconsistency in the application of the MDF rules between wastes mixed with or derived-from the treatment of hazardous wastes and wastes mixed with or derived-from the treatment of LLMWs. The commenters noted that the proposed regulation for the transportation/disposal conditional exemption for mixed waste, section 266.305, exempts the waste from certain RCRA requirements (provided specified conditions are met), but does not exempt the waste from the definition of hazardous waste.

EPA appreciates the support expressed for the conditional exemption for mixed waste mixtures and derived-from wastes. In response to the apparent confusion about how the proposed regulatory language applies to these conditionally exempt mixed wastes, EPA has created a new section to 40 CFR 261.3, section (h), which more carefully explains how the definition of hazardous waste interacts with the mixed waste conditional exemption.

B. 1995 Comments on Conditional Exemptions for Mixed Waste

In EPA's 1995 HWIR proposal, we included a discussion of possible conditional exemptions for mixed wastes based on EPA's HWIR modeling, or on other conditions outlined in a proposal developed by the Department of Energy (DOE). EPA received comments from 45 commenters regarding this discussion, many of whom urged EPA to separate mixed waste from the HWIR rulemaking. DOE has since withdrawn its proposal, and EPA has developed a separate mixed waste exemption, which is published elsewhere in today's **Federal Register**. For a more detailed explanation of all the mixed waste comments submitted as part of the HWIR rulemakings, and EPA's response to those comments please see *Hazardous Waste Identification Rule: Revisions to the Mixture and Derived-From Rules Response to Comments Document*.

X. What Were the Major Comments on the Recommendations Submitted by the Chemical Manufacturers Association (CMA), and How Has EPA Responded to Them?

In August 1999, EPA received a paper from the Chemical Manufacturers Association (CMA)¹⁷ describing five regulatory options for revising the mixture and derived-from rules. CMA forwarded these options seeking regulatory relief for some specific high-volume wastes that they believe are low-risk and feel that EPA could propose to exclude with very little delay. Although we did not have sufficient time to analyze these options in detail, we included a discussion of them in the 1999 HWIR notice to allow for public comment. Below is a short description of each option, a summary of the comments on the option, and EPA's response to the comments.

EPA is currently developing proposals related to two of the suggestions that we believe to be the most promising and straightforward to address: expanding the current headworks exclusion and excluding certain combustion residues. (see Sections X.A. and X.D. respectively). We are also considering additional proposals on the other suggestions, but we believe more analysis would first be necessary to decide how to address specific issues raised in the public comments. In addition, we will consider whether other opportunities exist for exempting low-risk waste from full Subtitle C regulation, including additional targeted exemptions and efforts to streamline the delisting program.

A. Expanding the Current Headworks Exclusion

One option involves an expansion of the current "headworks" exclusion in 40 CFR 261.3(a)(2)(iv)(A) and (B). The headworks exclusion excludes from the mixture rule wastewaters containing small quantities of particular F-listed solvents, based on the mass-balance flow of these solvents through the headworks of industrial wastewater treatment systems. CMA's options paper requests that this exclusion be amended in three ways.

First, CMA's suggested revision would allow direct monitoring of the actual concentration of spent solvents in untreated wastewater to demonstrate compliance. The current requirement is to perform a weekly mass balance of the solvents entering the system. Losses due to volatilization must be counted in the

mass balance determination under the current system. We note that CMA's suggested wastewater monitoring would provide accurate data at the point the wastewater enters the treatment system, but the losses due to volatilization would not be counted in this approach.

Second, under CMA's suggested revisions, benzene, 2-ethoxyethanol, 2-nitropropane, and 1,1,2-trichloroethane would be incorporated into the list of chemicals for exclusion. These four chemicals were added to the 40 CFR 261.31 list of spent solvents in 1986 but the exclusion does not currently include these chemicals.

Third, under CMA's suggested revisions, multi-source leachate (F039) derived solely from the disposal of the spent solvents listed in 40 CFR 261.31 would be eligible for the exclusion.

(1) Summary of Comments on Expanding Headworks Exclusion

EPA received comments from 13 commenters in response to the discussion on expanding the headworks exclusion. Of those comments, two were received from industry, three were from industry associations, three were from utility companies or utility company associations, three were from State Agencies, one was from a Federal Government Agency, and one was from a waste management association. A summary of the specific issues raised by the commenters is provided below.

One state commenter noted that CMAS's suggested exclusion does not account for volatilization, an important factor considering the solvents involved, if the wastewater treatment system is not actually subject to Clean Air Act controls. In addition, they noted that CMA's suggested exclusion addresses whether and how RCRA should be modified in the wastewater treatment context, and they felt that this is a matter that could be addressed comprehensively following the completion of the surface impoundment study.¹⁸ One waste management association commenter stated it was not clear what the potential environmental impact would be of expanding this exclusion to additional chemicals.

The rest of the commenters supported the CMA's recommendations for specific modifications to the mixture rule to expand the headworks exclusion in 40 CFR 261.3(a)(2)(iv)(A) and (B). Commenters noted that subsequent to the original headworks exclusion, additions were made to the F code

solvent listings, but the corresponding changes were not made to the list of solvents in the headworks exclusion. For consistency, benzene, 2-ethoxyethanol, 2-nitropropane and 1,1,2-trichloroethane should be added to the list of solvents allowed under the headworks exclusion. One State added that the circumstances and reasoning that EPA used to support finalizing the original exclusion remain valid for these four solvents. Commenters also noted that they believed EPA would determine the appropriate headworks concentration (i.e., either 1 part per million or 25 parts per million). Also, it is appropriate, practical, and economical for a generator to manage small amounts of spent solvent wastes in a wastewater treatment system subject to regulation under sections 402 and 307 (b) of the Clean Water Act.

Nine of the commenters supported the use of direct monitoring of the actual concentration of spent solvents in untreated wastewater to demonstrate compliance with the headworks exclusion. Several commenters believed direct monitoring would facilitate documentation of compliance. A Federal commenter noted that the suggested changes would provide accurate data at the point the wastewater enters the treatment system, but still would allow generators who rarely discharge solvents into their wastewater systems to use the current method for verifying compliance. Several commenters believed that the mass-balance approach gives rise to a number of problems due to the varying degrees of precision in the underlying measurements and, therefore, deters use of this exclusion. Instead, direct sampling and analysis methods are much more straightforward to implement and would provide more accurate information about what actually is being discharged to treatment systems. A State commented that direct monitoring provides the most definitive information on the concentration levels of hazardous constituents in a waste. Direct monitoring would allow generators to apply the exclusion to its full intended regulatory limit. An industry commenter recommended that compliance with the regulatory levels be measured on a rolling average basis since flows may be variable. Several commenters noted that they do not believe that direct monitoring would encourage volatilization. They noted that EPA did not state directly that the current measurement scheme needed to account for volatilization when the headworks exclusion was finalized and it is not part of the current regulatory

¹⁷ CMA has since changed the name of the organization to the American Chemistry Council (ACC).

¹⁸ Note: EPA's surface impoundment study was completed March 2001. See U.S. Environmental Protection Agency, *Industrial Surface Impoundments in the United States*. EPA530-R-01-005. Washington, D.C. March 2001.

language. However, these comments recognized that over the years, EPA has explained in preamble language and interpretive letters that it considered accounting for volatilization losses to be necessary to prevent facilities from volatilizing solvents in order to be eligible for the exclusion. In the years subsequent to the statement, EPA has issued a number of regulations addressing air emissions of organics, including the listed solvents. Because EPA has addressed these potential air emissions by regulations which focus specifically on these emissions, the commenters felt that there is no need for the headworks exclusion to have to account for them as well.

One State commenter did not support the inclusion of multi-source leachate (F039) in the headworks exclusion, even though the leachate might be derived from the disposal of solvent wastes. The commenter noted that leachate might contain any variety of hazardous constituents, due to the presence of characteristic wastes or non-hazardous wastes. The commenter further noted that it would be difficult to determine whether the headworks exclusion, if modified in this manner, would protect human health and the environment sufficiently. The commenter did state that if the discharge is regulated under the Clean Water Act (CWA), this may provide a reasonable amount of assurance with respect to exposure paths, relating to the wastewater discharge.

Six of the commenters supported extending the exclusion to multi-source leachate (F039) derived solely from the disposal of the spent solvents in 40 CFR 261.31. A Federal commenter noted that in many cases, leachate is contaminated with barely detectable concentrations of F-listed solvents, yet the leachate still is classified as hazardous waste. By allowing the wastewater to be discharged for treatment to a wastewater treatment or pre-treatment system regulated under the CWA, EPA would encourage remediation by lowering treatment costs. The commenter also stated that EPA must believe that the 1 ppm/25 ppm concentration limits established under the existing rules are protective of human health and the environment, so extending those limits to wastes derived from the land disposal of certain listed solvents should be adequately protective.

Several commenters noted that the advent of the multi-source leachate waste code simplified some hazardous waste management by applying the single listing code to hazardous waste leachate. However, this streamlining did create some unintended consequences.

Leachate generated solely from F001–F005 solvents no longer qualified for the headworks exclusion, even though the composition of the leachate was virtually identical to dilute non-leachate F001–F005 streams. Therefore, even though F039 leachate derived solely from F001–F005 wastes are exactly the same in chemical composition as the wastes from which they are derived, they cannot be treated in the same treatment train. They must be segregated and handled in separate tank-based systems or shipped off site for treatment and disposal causing additional cost but providing no additional environmental protection. One industry commenter recommended that EPA issue a technical correction or clarification notice with or before promulgating the final HWIR rule to address this problem. Under CMA's recommendation, the headworks exclusion rationale for the solvent wastes from ongoing production processes would be applied equally to solvent wastes leaching from a landfill. Both are treated equally well in the wastewater treatment plant at these low concentrations, so there is no justification for regulating them differently.

(2) EPA Response to Comments on Expanding the Headworks Exclusion

EPA agrees that there is merit in proposing to expand the current exclusions in 40 CFR 261.3(a)(2)(iv)(A) and (B) (the "headworks" exclusion) to include the four solvents listed in 1986: benzene, 2-nitropropane, 2-ethoxyethanol, and 1,1,2-trichloroethane, and we are currently developing a proposal on such an expansion. In the proposal, EPA will take into account the issues raised by the commenters, including environmental impacts of the expanded exclusion, and the use of any available surface impoundment study data. In the meantime, we welcome any data or additional feedback from the public on this topic.

We will also evaluate in this proposal the issue of measurement versus mass balance calculation as a part of the implementation of the headworks rule. EPA agrees that in the past 20 years, significant new Clean Air Act regulations have come into effect that may address some of the concerns about deliberate volatilization. In developing a proposed revision to the monitoring requirements for the headworks rule, we would take into account the issue raised by the commenters, including the issues concerning volatilization. We welcome any additional data the public has to support such a change.

EPA is also interested in possible applications in which solvent-only landfill leachate may be sent to a wastewater treatment facility. We are concerned, however, about possible difficulties in determining whether a landfill has received only solvent wastes. As part of the investigation, EPA would need more information characterizing possible "solvent waste only" landfills. We welcome any additional data the public has on these landfills.

B. Excluding Hazardous Waste Leachate

Another of the suggested regulatory options involves leachate derived from the land disposal of listed hazardous waste which is subsequently managed in a system regulated under the Clean Water Act. CMA argues that the leachate is both physically and chemically dissimilar from the wastes that were originally listed. Under the option presented, leachate would not be hazardous, even when generated from the treatment, storage or disposal of hazardous waste, unless it exhibited one or more of the hazardous waste characteristics of 40 CFR Part 261, Subpart C.

(1) Comments on Excluding Hazardous Waste Leachate

EPA received comments from eight commenters in response to excluding leachate. Of those comments, three were received from industries, one was from an industry association, three were from State Agencies, and one was from a waste management association. A summary of the specific issues raised by commenters is provided below.

The waste management association did not support the exclusion, noting that treatment tanks that are part of a Clean Water Act (CWA) system already are conditionally exempt. Thus, it was not clear to the commenter why a more expansive exclusion was advisable, particularly because leachate from hazardous wastes "may often contain toxic constituents that are not subject to NPDES discharge limits or water quality standards." Also, one State did not support the exclusion noting that many organics of concern are not covered by the toxicity characteristic. Furthermore, the State commenter believed that it would be inappropriate to exclude these wastestreams without examining the results of the surface impoundment study, particularly without any supporting data on the physical/chemical properties of the leachate and its associated risks. Finally, these State comments claimed that there is no generic way to tell if these leachates will pose a problem. They could be very

different from unit to unit depending upon what type of waste has been placed in the unit. The commenter also felt that there could be an air emission problem or the leachate could cause the sludge to become hazardous. Instead, the State commenter thought industries should go through a case specific delisting for these wastes.

One State commenter did not understand CMA's proposal to exclude leachate from the derived-from rule. Currently, F039 leachate waste is subject to Part 268 land disposal restriction requirements and could be treated onsite in a tank or container within 90 days of generation without a permit. If this treated waste was an industrial wastewater discharge that was a point source discharge subject to regulation under section 402 of the Clean Water Act, it would be eligible for the 261.4(a)(2) exclusion. In that case the wastewater would not be a solid waste. The State wondered if CMA was proposing that F039 be exempt from LDR requirements. If that was the case, the State did not support such a recommendation.

One State commenter stated that there may be merit in excluding leachate resulting from the land disposal of a listed hazardous waste when the leachate is subsequently managed in a wastewater treatment system regulated under the CWA. However, to make a definitive decision, the State expressed a need to evaluate constituent concentration data, current management practices, environmental injury cases caused by the residues, and whether the residues commonly exhibit a hazardous waste characteristic. Since (1) the leachate is generated from landfills where only treated hazardous wastes are disposed, and (2) bonafide treatment has occurred and the residues are physically and/or chemically different from the hazardous wastes they were generated from, the State believed it was appropriate to view the residues as newly generated wastes and impose RCRA regulation only if the waste exhibited a hazardous waste characteristic.

The rest of the commenters believed that EPA should consider leachate from hazardous waste landfills to be a newly generated waste rather than derived-from waste. As a newly generated waste, it would be subject to regulation if it failed one or more hazardous waste characteristics, but would no longer be subject to hazardous waste regulation solely because the landfill accepted listed hazardous wastes. Several commenters noted that most POTWs would not accept direct discharges of listed hazardous waste, even if the

leachate met all applicable effluent guidelines and other standards. As a result, several commenters noted that they must use costly and unnecessary incineration or other treatment at off-site facilities. In addition, the transportation and management from sending the wastes off-site actually may increase environmental risks and energy usage relative to the protective and cost-effective management in industrial wastewater systems. Several commenters noted that both landfills and land treatment units, as defined by RCRA, generate a leachate when constructed with a bottom liner. Leachate from either type of unit should qualify for the exclusion so long as it did not fail for a hazardous characteristic and the wastewater treatment system receiving the leachate was subject to regulation under the CWA. Two commenters also recommended as an alternative to considering leachate from hazardous waste landfills to be a newly generated waste, that EPA make it eligible for the headworks exclusion.

(2) EPA Response to Comments on Excluding Hazardous Waste Leachate

At this time, EPA is still considering the suggested regulatory exclusion for leachate derived-from landfilled hazardous waste as well as other specific exemption options, but we first need to evaluate several important issues. As noted in the comments, most hazardous waste leachate is regulated under a separate waste code, F039. To date, we have received no information that would cause us to reconsider that listing, although we would welcome any data that might be helpful in such a re-evaluation. However, in the most recent EPA study of landfill leachate characteristics (65 FR 3007, January 19, 2000), we found considerable differences between the leachate samples from hazardous and those from non-hazardous landfills in both numbers of constituents of concern and their concentrations. Hazardous waste landfill leachate contained a greater number of constituents than non-hazardous waste landfill leachate, and constituents found in both hazardous and non-hazardous waste landfill leachate were generally present in hazardous waste landfill leachate at concentrations an order of magnitude higher than those found in non-hazardous waste landfill leachate.¹⁹ As noted in the comments, these pollutants

¹⁹ Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category, EPA-821-R-99-019, U.S. EPA, January 2000.

can include many organic hazardous constituents not covered by the Toxicity Characteristic. Absent a risk assessment, it is not possible to determine whether the levels of these constituents pose unacceptable risk. However, the presence of these constituents is a strong indication that more study would be needed before developing an exemption for hazardous waste leachate.

C. Excluding Hazardous Waste Aggressive Biological Treatment Residues

Another suggested regulatory option involves excluding residues from the biological treatment of listed hazardous wastewaters. CMA argues that these wastes are both physically and chemically dissimilar from the wastes that were originally listed. In addition, CMA notes that biological treatment can greatly reduce or eliminate organic chemicals. Under the options presented in CMA's discussion papers, these wastes would not be hazardous, even though they are generated from the treatment, storage or disposal of hazardous waste, unless they exhibit one or more of the hazardous waste characteristics of Subpart C of 40 CFR part 261.

(1) Comments on Excluding Residues From Aggressive Biological Treatment of Hazardous Waste

EPA received comments from 10 commenters in response to the CMA recommendation to exclude aggressive biological treatment residues from the derived-from rule. Of those comments, four were received from industries, two were from industry associations, three were from State Agencies, and one was from a waste management association. A summary of the specific issues raised by commenters is provided below.

The waste management association did not support excluding sludges derived from the biological treatment of listed hazardous wastes. The commenter noted that the sludges typically contain concentrations of heavy metals that warrant further treatment and Subtitle C disposal. EPA's listing background document for F006 electroplating sludges, for example, provides data on the presence of lead, cadmium, chromium and other toxic metals in such wastewater treatment sludges.

Two States did not support the exclusion, noting that these sludges can continue to pose a threat to human health and the environment and should continue to be subject to the derived-from rule. The States also believed that these wastes should meet land disposal restriction (LDR) treatment standards, just as any other listed hazardous waste

is required to meet a treatment standard before being disposed in a permitted Subtitle C facility. One State noted that EPA proposed the retention of the mixture and derived-from rules in part because of the potential toxicity of wastewater treatment sludges. (See 64 FR 63389, November 19, 1999).

One State commenter noted that there may be merit in excluding aggressive biological treatment residues. However, to make a definitive decision, the State would need to evaluate constituent concentration data, current management practices, environmental injury cases caused by the residues, and whether the residues commonly exhibit a hazardous waste characteristic. Since wastewater treatment is a bonafide treatment method proven to detoxify or otherwise treat hazardous waste and the residues are physically and/or chemically different from the hazardous wastes they were generated from, the State believed it was appropriate to view the residues as newly generated wastes and impose RCRA regulation only if the waste exhibited a hazardous waste characteristic.

The rest of the commenters supported excluding sludges derived from the biological treatment of listed hazardous wastes. Many commenters noted that industrial biosludges currently are overmanaged as hazardous wastes at a high cost to industry. Several commenters added that residues from biological treatment processes have reduced organic constituent concentrations significantly relative to the original waste. Commenters noted that most listed wastewaters are 99% water and are therefore substantially different in terms of potential for environmental harm than a non-wastewater form of the same waste. Also, residues derived from aggressive biological treatment are fundamentally different (both chemically and physically) from the originally listed wastes and these residues should be considered a new point of generation. One commenter submitted data on the concentration of chemicals in a combined treatment sludge.

Additionally, commenters claimed that in recent hazardous waste listings, EPA has recognized that treatment sludges do not necessarily present any significant environmental hazard even when there is sufficient hazard in the waste as generated to warrant listing by EPA (e.g., wastewater treatment sludges from carbamates, anthraquinone, and chlorinated aliphatics). Commenters also noted that public reporting of these very large volumes of derived-from waste misleads the public over the

amount of actual hazardous waste in their communities.

Several commenters believed that there should not be a specific contingent management requirement associated with the excluded biosludge. Rather, the sludge would be subject to state industrial non-hazardous waste RCRA (Subtitle D) programs, including restrictions on industrial non-hazardous waste landfilling, combustion and other management options. Since industrial biosludge resulting from an aggressive biological treatment system is not significantly different from sewage sludge, the commenters expected that any restrictions placed on the use of sewage sludge would likewise apply to excluded sludge.

A few commenters pointed out that the LDR program for characteristic wastes has over the years established new points of generation. The commenters noted that in the LDR program, EPA recognized that various treatment residuals differ from the wastes from which they are derived and should not continue to be regulated as the same wastes. In at least three other situations, EPA has made a specific determination that the generation of wastewater treatment biosludge constitutes a new point of generation, generally on the basis that the wastewater being treated falls into one treatability group and the resultant sludge into another. They are: (1) Sludge from the treatment of U154 contaminated groundwater—The sludge is considered newly generated waste because it is a different treatability group than the wastewater being treated—sludge generated from treating non-ignitable wastewaters not derived from hazardous waste (03/21/96 Berlow, EPA to Day, Bryan Cave, LLP); (2) LDR notification requirements for wastewaters and sludges—LDR requirements apply only to wastes that are hazardous at the point of generation. Non-hazardous sludges removed from a wastewater treatment unit require no LDR notification. The requirement to identify and treat for underlying hazardous constituents (UHCs) is not applicable to wastewaters managed in centralized wastewater treatment systems subject to the CWA or to sludges that are not hazardous at the point of generation (05/01/97 Cotsworth, EPA to Dolce, Award Environmental Inc.); and (3) applicability of land disposal restrictions to tank-based wastewater treatment systems—LDRs do not apply to waste managed in systems that are entirely tank-based; sludge generated from wastewater treatment belongs to a different treatability group, and is

therefore a newly generated waste that should be evaluated at the point of generation (03/29/97 Berlow, EPA to Day, Bryan Cave, LLP).

(2) EPA Response to Comments on Excluding Residues From Aggressive Biological Treatment of Hazardous Waste

EPA is considering a tailored exclusion for biological treatment residues, but does not believe that a blanket exclusion from the mixture and derived-from rules is appropriate for such wastes. Not all wastestreams are amenable to biological treatment, and the composition of the residuals generated from biological treatment would vary greatly depending on the influent and on the efficacy of the treatment system.

We have, in the past, determined that biological treatment systems are inappropriate for metals and could result in impermissible dilution under the LDR program.²⁰ We have also denied a delisting petition for K035 sludges resulting from aerated biological treatment of creosote in a surface impoundment in part because of downgradient groundwater contamination.²¹ In addition, we have information that facilities have attempted to avoid generating F037 and F038 wastes by adding minimal aeration to primary treatment units and claiming the sludges from these units as excluded.²²

However, EPA believes there may be merit to the idea of regulating certain types of biological treatment residues differently. As noted in the comments, we have in the past excluded certain types of biological treatment wastes from regulation (see, for example, 40 CFR 261.3(c)(2)(ii)(D)). There may be other types of waste similarly amenable to biological treatment. Before developing such a regulatory proposal, EPA would first gather and analyze data on biological treatment waste. Therefore, any such data would be welcomed by the Agency.

²⁰ EPA 1990. *LDR Determination of Waste Stream Dilution*, Letter from Jeffery Denit, Deputy Director, Office of Solid Waste to Bruce Smith, Director, Office of Hazardous Waste Programs, EPA Region III, October 14, 1990. [FAXBACK 13414, PPC 9551.1990(06)]

²¹ EPA 1987. *K035 Listing and Inclusion of Sludges from Biological Treatment of Creosote Production Wastes*, Letter from Bruce R. Weddle, U.S. EPA, to Jordan Dem, Koppers Company, Inc., December 11, 1987. [FAXBACK 13105, PPC 9444.1987(52)].

²² U.S. EPA 1991. *Draft Region VIII Policy on "Aggressive Biological Treatment"*, Letter from Robert L. Duprey, Director, Hazardous Waste Management Division (EPA Region VIII) to Sylvia K. Lowrance, Director, Office of Solid Waste, April 19, 1991 (Ref: 8HWM-RI)

D. Excluding Hazardous Waste Combustion Residues

Another of CMA's suggested options involves excluding residues from the combustion of listed hazardous waste. CMA argues that these wastes are both physically and chemically dissimilar from the wastes that were originally listed. In addition, CMA notes that combustion can virtually eliminate organic chemicals. Under the options presented in CMA's discussion papers, these wastes, which would include combustion ash, slag, air pollution control residue and scrubber water, would not be hazardous, even though they are generated from the treatment, storage or disposal of hazardous waste, unless they exhibit one or more of the hazardous waste characteristics of 40 CFR part 261, Subpart C.

(1) Comments on Excluding Hazardous Waste Combustion Residues

EPA received comments from 15 commenters in response to the CMA recommendation to exclude hazardous waste combustion residues. Of those comments, seven were received from industries, two were from industry associations, four were from State Agencies, one was from a waste management company, and one was from a waste management association. A summary of the specific issues raised by commenters is provided below.

One waste management association and two State commenters did not support excluding combustion residues, noting that there is a great deal of variability in combustion residues. While some organic compounds are destroyed effectively by the combustion process, the residue may contain persistent constituents (e.g., dioxins and metals) that are toxic. Accordingly, while the combustion byproducts may be physically and chemically dissimilar from the listed waste it is derived from, the byproducts have toxic properties that could cause environmental degradation. The commenters believed that relying on the TC by itself fails to provide adequate protection of human health and the environment. The commenters mentioned that not all metals of concern are covered by the TC. They also noted that the TC only measures potential risks via the groundwater pathway, and it is not definitive that groundwater is the driving risk pathway for these wastes. Because the TC approach does not comprehensively evaluate potential risks, wastes that do not exhibit hazardous waste characteristics are not necessarily non-hazardous. In addition, one State commenter believed it was

prudent to wait for EPA's anticipated action on proposed combustion residues to address the physical and chemical properties of these wastes before any action is taken on CMA's proposal.

Two State commenters stated that there may be merit in excluding residues from the combustion of listed hazardous wastes. However, to make a definitive decision, one State would need to evaluate constituent concentration data, current management practices, environmental injury cases caused by the residues, and whether the residues commonly exhibit a hazardous waste characteristic. Since bonafide treatment has occurred and the residues are physically and/or chemically different from the hazardous wastes they were generated from, the State believed it was appropriate to view the residues as newly generated wastes and impose RCRA regulation if the waste exhibited a hazardous waste characteristic. Another State commenter believed an exclusion for combustion residues could be appropriate if the combustion takes place in a permitted (not interim status) hazardous waste combustion device; any listed wastes are listed for organic hazardous constituents only; the residual must not exhibit any characteristics; and the residues meet LDRs, including standards for underlying constituents. This approach would protect human health and the environment fully and would allow many combustion residues to exit Subtitle C regulation once LDRs are met.

The rest of the commenters believed that EPA should consider residues from hazardous waste combustion to be a new point of generation. These combustion residuals substantially differ in their physical and chemical makeup from the original listed hazardous wastes from which they are derived. Subtitle C regulation is not needed for such combustion residuals, especially if the residues do not exhibit hazardous characteristics. Instead, the residues can be managed adequately and protectively as industrial non-hazardous waste or discharged under the Clean Water Act. The commenters believed that the high cost of regulating these materials as hazardous waste purchases little or no increased protection of human health and the environment. The hazardous waste combustion process destroys virtually all of the organics in the listed wastes from which these residuals are derived, and the Toxicity Characteristic limits for metals are virtually the same as the health-based limits EPA-established for excluding Bevill wastes from Subtitle C regulation. One commenter submitted

information on the operating parameters and limits for their combustion unit and the concentrations of the sludge from incinerator scrubber water generated.

One industry commenter noted that in combustion-related rulemakings, EPA consistently has maintained that well-operated and maintained combustion units can achieve high combustion efficiencies and can be operated in a manner that is protective of human health and the environment. Therefore, the commenter recommended the exclusion be limited to residues from units that continuously monitor stack emissions of CO, and do not exceed a CO level of 100 ppmv measured as an hourly rolling average.

While agreeing with CMA's proposal, one association commenter believed it should be extended to combustion residues from facilities operating pursuant to 40 CFR part 266, subpart F, specifically residues from precious metal reclamation operations. The commenter noted that the recovery of precious metals from hazardous waste is not a TSDF operation, and the units are not permitted under the same CFR sections. The commenter added that precious metal-bearing residues also are environmentally safe for two additional reasons: (1) Precious metal-bearing residues must not exhibit one or more of the characteristics of hazardous waste and (2) the residues must contain economically significant amounts of precious metals (to partake of the authority of 40 CFR 266.100(f)), and thus such wastes will be further reclaimed rather than disposed, ensuring environmentally protective management.

One commenter supported the use of the TCLP extract concentration limits in Appendix VII to 40 CFR part 266 as the criteria for excluding combustion residues. Several commenters also believed that solid residues from hazardous waste combustion units that do not exhibit any toxicity characteristic should be considered industrial non-hazardous waste. As such, the materials would be subject to state industrial non-hazardous waste programs.

(2) EPA Response to Comments on Excluding Hazardous Waste Combustion Residues

EPA is considering a possible exclusion for certain combustion residues, but does not believe that a blanket exclusion from the mixture and derived-from rules is appropriate for such wastes. Although hazardous waste combustors must meet at least 99.99% DRE (destruction and removal efficiency), metals and certain organics may only be transferred to a residue.

The constituents can become significantly concentrated in the residue. EPA does not believe that stack emissions are a reliable measure of the risk posed by the combustion residue; in fact, as technology improves the removal capability of air pollution control devices, the resulting residue will likely have greater concentrations of hazardous constituents and may pose unacceptable risks if mismanaged. In addition, several of the mixture and derived-from waste damage cases that EPA has identified are a result of improper disposal of combustion residues.²³

In addition, EPA is particularly concerned about the possible formation of dioxins and furans during hazardous waste combustion. In the September 1999 combustion rule, we noted that there is "a considerable body of evidence" to show that dioxin and furan compounds can be formed in the post-combustion regions of hazardous waste combustors (see 64 FR 52994). Because of this concern, we have added these dioxin and furan compounds to Appendix VIII of 40 CFR part 266, which lists products of incomplete combustion (PICs) likely to be found in stack effluents.

However, EPA is considering a proposed tailored exclusion for certain combustion residues. For example, EPA is currently developing for public comment a proposed exclusion that focuses on wastes that have been slagged to liquefaction. These slagged wastes are unique because the high temperatures associated with liquefaction (2100°F, typically) appear to eliminate organic chemicals, including PICs, and generate a slagged residue which is a glassy, liquid, molten material that, when cooled, forms a potentially durable, homogeneous, solid mass. This combination of elimination of organic chemicals and change in physical form (which can reduce risk from non-groundwater pathways) make these slagged residues potential candidates for de-regulation. However, the liquefaction process does not reduce the concentration of toxic metals in the waste, which we would need to evaluate for potential risks to human health and the environment. EPA is planning to address this issue, as well as other possible tailored exclusions for combustion residues, in the upcoming proposal.

E. Expanding the Current De Minimis Exclusion

A final regulatory option to revise the mixture and derived-from rules would expand a current exclusion for "*de minimis*" losses that result from the manufacture of commercial chemical products. The current exclusion, found in 40 CFR 261.3(a)(2)(iv)(D), excludes small losses of a commercial chemical product that can result from normal handling of the chemicals during the manufacturing process. The existing exclusion applies to commercial chemical products or intermediates, when they are lost during the manufacturing operation and are subsequently managed as a wastewater subject to regulation under the Clean Water Act (CWA) (see 46 FR 56586). The suggested expansion of this option would also exclude small losses from the normal handling of all listed hazardous wastes (instead of just commercial chemical products) when managed as a wastewater under the CWA. One rationale for the current "*de minimis*" exclusion is that a facility has little economic incentive to allow spills, leaks or other losses of commercial products. With respect to wastes, CMA believes that tank, container and air emission management standards of 40 CFR parts 264 and 265, subparts I, J, BB, and CC serve to encourage safe management of these wastes.

(1) Summary of Comments on Expanding the Current De Minimis Exclusion

EPA received comments from 15 commenters in response to the suggested expansion of the *de minimis* exclusion. Of those comments, six were received from industries, four were from industry associations, three were from State Agencies, one was from a Federal Government Agency, and one was from a waste management association. A summary of the specific issues raised by commenters is provided below.

Three commenters did not support the exclusion, believing that the exclusion might serve as an incentive for generators to spill or leak listed wastes into non-hazardous wastewater systems if those wastes were eligible for an exclusion. The current exclusion exists for commercial chemical products and companies typically ensure that raw materials/products are handled in a manner which would minimize losses, as these materials/products are valuable. The commenters did not believe that companies necessarily would take the same amount of care to prevent losses of listed wastes, if those wastes were excluded from Subtitle C.

One State commenter supported the exclusion. However, the State believes that rinsate from large hazardous waste containers that are rendered empty should be outside the definition of a *de minimis* loss. Large containers such as tanker trucks could contain substantial quantities (possibly hundreds of gallons) of hazardous waste. Such a volume of hazardous waste is outside the scope of losses that should be defined as *de minimis* and should not be defined as such.

One industry commenter stated that it was not clear from the preamble discussion what was meant by "rinsate from empty containers or from containers that are rendered empty by that rinsing." The commenter noted that rinsate from containers that held hazardous waste "generally contains concentrations of hazardous constituents which are at least as high as the original waste" and may contain significant quantities of solids. The quantities used to rinse containers of this type also may be significant depending upon the level of contamination in the container. In some cases it is not possible to clean a container to the point of being empty under the RCRA regulations and the container has to be disposed of as hazardous waste. The commenter believed that this issue must be clarified further before any exclusion could be considered. An industry association commenter also noted that the CMA proposal did not identify adequately the wastes for which the exclusion would operate. Since RCRA-empty container rinsate is already excluded, the commenter believed it should be specified that any exclusion need only address acute hazardous waste rinsate.

The rest of the commenters supported expanding the *de minimis* exclusion to all listed wastes. Several commenters believed that the exclusion could be extended beneficially to cover the very small losses from the normal handling of all listed wastes. The stringent regulation of hazardous waste handling at the site of generation means that few losses of this type would be expected to occur. The ability to manage *de minimis* losses of listed wastes as non-hazardous would ease RCRA compliance significantly without compromising the integrity of the NPDES wastewater treatment system or protection of human health and the environment.

The commenters noted that there was no reason to assume that a non-hazardous industrial wastewater treatment facility was any less capable of providing adequate treatment of the hazardous constituents found in listed wastes. EPA's stringent container and

²³ See table 1, EPA 2000. *Releases of Hazardous Constituents Associated with Mixture and Derived-from Wastes (An Update)* U.S. EPA, April 2000.

tank management standards in 40 CFR parts 264 and 265 subparts I and J, and air emission standards in subpart CC, serve as powerful incentives to properly manage these wastes to minimize the occurrence of "de minimis" losses. The Federal commenter supported the expansion, noting that it would provide to military installations the same level of regulation as is currently applicable to manufacturing industries. One industry commenter recommended that facilities wishing to take advantage of this exclusion be required to develop and implement written Best Management Practices (BMP) for all loading, unloading and transfer operations which are designed to minimize spills and prevent abuse of the exclusion.

One commenter questioned why EPA never has set out a scientific rationale by which it reserves the discriminatory use of the de minimis rule to those engaged in the manufacturing process and denies it to all others, including stand-alone bulk liquid commercial chemical storage terminals. The commenter also suggested that de minimis losses include those from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers, leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing.

Another commenter believed that there would be significant benefits from allowing de minimis losses of commercial chemical products from laboratories to be covered by the current regulatory exclusion. The types of commercial chemical products being used and tested in the laboratory also could be expected to be amenable to effective treatment in an on-site wastewater treatment system. The commenter noted that significant time, effort and cost is involved in segregating and capturing these types of de minimis losses from on-site laboratories.

(2) EPA's Response to Comments on Expanding the Current De Minimis Exclusion

EPA is considering the possibility of expanding the current de minimis exclusion for wastes managed in a wastewater treatment system subject to the Clean Water Act. However, EPA is

concerned about the possible negative incentives that might result from extending the de minimis exclusion to wastes listed in 40 CFR 261.31 and 261.32 (F and K wastes, respectively). As noted in the comments, there is a direct economic incentive to ensuring that raw materials/products are handled in a manner which would minimize losses, as these materials/products are valuable. This incentive does not exist for hazardous waste. The concept of "de minimis" is also variable, depending on the quantities of material handled and the relationship of those quantities with the flowrate of the facility's wastewater treatment plant. However, EPA realizes that separation of small leaks of certain hazardous wastes can sometimes be impractical.

One possible approach would be to base the concept of "de minimis" on some fixed quantity of the waste, such as a Reportable Quantity (RQ) in Superfund regulations (see 40 CFR 302.4 and Table 302.4). By statute, all hazardous wastes must be given an RQ. EPA may pursue the concept of de minimis related to RQs (or some fraction or multiple thereof) as we consider this issue further. In pursuing such a change, EPA would do so through a proposed rulemaking.

In conclusion, EPA is currently developing proposals related to two of the suggestions that we believe to be the most straightforward to address: expanding the current headworks exclusion and excluding certain combustion residues (see Sections X.A. and X.D. respectively). We will also consider developing additional proposals on the other suggestions as well as other targeted exemptions, but we believe more analysis would first be necessary to decide how to address specific issues raised in the public. EPA welcomes any information or data that would help us in developing these analyses.

State Authorization

XI. How Will Today's Regulatory Changes Be Administered and Enforced in the States?

Under section 3006 of RCRA, EPA may authorize qualified States to carry out the RCRA hazardous waste program within the State. Following authorization, we maintain independent enforcement authority under sections 3007, 3008, 3013, and 7003 of RCRA, although authorized States have enforcement responsibility. An authorized State could become authorized for today's regulatory changes by following the approval process described under 40 CFR 271.21.

See 40 CFR part 271 for the overall standards and requirements for authorization.

We are finalizing the retention of the mixture and derived-from rules. Most states have already received authorization for the mixture and derived-from rules as they currently stand. The rules are already in effect in those authorized States. Those states that are already authorized for the mixture and derived-from rules do not need to obtain authorization for those rules again. We are also revising those rules under the authority of sections 3001(a), 3002(a), and 3004(a) of RCRA. These revisions will not go into effect in authorized States until they adopt the revisions and receive authorization from us for the revision to their regulations.

None of today's revisions are more stringent or broaden the scope of the existing Federal requirements. Authorized States are not required to modify their programs when we promulgate changes to Federal requirements that are less stringent than, or that narrow the scope of, existing Federal requirements. This flexibility stems from RCRA section 3009, which allows the States to impose (or retain) standards that are more stringent than those in the Federal program. (See also 40 CFR 271.1(i)). Therefore, States are not required to adopt the revisions to the mixture and derived-from rules in today's rule, although EPA will strongly encourage their adoption.

Administrative Requirements

XII. How Has EPA Fulfilled the Administrative Requirements for This Rulemaking?

Several statutes and executive orders apply to rulemaking. Below is an explanation of how we address the requirements in those provisions:

A. Executive Order 12866: Determination of Significance

Under Executive Order 12866 (58 FR 51,735 (Oct. 4, 1993)), EPA must determine whether a regulatory action is "significant" and, therefore, subject to OMB review and the other provisions of the Executive Order. 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 a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or rights and obligations or recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order 12866.

Pursuant to the fourth term of Executive Order 12866, we have determined that this rule is a "significant regulatory action" because there are novel policy issues arising out of legal mandates. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the docket to today's rule.

Although today's final rule is not "economically significant," the Agency prepared an economics background document in support of today's rule, titled *Economic Assessment of the U.S. EPA's 2001 Final Rule Revising the Mixture and Derived-From Rules*.

There are currently 29 hazardous waste codes within the RCRA program listed solely for ignitability (I), corrosivity (C), and/or reactivity (R) characteristics. Today's rule excludes these wastes from RCRA Subtitle C regulation, if such wastes are de-characterized and meet the associated LDR treatment standards. To estimate the potential economic impact of excluding these 29 characteristically-listed RCRA waste codes, we analyzed the type and quantity of industrial hazardous wastes contained in the two databases: the 1986 "Generator Survey", and the 1996 "National Hazardous Waste Constituent Survey." These two databases are described in the Economic Assessment background document.

This exclusion is expected to benefit the relevant segment of the RCRA regulated community by reducing the cost of shipping and disposing these de-characterized wastes. This potential cost savings is modeled in this study as consisting of two components:

(1) The difference between the cost for disposal of treatment residuals from these 29 waste codes in hazardous landfills (i.e., current or "baseline" practice), compared to the cost for disposal in nonhazardous landfills under this exclusion.

(2) The reduction in burden hours and associated burden cost for no longer requiring preparation, transmitting and filing of truck shipment hazardous waste manifests (EPA Form 8700-22) for these potentially excluded wastes.

The database extractions, computations and findings of the impact analysis are presented in the Economic Assessment background document. The highlights of EPA's estimated economic impacts for this revision are as follows:

—236 applicable industrial hazardous waste streams, totaling 3.6 million tons in annual generation (before RCRA Subtitle C hazardous waste treatment) by an estimated 120 US facilities.

—As generated, these waste streams consist of 99% liquid (mainly organic liquids) and 1% non-liquid (sludge) waste forms.

—The 3.6 million annual tons of applicable waste (before RCRA Subtitle C hazardous waste treatment), represents 1.4% of the total RCRA hazardous waste universe (1993 BRS large generator total quantity = 258 million tons).

—Approximately 75% of the potentially excluded waste streams are identified by waste code F003 (spent non-halogenated solvents) plus a characteristic waste code (for example, D001), and 19% are identified by waste code F003 only.

—Applicable waste streams are located in 17 four-digit level SIC code industry sectors. 146 (62%) of the 236 applicable waste streams are generated by industries in SIC 28 (represented also by NAICS code 325).

—There are 51 different hazardous chemical constituents in the wastestreams *before treatment*; prevalent ones include: ethylbenzene, toluene, methyl ethyl ketone, methanol, ethyl acetate, xylenes, acetone, methylene chloride, and n-butyl alcohol.

—After RCRA Subtitle C treatment (mainly incineration), the 236 wastestreams result in the annual disposal of about 57,400 tons of treatment residuals, primarily in the form of incineration ash.

—Potential annual industry waste treatment residual disposal cost savings is estimated at \$4.593 million, while annual reduction in truck shipment manifesting cost is estimated at \$0.455 million. These two cost savings components represent a total annual cost savings estimate of \$5.048 million. Applying -15% to +30% cost estimation uncertainty to this point-estimate (as explained in the background document), produces the associated cost savings estimation range of \$4.29 to \$6.56 million per year.

B. Regulatory Flexibility Act

Pursuant to the 1980 Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et*

seq., as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency publishes a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment, a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions). However, a regulatory flexibility analysis is not required if the head of an agency certifies that the rule will not have a "significant" economic impact on a substantial number of small entities.

SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a "significant" economic impact on a substantial number of small entities. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 *et. seq.*

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business that meets the Small Business Administration size standards established for industries as described in the North American Industry Classification System (see <http://www.sba.gov/size/NAICS-cover-page.html>); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. In determining whether a rule has a significant economic impact on a substantial number of small entities, the impact of concern is any significant adverse economic impact on small entities, since the primary purpose of the regulatory flexibility analyses is to

identify and address regulatory alternatives “which minimize any significant economic impact of the proposed rule on small entities.” 5 U.S.C. 603 and 604. Thus, an agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, or otherwise has a positive economic effect on all of the small entities subject to the rule.

The following discussion presents the facts for EPA’s determination. EPA has examined this rule’s potential effects on small entities as required by the RFA/SBREFA, and has determined that this action will not have a significant economic impact on a substantial number of small entities. As discussed in Section XII.A of this preamble, we have prepared an economic analysis of the potential effects of this rule, and have determined that the rule is expected to have a net beneficial effect on eligible entities, in the form of reduced environmental regulatory compliance costs for industrial waste management. The final rule allows small (and other size) entities voluntarily to exempt certain solid wastes (i.e. mixtures and derivatives of solid wastes listed as RCRA hazardous solely for the ignitability, corrosivity, and/or reactivity characteristics, which no longer exhibit any such characteristic, and which comply with RCRA land disposal restrictions), from compliance with the RCRA Subtitle C hazardous waste regulatory system. The economic analysis evaluates the extent to which both small quantity and large quantity industrial waste generators might be potentially eligible for cost savings under this rule, as a result of seeking this exemption. This proposed rule is voluntary, and the overall economic effect of this regulation for both small and large entities which are eligible to participate, is expected to be a net average annual reduction in industry regulatory burden and compliance costs. Consequently, because the net economic impacts and effects of this rule are beneficial rather than adverse, we have concluded that today’s final rule will relieve regulatory burden for all small entities.

C. Paperwork Reduction Act (Information Collection Request)

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 (ICR No. 0801.12) and

a copy may be obtained from Sandy Farmer by mail at OP Regulatory Information Division; U.S. Environmental Protection Agency (2137); 1200 Pennsylvania Avenue NW.; Washington, DC 20460, by E-mail at farmer.sandy@epamail.epa.gov, or by calling (202) 260–2740. A copy may also be downloaded off the Internet at <http://www.epa.gov/icr>.

Today’s revisions of 40 CFR 261.3 do not include any new recordkeeping or reporting requirements. However, the revisions could reduce the burden estimate for existing RCRA information collection requirements, such as the Uniform Hazardous Waste Manifest (Form 8700–22A). As discussed in Section XII.A. of this preamble, today’s rule could exclude approximately 54,700 tons of treated waste residuals (mainly incineration ash) per year. Assuming that these now-excluded wastes are shipped offsite for disposal, and assuming that an average truckload carries about 20 tons (of solids), today’s rule could result in approximately 2,870 shipments per year that would no longer require Uniform Hazardous Waste Manifest. (This estimate is an upper bound, since many hazardous waste generators manage their waste on-site). The RCRA Hazardous Waste Manifest System ICR (No. 0801.12.) estimates an annual burden of 1.29 hours per shipment of hazardous waste. Therefore, today’s rule could reduce the total burden associated with manifests by 3,702 hours per year. (The current burden associated with manifests is estimated to be 2,920,383 hours per year).

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, 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 disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA’s regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, we 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.

Before promulgating an EPA rule for which a written statement is needed, 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, we must have developed a small government agency plan under section 203 of the UMRA. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today’s revision to the mixture and derived-from rules is voluntary, and because these revisions are less stringent than the current regulations, State governments are not required to adopt the regulatory changes. The UMRA generally excludes from the definition of “Federal intergovernmental mandate” duties that arise from participation in a voluntary federal program. The UMRA also excludes from the definition of “Federal private sector mandate” duties that arise from participation in a voluntary federal program. Therefore we have determined that today’s rule is not subject to the requirements of sections 202 and 205 of UMRA.

E. Executive Order 13132 (Federalism)

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. As explained in Section XI of this preamble, none of today's revisions are more stringent or broaden the scope of the existing Federal requirements. Therefore, States are not required to adopt the revisions to the mixture and derived-from rules in today's rules. Thus, Executive Order 13132 does not apply to this rule. Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with representatives of state governments in developing this rule, and included representatives of state governments as participants in the rulemaking workgroup. For an overview of EPA's consultations with the States, please see *Summary of Consultations with State Representatives for the Hazardous Waste Identification Rule (HWIR)*.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes."

This final rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Because today's revision to the mixture and derived-from rules is less stringent than the existing program, it would not create any mandate on Indian tribal governments. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

"Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by us. This rule is not subject to Executive Order 13045 because it is not an economically significant rule as defined by Executive Order 12866 and because the environmental health or safety risks addressed by this action do not present a disproportionate risk to children.

H. National Technology Transfer and Advancement Act of 1995

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104-113, section 12(d) (15 U.S.C. 272 note) directs us to use voluntary consensus standards in our regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (for example, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when we decide not to use available and applicable voluntary consensus standards. Today's rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

I. Executive Order 12898: Environmental Justice

Under Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," as well as through EPA's April 1995, "Environmental Justice Strategy, OSWER Environmental Justice Task Force Action Agenda Report," and National Environmental Justice Advisory Council, EPA has undertaken to incorporate environmental justice into its policies and programs. EPA is committed to addressing 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 Agency's 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. Today's rule is not expected to negatively impact any community, and therefore is not expected to cause any disproportionately high and adverse impacts to minority or low-income communities versus non-minority or affluent communities.

J. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit 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 United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective August 14, 2001.

Technical Correction

XIII. What Technical Correction Is EPA Making in Today's Rulemaking?

In today's final rule, we also are correcting an error made in a previous notice. In the final rule published June 8, 2000, "Organobromines Production Wastes; Petroleum Refining Wastes; Identification and Listing of Hazardous Waste; Land Disposal Restrictions; Final Rule and Correcting Amendments" (65

FR 36365), the entry for listed hazardous waste code U048 (o-Chlorophenol) in Table 1 of Appendix VII to 40 CFR part 268 ("Effective Dates of Surface Disposed Wastes (Non-Soil and Debris) Regulated in the LDRs-Comprehensive List") was inadvertently removed. Today we are amending Table 1 of Appendix VII to 40 CFR part 268 to reinsert the entry for hazardous waste code U048. The LDR effective date for this waste code (all waste categories) was August 8, 1990.

List of Subjects

40 CFR Part 261

Environmental protection, Hazardous waste, Recycling, Waste treatment and disposal.

40 CFR Part 268

Hazardous waste, Reporting and recordkeeping requirements.

Dated: April 30, 2001.

Christine Todd Whitman,
Administrator.

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

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

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

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, 6924(y), and 6938.

2. Section 261.3 is amended by removing and reserving paragraph (a)(2)(iii) and revising paragraph (a)(2)(iv) and the first sentence of paragraph (c)(2)(i); and by adding paragraphs (g) and (h) to read as follows:

§ 261.3 Definition of hazardous waste.

- (a) * * *
- (2) * * *
- (iii) [Reserved]
- (iv) It is a mixture of solid waste and one or more hazardous wastes listed in

subpart D of this part and has not been excluded from paragraph (a)(2) of this section under 40 CFR 260.20 and 260.22, paragraph (g) of this section, or paragraph (h) of this section; however, the following mixtures of solid wastes and hazardous wastes listed in subpart D of this part are not hazardous wastes (except by application of paragraph (a)(2)(i) or (ii) of this section) if the generator can demonstrate that the mixture consists of wastewater the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and;

* * * * *

(c) * * *

(2) (i) Except as otherwise provided in paragraph (c)(2)(ii), (g) or (h) of this section, any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash emission control dust, or leachate (but not including precipitation run-off) is a hazardous waste. * * *

* * * * *

(g)(1) A hazardous waste that is listed in subpart D of this part solely because it exhibits one or more characteristics of ignitability as defined under § 261.21, corrosivity as defined under § 261.22, or reactivity as defined under § 261.23 is not a hazardous waste, if the waste no longer exhibits any characteristic of hazardous waste identified in subpart C of this part.

(2) The exclusion described in paragraph (g)(1) of this section also pertains to:

- (i) Any mixture of a solid waste and a hazardous waste listed in subpart D of this part solely because it exhibits the characteristics of ignitability, corrosivity, or reactivity as regulated under paragraph (a)(2)(iv) of this section; and

(ii) Any solid waste generated from treating, storing, or disposing of a hazardous waste listed in subpart D of this part solely because it exhibits the characteristics of ignitability, corrosivity, or reactivity as regulated under paragraph (c)(2)(i) of this section.

(3) Wastes excluded under this section are subject to part 268 of this chapter (as applicable), even if they no longer exhibit a characteristic at the point of land disposal.

(h)(1) Hazardous waste containing radioactive waste is no longer a hazardous waste when it meets the eligibility criteria and conditions of 40 CFR part 266, Subpart N ("eligible radioactive mixed waste").

(2) The exemption described in paragraph (h)(1) of this section also pertains to:

(i) Any mixture of a solid waste and an eligible radioactive mixed waste; and

(ii) Any solid waste generated from treating, storing, or disposing of an eligible radioactive mixed waste.

(3) Waste exempted under this section must meet the eligibility criteria and specified conditions in 40 CFR 266.225 and 40 CFR 266.230 (for storage and treatment) and in 40 CFR 266.310 and 40 CFR 266.315 (for transportation and disposal). Waste that fails to satisfy these eligibility criteria and conditions is regulated as hazardous waste.

PART 268—LAND DISPOSAL RESTRICTIONS

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

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

Appendix VII to Part 268—[Amended]

4. Appendix VII to part 268 Table 1 is amended by adding the following wastestream in alphanumeric order (by the first column) to read as follows:

Waste code	Waste category	Effective date
U048	All	Aug. 8, 1990.