US EPA ARCHIVE DOCUMENT

RESPONSE TO COMMENTS DOCUMENT

Land Disposal Restrictions--Phase IV:
Final Rule Promulgating Treatment Standards for
Metal Wastes and Mineral Processing Wastes;
Mineral Processing Secondary Materials and
Bevill Exclusion Issues; Treatment Standards for
Hazardous Soils; and Exclusion of
Recycled Wood Preserving Wastewaters

Volume 2
Phase 4 Proposed Rule Comments
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U.S. Environmental Protection Agency
Office of Solid Waste
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List of Phase IV Land Disposal Restriction Codes, Description, and Location by Page Number

Index of Commenters and Location of Comment, By Issue

DCN PH4P048
COMMENTER Chemical Waste Management
RESPONDER PJL
SUBJECT ARSN
SUBJNUM 048
COMMENT

In lieu of maintaining the current metal characteristic treatment standards CWM proposes that the Agency consider the establishment of two "High" subcategories for both Arsenic and Selenium wastewater and nonwastewaters. This is because both of these compounds present technical problems in achieving lower levels and it is not clear that the proposed levels can be met utilizing existing stabilization technology. The recommendations are as follows:

1) Establish a "High Arsenic > 200 ppm subcategory" with a treatment level of 5 mg/l for arsenic wastewater and nonwastewaters.

2) Establish a "High Selenium > 200 ppm subcategory" with a treatment levels of 10 mg/l for both wastewater and nonwastewaters.

RESPONSE

With respect to establishing subcategories for arsenic and selenium, the Agency notes that treatment standard for arsenic was not addressed in the current rulemaking and therefore, is not soliciting any comments on this issue. Regarding the comment on high selenium subcategory, EPA reviewed all the treatment data and has determined that, for the most part, waste streams containing selenium exist either in relatively low concentrations (0.1 to 0.13 mg/L TCLP) or in extremely high concentrations (greater than 450 mg/L TCLP). Waste Management, Inc. submitted data for several waste streams containing high selenium. The Agency, after a through review, believes that a treatment level of 5.7 mg/L TCLP for selenium could not be achieved for these high selenium containing waste streams. Therefore, in a separate companion piece to this rule, the Agency is requesting comment on a proposal to grant a site-specific treatability variance for Waste Management, Inc. for the treatment of these D010 wastes containing greater than 450 ppm TCLP of selenium. The commenter is referred to a separate notice contained in the Federal Register for this rule for additional information. The Agency is promulgating the selenium treatment standard for all other wastes, covered by today's rule, at 5.7 mg/L TCLP.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

COMMENT

- In Part Three, Section II of the supplemental proposed rule, EPA discusses State authority primarily as it relates to Part One of the notice which pertains to mineral processing issues. DOE does not believe that State authority with respect to the "Other RCRA Issues," covered under Part Two of the proposed rule, has been adequately addressed. Specifically, clarification should be provided as to whether the exclusions of processed scrap metal and shredded circuit boards are considered by the Agency to be less stringent than current Federal regulations, and whether authorized states would be required to modify their programs to adopt requirements equivalent to the provisions contained in the proposed rule with respect to scrap metal and circuit boards. 2. In Part Three, Section II of the supplemental proposed rule, EPA discusses State authority primarily as it relates to Part One of the notice which pertains to mineral processing issues. DOE does not believe that State authority with respect to the "Other RCRA Issues," covered under Part Two of the proposed rule, has been adequately addressed. Specifically, clarification should be provided as to whether the exclusions of processed scrap metal and shredded circuit boards are considered by the Agency to be less stringent than current Federal regulations, and whether authorized states would be required to modify their programs to adopt requirement equivalent to the provisions contained in the proposed rule with respect to scrap metal and circuit boards.

(U.S. Department of Energy, 006)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Streamlined Authorization MDEQ strongly supports EPA's proposal for expedited authorization of Phase IV program elements. MDEQ suggests that EPA expand this expedited authorization concept to most other program elements as well. MDEQ agrees with EPA's evaluation that EPA need only ascertain that a State has the requisite legal authority and resources to implement a program and that detailed review is unnecessary. Such an approach would bring to a close the seemingly endless process of application, comments and revisions that plague the authorization process. Please refer to the MDEQ,s earlier comments regarding the appropriateness of citing 40 CFR 267. EPA should provide a better description or model of the public participation it considers necessary in developing regulations for land-based mineral processing units.

(Montana Dept. of Environment, 023)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization

Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Section IV of these comments addresses the unprecedented, illegal, and inappropriate state authorization procedures the Agency proposed for implementing the exemption conditions applicable to the recycling of mineral processing wastes. As discussed in Section IV, the proposal abandons the fundamental principle that authorized state program requirements should be no less stringent than their federal counterparts and is structured so that neither EPA nor the public can evaluate whether a state program applies its requirements in a manner protective of human health and the environment and consistent with federal law.

(Friends of the Earth, EDF, 041)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Under the guise of a "streamlined" state authorization process, EPA has proposed state authorization requirements related to mineral processing wastes that are both unlawful and unwise. As explained in this portion of the comments, EPA's approach fails to satisfy the provisions of Sections 3006 and 3009 of RCRA, and forsakes the oversight of state program requirements needed to ensure protection of human health and the environment on a nationwide basis. Section 3006 of RCRA requires EPA to make express findings that all three of the conditions specified in statute have been met before a state can be authorized to administer the RCRA program in lieu of EPA.

  Those three conditions are that the program is equivalent to the federal program, consistent with the federal and other state programs, and provides for adequate enforcement. The equivalency determination under Section 3006 is further bounded by Section 3009 of RCRA, which prohibits a state from imposing requirements less stringent than those promulgated by EPA under Subtitle C of RCRA. Under EPA's proposal, states must demonstrate their mineral processing waste requirements have six components, including design and operating conditions on units covered by this Rulemaking, groundwater protection criteria, and groundwater monitoring. However, in none of these areas (or the other three elements) do the proposed rules require that the state program requirements provide equivalent or greater protection than the federal rules proposed by the Agency. For example, under EPA's proposal, a state must demonstrate it can impose design standards on exempt units as a condition of obtaining the exemption, but the design requirements may be substantially weaker than the requirements EPA promulgated under option 2. Similarly, a state may impose groundwater monitoring, but the frequency of monitoring, the constituents monitored, and the location of the point of compliance may be less stringent than the federal rules proposed in option 1.

In addition, the groundwater protection criteria may provide less protection of human health and the environment than the comparable federal requirements. - Therefore, notwithstanding the plethora of weaknesses in the proposed federal rules, the proposed state authorization scheme contemplates a process whereby states may impose less stringent requirements than those deemed necessary by EPA to protect human health and the environment. This approach is completely without precedent under Subtitle C of RCRA, in large part because it blatantly violates Sections 3006 and 3009 of RCRA. Even with respect to Option 3, EPA will unable to ensure state program requirements provide equivalent or better protection than the federal program, and are consistent with the federal and other state programs. As EPA acknowledges in the case of option 3, it is necessary to evaluate how the state will apply its authorities to individual cases. Yet under the proposed authorization requirements, state authorization applications will only contain information on program authorities, not how those authorities have been or will be employed.

Moreover, EPA will limit its review of the application to whether a state has the necessary authority, and not whether EPA does not intend to conduct the evaluation necessary to ensure site-specific determinations under option 3 are protective of human health and the environment, equivalent to and no less stringent than the federal program, and consistent with the federal and other state programs. It is also unclear whether in a state authorization proceeding EPA would regard as germane comments from the public on the application of state requirements to individual sites . Ironically, EPA justifies the "streamlined" authorization approach because "states are familiar" with the kind of issues raised by this Rulemaking and have existing programs that could be evaluated in this context. Therefore, conducting the evaluation of how a state would apply its authorities is both timely and appropriate. Moreover' even if a state lacked an extensive history of making decisions resembling the site specific determination in the instant Rulemaking, EPA can certainly request the state to articulate whether and under what circumstances a state would entertain such site-specific applications, and the conditions the state would apply under those circumstances.

EPA's mandate under RCRA to ensure a baseline level of protection nationally requires such a demonstration before inappropriate site-specific decisions are rendered, particularly where EPA's authority to override authorized state decisions may be limited. With respect to enforcement, the proposed authorization procedures lack any qualitative review of a state program's enforcement resources, policies, record or capability. EPA justifies this approach based upon the information already provided in previous RCRA authorization applications, but in this case EPA anticipates some or all states may be relying upon non RCRA authorities, in whole or in part, to satisfy the state authorization requirements . To date, it is highly unlikely the Agency has previously reviewed the adequacy of a state's enforcement program under these non-RCRA authorities. Therefore, under the proposed authorization procedures, EPA has no factual or valid basis for rendering the enforcement finding for the non RCRA authorities required under Section 3006 of RCRA. Based upon the enforcement record of some states under their non-RCRA authorities, this is a matter of grave concern.

In brief, some states do not enforce their non-RCRA requirements effectively unless there are mechanisms for providing active EPA review and oversight or citizen intervention. Accordingly, it is imperative that adequate enforcement becomes an important element of EPA's authorization review insofar as non-RCRA authorities form the basis of a state's authorization application. For example, Arizona's historical enforcement record using non-RCRA authorities is grossly inadequate. Documented noncompliance for several hundred wastewater treatment plants, and chemical contamination exceeding applicable limits for 10% of the facilities with groundwater/aquifer protection permits, prompted the Sierra Club to file suit against the Arizona Department of Environmental Quality seeking agency enforcement of its own requirements and permits. More recently, years of delay by Arizona to revise its water quality standards in a manner consistent with federal law prompted a federal court to order EPA to finish the job and promulgate federal standards that would apply instead of the state standards. Significantly, one the principal deficiencies in the state standards was an exemption for mining related impoundments, the same units at issue in the instant Rulemaking. The Court found that Arizona's failure to take appropriate action resulted in substantial adverse environmental impacts to Arizona's lakes caused by mining operations. The Court ordered EPA to promulgate the federal standards notwithstanding EPA's pledge that the Agency (and not the state) would protect Arizona's waters from exempt mining activities.

This case conclusively demonstrates the importance of baseline, enforceable federal standards; and the need for active federal and public review and oversight of a state's program requirements, particularly for mining activities in states where the industry is politically powerful. Even if the proposed state authorization procedures were lawful, they are flawed as a matter of policy. As EPA noted when it first proposed the concept, a streamlined process is appropriate only where the regulatory changes are "minor in nature" and do not involve major changes in regulatory approach . In the instant Rulemaking, the proposed exemption for mineral processing land-based units is a matter of first impression in the RCRA program, involving substantial and complex decisions regarding the nature and extent of recycling in such units, and the appropriate means of ensuring such units do not become part of the waste management problem.

These changes are neither "minor in nature" nor "a routine part of the RCRA program" . Moreover, when EPA first proposed the concept of streamlined authorization, the Agency still required that state program requirements be no less stringent than the promulgated federal requirements. In the instant Rulemaking, EPA unlawfully abandoned that fundamental principle.

(Friends of the Earth, EDF, 041)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Cyprus Amax supports the concept of allowing authorized states or EPA Regions to make site-specific determinations of unit status; however, the proposed rule is unlawfully vague with respect to the parameters and procedures that would be used to make such determinations As an alternative to the prescriptive groundwater monitoring and design and operating requirements set forth in the proposed "conditional exclusion," EPA is considering allowing authorized states and EPA Regions to make site-specific determinations that land-based units are operating as process units, and not waste disposal units. 61 Fed. Reg. 2346. Cyprus Amax strongly supports the need for authorized states to make site-specific determinations of unit status that take into account non-RCRA state authorities. One good example of such authority is the APP program in Arizona. The proposed rule, however, is unlawfully vague with respect to the parameters and procedures that would be used to make such determinations. Although EPA has sketched out some of the criteria that it would use in determining whether to authorize state programs, it has not provided sufficient guidance concerning how site-specific determinations would be made, nor does it specify whether and how such decisions could be appealed, and by whom. Instead, the Agency cites a nonexistent "environmental performance standard" at 40 C.F.R. REWRITE 267. 10 as the source of "the factors typically to be considered ... in making site specific determinations." EPA should have provided notice and opportunity for comment on how it envisions site specific determinations of unit status would be made, including the factors to be considered, how the decision making process would be initiated and carried through to completion, and what types of appeal rights would be provided in the case of an adverse decision. The site-specific determination process should not incorporate or require any sort of "multi-pathway" modeling or analysis, given the speculative and inaccurate aspects of EPA's current models. Instead, site specific unit determinations of unit status must use relevant portions of existing regulatory programs (@, state aquifer protection and mining programs).

(Cyprus Amax Minerals Comp, 046)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization

Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Safety-Kleen supports the Agency's intent to streamline the state authorization process Safety-Kleen looks forward to the more streamlined state authorization procedures that are to be presented in the upcoming proposed Hazardous Waste Identification Rule (HWIR) addressing Contaminated Media. Safety-Kleen conducts transport, storage, and/or treatment operations in 50 states and one U.S. territory, so we deal with the full array of state RCRA programs. One of the significant problems we face on a daily basis is identifying which requirements have been adopted by states, and when they receive authorization to implement the changed RCRA regulations. When state authorization lags far behind Federal rule promulgation, we encounter problems with duplicative (and sometimes contradictory) permitting, inspection, and enforcement. We also understand the frustrations of some states when efforts at obtaining state authorization take precedence over activities that have more immediate environmental protection consequences.

  We support the Agency's intent to streamline the state authorization process to the extent possible. Even with the anticipated streamlining of the state authorization programs, Safety-Kleen understands that major rulemakings (such as this proposed LDR rule) may have a significant lag between Federal promulgation and state authorization. This becomes particularly problematic when the revised regulations are not promulgated as HSWA rules (immediately effective in all states). The EPA has indicated that most of this proposed Supplemental Phase IV LDR regulation is considered to be a non-HSWA Rulemaking.

  Safety-Kleen disagrees, because the Rulemaking affects newly listed wastes and it makes changes to the LDR regulations, both of which should be considered to be HSWA rulemakings. Therefore, the EPA would be justified in determining that this is a HSWA Rulemaking.

(Safety-Kleen Corp., 047)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- RSR supports EPA 's proposed streamlined State authorization approach advanced in the rule. EPA 's rationale for this approach is sound and will help to ensure that badly needed revisions to the RCRA regulatory program are expeditiously adopted by RCRA-authorized States. RSR urges EPA, however, to review fully States' program requirements used to manage the materials at issue in this Rulemaking.

(RSR Corporation, 054)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- RSR supports the proposed streamlined State Authorization Procedures but believes EPA should fully evaluate States' case-by-case determinations of Primary Metal Facilities Units. RSR supports EPA 's proposed streamlined State authorization approach. EPA 's rationale for the streamlined authorization approach is sound and the proposed revisions will help to ensure that badly needed revisions to the RCRA regulatory program are expeditiously adopted by States. Under the current authorization procedures, all revisions to authorized State hazardous waste programs -- including minor changes -- are potentially subject to the same level of scrutiny by EPA.

RSR believes that the preparation, review, and processing of these program revisions represent a significant resource commitment on the part of EPA and the States. These commitments force many States to decline not to adopt regulatory changes to the RCRA program that EPA has promulgated. For example, in many States EPA is still implementing regulations promulgated pursuant to the Hazardous and Solid Waste Amendments of 1984. The streamlined authorization approach recognizes that RCRA-authorized States have demonstrated the competency to implement and enforce the RCRA regulatory program. Currently, 49 states and territories have received final authorization (as defined in 40 C.F.R. Section 270.2) for the "base" RCRA program. EPA has never withdrawn a State 's authorization for the RCRA program, demonstrating that States have exercised their authority over the RCRA program in a manner that is acceptable to EPA. Many States also have over a decade of experience in promulgating and implementing hazardous waste regulations. States that are authorized for the base RCRA program and portions of the LDR program are familiar with the type of rule changes as well as the requisite legal requirements needed to implement rule revisions. EPA should build upon the competency and experience States have demonstrated, and EPA 's trust in these States, to allow rapid and streamlined authorization of RCRA regulatory revisions. RSR 's experience with three RCRA-authorized States (California, Indiana, New York) demonstrates the need for a streamlined authorization process. On countless occasions over the past 12 years, EPA regulations were adopted in these and other States only after a delay of years, largely due to resource constraints. Other important revisions have yet to be adopted at the State level, RSR believes that little benefit is achieved if RCRA reforms are not rapidly adopted by RCRA-authorized States. RSR disagrees with one aspect of the proposed streamlined authorization procedures. EPA has proposed that States would be authorized to make case-by-case determinations for units at primary metal facilities that are used to manage the materials at issue in this rule. EPA states that it believes the addition of a few units does not significantly expand the State program, and that "another detailed evaluation by EPA is not warranted under such circumstances. RSR disagrees and believes that EPA should fully evaluate how these units will be addressed under States' RCRA regulatory programs. The management of the materials at issue goes to the very heart of the debate as to whether these materials have contributed to the waste disposal problem.

Moreover, the land placement of materials in these units is a prime focus of RCRA. EPA' s generally applicable conditions for these units are intended to ensure that the units do not allow significant releases of the materials managed in them, thereby helping to ensure that the materials do not contribute to the very types of disposal problems Congress sought to address in RCRA. EPA's evaluation of the authorized State should go beyond ascertaining only that the State has the requisite legal authorities and resources to control the land-based units, and should fully evaluate the States, programs for these units to ensure that they are properly designed, constructed, and maintained.

(RSR Corporation, 054)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- NMA Supports An Expedited, Performance-Based Approach For State Program Authorization In the supplemental Phase IV proposal, EPA reproposes and expands upon the expedited approach to state authorization that it proposed in the August 1995 Phase IV proposal. 61 Fed. Reg. at 2365-66. See also 60 Fed. Reg. 43,654, 43,687 (Aug. 22, IS195). The Agency claims that it will "give great weight to statements and legal certification submilfted by the State[s]" in granting authorization. 61 Fed. Reg. at 2365. To this end, EPA proposes "to evaluate a limited number of specific criteria" aimed at ensuring that states have in place the "key requirements" for implementing the proposed revised definition of solid waste. Id. NMA supports an expedited approach for state program authorization. As discussed below, however, the criteria identified by EPA in the proposed rule are overly prescriptive. Rather than imposing detailed criteria on the states to obtain authorization, the Agency should instead use a more performance-based approach, thereby allowing the states flexibility to demonstrate that their programs meet or exceed federal requirements. B. EPA's Proposed Requirements For State Authorization Are Overly Prescriptive EPA sets forth three broad requirements that it would impose on states seeking authorization to implement the proposed regulations governing the status of land-based units in the mineral processing industry. First, EPA takes the position that state programs "must demonstrate that [they] can distinguish land-based units receiving mineral processing residuals liom those units operating as waste disposal units." 61 Fed. Reg. at 2365. It is unclear precisely ,what such a showing would entail, however. Although EPA points to the "environmental performance standard set forth at 40 C.F.R. º 267. 10," id., no such provision currently exists in the Agency's rules, nor has regulatory language been proposed in the instant Rulemaking. Instead, EPA has provided only a narrative description of a number of alternative potential requirements for the "conditional exclusion" from the definition of solid waste for mineral processing materials managed in land- based production units. Id. at 2341-48. That narrative suggests a complicated, prescriptive regulatory regime upon which the "performance standard" for state authorization would be based. Second, EPA asserts that states must have legal authority to: impose preventative measures, including design and operating conditions; establish groundwater protection criteria; require groundwater monitoring; and detect and remediate releases of hazardous constituents from the unit to groundwater, should such a release occur. EPA proposes that such state authority need not exist solely under RCRA, and explicitly declares that, for instance, general aquifer protection authority would be sufficient for state authorization purposes. 61 Fed. Reg. at 2365-66. NMA agrees that non-RCRA state legal authorities should suffice to support state authorization to make determinations regarding the regulatory status of land-based units. Existing state groundwater protection regimes, in concert with state clean water and solid/hazardous waste regimes, provide the necessary level of protection against potential risks to human health and the environment attributable to releases of pollutants or contaminants from land-based units to groundwater. An additional layer of federal regulation in this context is neither necessary or desirable. Finally, EPA declares that state programs must provide for public participation in site- specific determinations that land-based units qualify as "process units" within the scope of the "conditional exclusion." 61 Fed. Reg. at 2366. The Agency sets forth a number of examples of the type of "public participation" requirements it envisions would be appropriate in this context. Contrary to EPA's proposal, NMA's view is that states should be accorded the right to determine how best to factor public participation into site-specific determinations for mineral processing units. State programs already have in place public participation requirements, and through experience have determined what needs to be done to ensure that the public is informed of, and able to participate in, regulatory decisions, including site-specific determinations. It is neither necessary nor appropriate (particularly given the current movement in Washington towards devolving authority to the states and ending unfunded mandates) for EPA to subject state regulatory agencies to additional, prescriptive, public participation requirements for process unit determinations at mineral processing facilities.

(National Mining Association, 058)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization

Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- We also agree with EPA's proposal for expedited authorization for States to implement these rules. It would simplify the process and would be cost-effective. We would also like to see the concept embodied in this proposal applied to capacity determinations.

(U.S. Department of Interior, 074)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Site Specific Determinations from an Authorized State or By an EPA Region. We believe that this proposal is also appropriate and should be adopted. Site specific conditions are the best factors to consider in the determination of how to meet compliance standards and protect human health and the environment.

(U.S. Department of Interior, 074)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

COMMENT

- Incorporation Into State Law The Agency asserts that the proposed regulatory revisions for scrap metal and circuit boards have not been issued under the Hazardous and Solid Waste Amendments (HSWA), and as non-HSWA provisions it will not take effect in States until the State is authorized for those requirements. See 61 Fed. Reg. at 2365. We believe that the Agency should consider ways to include the proposal, as modified by the suggestions contained in these comments, to fall under HSWA so that the rule may become immediately effective in all states. In the absence of this approach, regulated entities impacted by the rule could face an unwieldy patchwork of state requirements as states engage in the lengthy process of revising their- waste rules and/or authorizing legislation and EPA reviews and approves the changes. This process would likely take several years and would significantly delay the realization of the: environmental benefits that will be derived from this rule. At minimum, the Agency should consider ways of providing incentives to states to ensure the prompt adoption of these regulatory revisions.

Our concern in this regard is illustrated by our ongoing participation in efforts to promote state adoption of the so-called Universal Waste Rule, 40 C.F.R. Part, 273, in order to facilitate a voluntary industry program for the collection and recycling of nickel-cadmium batteries. Several states have succeeded in amending their hazardous waste statute or regulations to conform with the Universal Waste Rule, and other states have issued letters explaining that they will not initiate an enforcement action against entities involved with the recycling batteries in accordance with the rule. Progress in this regard has been slow, however, because of limited state resources and the need for states to address other pressing environmental concerns, many of which are the subject of statutory or judicial mandates. We are concerned that simply allowing states to exercise their discretion in deciding whether to conform their regulations to this proposal, without providing any additional incentive to do so, wil12l result in unnecessary delay in state adoption of these important revisions. EPA should consider ways to promulgate this proposal under HSWA or to devise appropriate incentives to encourage states to adopt these revisions in a prompt manner.

(Electronics Industries As, 083)

RESPONSE

The U.S. EPA appreciates the above comment regarding State Authorization Streamlining. The U. S. EPA will respond to this comment in the upcoming Final HWIR Media Rule.

DCN PH4P082
COMMENTER Brush Wellman
RESPONDER AC
SUBJECT BERY
SUBJNUM 082
COMMENT

I.EPA Has Not Provided an Adequate Opportunity for the Public to Comment on the Proposed Revision of the Universal Treatment Standard for Beryllium.

As an initial matter, Brush Wellman objects to a procedural impropriety in EPA's proposal to revise the universal treatment standard for beryllium. The proposal is based upon the Agency's receipt of additional data since the promulgation of the original standard. 60 Fed. Reg. at 46383.According to EPA, the additional data reflect the results of treating metal-bearing streams through high temperature metal recovery ("HTMR") technology. EPA has previously identified HTMR as the best demonstrated available technology ("BDAT") for purposes of establishing universal treatment standards for certain metal constituents, including beryllium. 59 Fed. Reg.47982, 47997-99 (Sept. 19, 1994). In the preamble to the proposed rule, EPA further indicates that the additional data demonstrate that HTMR cannot consistently achieve the current universal treatment standard for beryllium as measured by analysis of grab samples of the treated material. Id. Based on these data, EPA has proposed to revise the beryllium standard for nonwastewaters to 0.04 mg/l TCLP. Id.1

Brush Wellman and other members of the regulated community and the public at large have been denied any opportunity whatsoever to evaluate the data relied upon by EPA in making this proposal. This is because, according to the preamble, the submitter of the data declared them to be "Confidential Business Information."
l While EPA has stated in the preamble that it proposes to make such a revision, the actual language of the proposed regulatory amendments set out in the Federal Register notice starting at 60 Fed. Reg. 43691 fails to include any language which would make such a change.

Without an opportunity to review the data, Brush Wellman and others cannot effectively comment on the proposed revision. Brush

Wellman has no information regarding the composition of the input material, the composition of the treated material or even the source of the treated waste stream. Without this basic information, Brush Wellman is unable to evaluate and comment on whether the newly submitted information actually supports the proposed revision or even supports some other determination regarding the establishment of a universal treatment standard for beryllium. Brush Wellman's interest in reviewing this data is particularly keen given the paucity of data relied upon by the Agency in promulgating the original beryllium standard and the deficiencies in that data as pointed out in comments regarding the universal treatment standard proposal filed by Brush Wellman on March 4, 1994.

The absence of an opportunity to review the basis for the proposed change to the beryllium standard constitutes an absolute failure to satisfy the legal requirement of public notice and comment. Brush Wellman is not aware of any instance where performance data relied upon in promulgating regulatory standards of general application has not been available for public notice and comment. Brush Wellman urges the Agency to make the information available and defer taking any final action regarding the proposed revision to the beryllium standard until there has been an adequate opportunity for public notice and comment and the Agency's consideration of any comment.

RESPONSE

The Agency notes that the beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. Recognizing that the use of composite data was not consistent with the BDAT methodology or for that matter promulgated treatment standards, the Agency re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually, 0.02 mg/l due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency made the data and the methodology used to calculate this new standard available to the public as part of the second supplemental proposal and provided sufficient time for the commenters to review the data and submit comments.

In response to public comment on the beryllium treatment standard proposed in the second supplemental proposed rule, the Agency conducted a review of the data set used to calculate the proposed standard. As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-concentration beryllium waste. The Agency received stabilization data from Brush Wellman, Inc., consisting of seven data points from the treatment of D008 rotary filter sludge with cement kiln dust (CKD). These data shows beryllium concentrations (mg/L TCLP) in the untreated waste as follows: 95, 32, 49, 54, 97, 52. After treatment, the beryllium concentrations (mg/L TCLP) were 0.58, less than 0.05, 0.31, 0.07, 0.06, less than 0.05, and 0.2. Upon examination, the Agency determined that this waste stream reflects a difficult to treat beryllium waste, because of its extremely high concentrations of beryllium, and should be used in the calculation of the treatment standard. The use of this data also addresses a major concern of other commenters which was that while the proposed treatment standard was acceptable, it would not or may not be appropriate with higher levels of beryllium in the waste stream. The Agency believes that the data used in the Second Supplemental is not representative of a "difficult to treat" beryllium-containing waste in that the untreated concentrations were from two to four orders of magnitude less the untreated waste concentrations (mg/L TCLP) in the data submitted by Brush Wellman (0.016, less than 0.5, 0.008, less than 0.005). The Agency has determined that the data used to calculate the UTS for beryllium-containing nonwastewaters was inadequate and not reflective of a difficult to treat beryllium waste. As such, the data has been removed from the UTS data set and been replaced with the seven data points collected by Brush Wellman. The Agency believes that this data is more appropriate for the beryllium UTS and addresses the concerns raised by the commenters. (For additional information on the data reviewed, see the Background Document for Metal Wastes in the Docket for this rule). As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data.

DCN PH4P082
COMMENTER Brush Wellman
RESPONDER AC
SUBJECT BERY
SUBJNUM 082
COMMENT
II. EPA's Proposed Revision to the Universal Treatment Standard for Beryllium Still Will Not Establish an Appropriate Standard.

A.The Proposed Beryllium Standard of 0.04 mg/l TCLP Is Less Than That Necessary to Protect Human Health and the Environment

By this rule, EPA is proposing to change the universal treatment standard for beryllium to 0.04 mg/l TCLP. This level is less than that necessary to protect human health and the environment. While the universal treatment standard is a treatment standard, treatment standards cannot be established "beyond the point at which there is no threat' to man or nature."Hazardous Waste

Treatment Council v. EPA, 886 F.2d 2

Through its counsel, Brush Wellman has submitted a Freedom of Information Act requestor the submitted data as well as any other related documents. See EPA FOIA Request No. HQ-RIN-05119-95. Under the Agency's rules, this request should require the submitter to substantiate its claim of confidentiality and, if necessary, enable Brush Wellman to challenge such a claim.
355, 361-64 (D.C. Cir. 1989), cert. denied 111 S. Ct. 139 (1990). EPA has acknowledged this limitation on its authority to establish LDR treatment standards. 58 Fed. Reg. 48092, 48095(September 14, 1993). Several facts demonstrate that 0.04 mg/l is beyond the point at which there is no threat to man or nature.

1.Benchmark Values in the Storm Water Multi Sector General Permit for Industrial Activities

Just recently, EPA established .13 mg/l as the concentration level for beryllium in stormwater "that if below, a facility represents little potential for water quality concern." 60 Fed. Reg. 50803, 50825 (September 29, 1995). In light of this determination by EPA, the universal treatment standard for beryllium should not be less than .13 mg/l. In fact, applying EPA's rationale in the stormwater rule, Brush Wellman believes that the universal treatment standard for beryllium should be substantially higher.3

As explained by EPA in the preamble to the rule establishing the Storm Water Multi-Sector General Permit for Individual Activities, "benchmark" concentrations were being established for pollutants against which stormwater monitoring data were to be compared. Benchmarks are values "which EPA has used to determine if a stormwater discharge from any given facility merits further monitoring to insure that the facility has been successful in implementing a stormwater pollution prevention plan." Id. at 50824. EPA's rationale in setting benchmark values demonstrates why 0.04 mg/l is less than that necessary to protect human health and the environment:

The "benchmarks" are the pollutant concentrations above which EPA determined represents a level of concern. The level of concern is a concentration at which a stormwater discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks

are also viewed by EPA as a level, that, if below, a facility
represents little potential for water quality concern.
3 The reason for this statement is that the benchmark for beryllium is based on the 1980 EPA acute freshwater criteria, which are substantially lower than more recent criteria that are hardness dependent. This is explained in detail in Attachment A hereto, Comments of Brush Wellman on the Proposed Multi-Sector Storm Water General Permit, February 15, 1994. The final storm-water rule did not acknowledge or respond to these comments, and Brush Wellman is trying to determine what, if any, review these comments received in that rulemaking. Id. at 50824-25.
If stormwater runoff, which can potentially enter a receiving stream in large volumes at 0.13 mg/l is not a level of concern, leachate in much smaller volumes, should not be a concern at lower level. Indeed, the tremendous difference in potential volumes between stormwater discharges and leachate point to the fact that the level of concern should be much higher for leachate than for stormwater.

RESPONSE

The Agency notes to the commenter that the Land Disposal Restriction (LDR) program is based on the premise that regulated constituents are to be treated using the Best Demonstrated Available Technology (BDAT) to minimize threats to human health and the environment, because of the absence of certainty as to levels at which threats are minimized. Further, the Agency notes that the beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. Recognizing that the use of composite data was not consistent with the BDAT methodology, the Agency re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually, 0.02 mg/l due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency made the data and the methodology used to calculate this new standard available to the public as part of the second supplemental proposal and provided sufficient time for the commenters to review the data and submit comments.

In response to public comment on the beryllium treatment standard proposed in the second supplemental proposed rule, the Agency conducted a review of the data set used to calculate the proposed standard. As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-concentration beryllium waste. Therefore, the Agency collected additional treatment performance data on high beryllium containing wastes (from Brush Wellman, Inc.) and re-calculated the BDAT treatment standard for beryllium (for additional information on the data reviewed, see the Background Document for Beryllium Wastes in the Docket for this rule). As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data. With respect to the commenters point that the final treatment standard is less than the level needed to minimize threats to human health and the environment, EPA notes that the final treatment standard is an order of magnitude higher than the level suggested by the commenter, and moreover, is a leach able level, not the total level the commenter suggests. Thus, EPA views this comment as moot.

DCN PH4P082
COMMENTER Brush Wellman
RESPONDER AC
SUBJECT BERY
SUBJNUM 082
COMMENT
2. Drinking Water Standard

The proposed universal treatment standard for beryllium of 0.04 mg/l is ten times the drinking water standard for beryllium of 0.004 mg/l, expressed as a maximum contaminant level (MCL). Considering the impact of a dilution factor of only ten times the MCL one must conclude that the universal treatment standard for beryllium is very conservative with respect to protection of human health and the environment. When this conservative assumption is combined with the conservative nature of the drinking water standard for beryllium (and the erroneous computation of that MCL in Brush Wellman's judgment), the result is a universal treatment standard value that is beyond the point at which there is no threat to human health.

In computing the .004 mg/l drinking water standard, EPA applied an uncertainty factor of ten on top of all the other safety factors that are typically in every calculation of a drinking water standard. 57 Fed. Reg. 31776, 31785 (July 17, 1992).
The overly-conservative nature of the .004 mg/l standard is demonstrated by the studies of Dr. Kenneth Morgareidge and his collaborators. These studies exposed animals to levels of beryllium that were considerably higher than that used by the Schroeder and Mitchener study on which the MCL is based. These studies establish a higher NOAEL than 0.5 mg/kg/day dose used by Schroeder and Mitchener. This higher NOAEL should be used by EPA in

evaluating the risk to human health when ingesting beryllium.

Morgareidge et al. examined the incidence of tumor rates among rats exposed to beryllium in food at levels of 0, 5, 50 and 500 ppm. Like Schroeder and Mitchener, Morgareidge et al. found no differences in tumor rates between exposed and unexposed animals. Morgareidge et al.'s results for males are graphed in Figure A, and tests for statistical significance of differences in tumor rates among different exposure groups are given in Figure B. The corresponding graph and tests of significance for females are given in Figures C and D.

Among the male rats, the incidence of tumors declined with increasing levels of beryllium after 5 ppm. Among females the pattern was not as consistent. Tumor rates among the 5 ppm group were higher than rates among the 50 and 500 ppm groups, but the 500 ppm group had slightly higher rates than the 50 ppm group. In any event, none of these differences were statistically significant. Morgareidge also considered a host of toxicologic endpoints and found no observable effects at any dose level. Figure E is a calculation of a reference dose for beryllium using the Morgareidge data in lieu of the Schroeder and Mitchener data. The result is an MCL of 1.6 mg/l. This standard, in turn, would result in a universal treatment standard which minimized threat of 16 mg/l TCLP after taking into account EPA's dilution factor of 10.4 Attached as Attachment B is the Morgareidge report of the rat study. Also attached as Attachment C is the report of another study (Gallo et al. 1976) in which Morgareidge participated. This report study, a chronic feeding study using dogs and reporting a maximum tolerated dose of between 50 and 500 ppm, further supports the conclusion that the .004 mg/l standard is overly conservative.

RESPONSE

The Agency disagrees with the commenter that the beryllium treatment standard is beyond the point at which there is no threat to human health. EPA, under the statutory requirements of RCRA Sec. 3004(m), is legally obligated to establish treatment standards using the best demonstrated available technology (BDAT). In addition, the Agency notes that the beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. Recognizing that the use of composite data was not consistent with the BDAT methodology, the Agency re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually, 0.02 mg/l due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency made the data and the methodology used to calculate this new standard available to the public as part of the second supplemental proposal and provided sufficient time for the commenters to review the data and submit comments.

In response to public comment on the beryllium treatment standard proposed in the second supplemental proposed rule, the Agency conducted a review of the data set used to calculate the proposed standard. As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-concentration beryllium waste. Therefore, the Agency collected additional treatment performance data on high beryllium containing wastes (from Brush Wellman, Inc.) and re-calculated the BDAT treatment standard for beryllium (for additional information on the data reviewed, see the Background Document for Beryllium Wastes in the Docket for this rule). As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data.] EPA also notes that the LDR treatment standards may be permissibly less than a drinking water standard, since those standards reflect consideration of cost. (See HWTC III). However, the final treatment standard for beryllium --- being significantly higher than the various levels mentioned by this commenter -- clearly is not established below levels at which threats to human health and the environment are minimized.

DCN PH4P082
COMMENTER Brush Wellman
RESPONDER AC
SUBJECT BERY
SUBJNUM 082
COMMENT
3.Naturally-Occurring Levels of Beryllium

A prime example of the undue, although perhaps unintended, consequences of establishing universal treatment standards can be found in considering the effect of EPA’s proposal that treatment standards for contaminated soil which is a toxicity characteristic metal waste be related to the universal treatment standards applicable to not only the toxicity characteristic contaminant but also any underlying hazardous constituents. Under EPA's proposal generators of contaminated soil could be required to treat a hazardous constituent even though it is not the contaminant which had rendered the soil a hazardous waste. This could result in treatment of a naturally-occurring element present in the soil at levels that do not present any appreciable risk to human health or the environment.

With its proposal, EPA seeks to apply treatment requirements with respect to any underlying hazardous constituent which is found at levels above the universal constituent-specific treatment standard regardless of the source of the hazardous constituent. This approach is particularly troublesome with respect to naturally-occurring constituents such as beryllium. While EPA may have statutory authority to require treatment of all hazardous constituents in a hazardous waste from whatever source once that waste becomes a prohibited waste, that authority cannot and should not extend to requiring treatment of constituents beneath those levels which are naturally present in the soil. However, such treatment could be required under EPA's current proposal.

To investigate the potential pitfalls of using the universal treatment standard as a basis for setting treatment standards for contaminated soil, Brush Wellman gathered seventeen soil samples at random locations in both residential and industrial areas in or near ten cities in the United States. As indicated on Table A, the total beryllium concentrations in these soils ranged from 0.28 to 1.29 mg/kg. TCLP extracts of these soil samples exhibited beryllium concentrations ranging from 0.001 to 0.011 mg/l. The high end of the range of TCLP values detected in these few tests raise concerns about proposed universal treatment standard for beryllium of 0.04 mg/l. Furthermore, according to the 1993 toxicological profile for beryllium prepared on behalf of the Agency for Toxic Substances and Disease Registry, typical beryllium concentrations in soil have been as high as 40.0 mg/kg.5 In a study entitled "National Uranium Resource Evaluation",Report No. 89-341, the Department of Energy determined that over 16,400 soil samples out of a total of more than 678,500 locations contained more than 5 ppm of beryllium. These higher beryllium content naturally occurring soils could be expected to have TCLP levels above the soils tested by Brush Wellman. Thus, TCLP tests on soils at the upper range of natural occurrence could easily exceed the proposed universal treatment standard for beryllium and thereby trigger the requirement to treat the soil. Brush Wellman believes that it is both unlawful and unreasonable to trigger treatment of soil as a result of naturally occurring levels of beryllium. Accordingly, EPA should reevaluate the use of the universal treatment standard as a trigger for requiring treatment of contaminated soil.

5 The beryllium profile reports that beryllium is prevalent throughout the environment and can even be found in a variety of common foodstuffs.

RESULTS OF BERYLLIUM ANALYSIS FOR RANDOM SOIL SAMPLES (THIS TABLE DID NOT SCAN - SEE HARD COPY)
RESPONSE

RESPONSE:

See the “Soils” Response to Comment section for a response to this comment.

DCN	PH4P082
COMMENTER	Brush Wellman
RESPONDER	AC
SUBJECT	BERY
SUBJNUM	082

COMMENT
B.The Proposed Beryllium Standard of 0.04 mg/l TCLP Is Not Adequately Supported by the Information Relied Upon by the Agency.

In comments filed on March 4, 1994, Brush Wellman challenged the technical adequacy of the data relied upon by EPA in promulgating the universal treatment standard for beryllium. The Agency's proposed revision of that standard suffers from the same deficiencies as the original standard. The proposed revision apparently continues to be based upon treatment data relating to a single waste stream which has not been demonstrated to be replicable in other waste streams. Secondly, the data do not demonstrate that treatment of beryllium actually occurs as a result of HTMR; rather, the data suggest that the beryllium is only concentrated in the output of the HTMR process without necessarily any reduction in the mobility of any beryllium.

As explained in Section I, Brush Wellman has not had an opportunity to review the newly received data relied upon by EPA in proposing the revised beryllium standard. Nevertheless, based upon EPA's statement that the new data were from a HTMR facility and Brush Wellman’s understanding that HTMR currently is only commercially available to treat K061 hazardous waste, Brush Wellman believes that the revised standard is based upon data which may not be universally representative of the treatability of metals in other waste streams. The HTMR data relied upon by EPA relates to processes designed to recover zinc from waste with high residual zinc values, primarily K061 wastes. Commercially viable recovery and treatment of this low boiling point metal through HTMR cannot be used to support a conclusion that comparable success is achievable with respect to high boiling point metals such as beryllium.

There is no evidence from the data made available for review that HTMR actually treats or recovers beryllium. The background documents which present and summarize the HTMR performance data considered by the Agency do not contain any data which compare TCLP beryllium concentrations for samples before and after HTMR processing. Thus, it appears that the reduction in mobility of beryllium as a result of HTMR was not even evaluated, let alone statistically confirmed. Indeed, HTMR apparently does not even reduce the concentration of beryllium in the treatment residues. Rather, the very limited data indicate that the total beryllium concentration in the treated K061 is higher than in the Untreated waste. In the only data set accepted by EPA which compares beryllium concentrations of both untreated and treated samples, the beryllium concentration in each treated sample exceeded the beryllium concentration in each corresponding untreated sample. See Table 1-12, Final Data Document for Characterization and Performance of High Temperature Metals Recovery Treatment and Stabilization for Metal-Bearing Nonwastewaters (EPA July 1994). Characterization and Performance of High Temperature Metals Recovery Treatment and Stabilization for Metal-Bearing Nonwastewaters (EPA July 1994).

The premise underlying EPA's reliance upon treatment data relating to a single type of waste stream in promulgating a universal treatment standard applicable to all regulated hazardous wastes is that HTMR is a matrix independent process. According to EPA, the chemical and physical composition of the waste stream being introduced in the process do not have any material impact upon the achievability of any of the treatment standards. While EPA may believe that it had sufficient data to conclude that HTMR is matrix independent with respect to recovery and treatment of zinc, this premise was not demonstrated to be true with respect to other metals such as beryllium through evaluation of any treatment data available to EPA. Moreover, EPA's own statements acknowledge the extreme variability in HTMR processes depending on a variety of factors, including input composition. For example, on page 5-8 of the Final BDAT Background Document (Addendum) for All Nonwastewater Forms of K061 issued in July 1992, EPA states: Hence, the metal distribution in the HTMR process is highly depending upon parameters such as the operating temperature of the heat zones, the composition of metals and other elements in the feed, zone residence times, flow rates, oxidation/reduction conditions, and mixing.... Based on these factors, the Agency concludes that all metal-bearing materials (nonhazardous as well as hazardous) placed into HTMR processes could affect the ultimate composition and leachability of metals from HTMR nonwastewater residues.

In sum, Brush Wellman still has serious doubts about the adequacy of the data reviewed by the Agency and the Agency's reliance upon

data from a single waste stream in promulgating a treatment standard to be applied universally. As explained immediately below, the ability to transfer HTMR-based data from the treatment of K061 to other waste streams becomes evermore important now that EPA has proposed to apply the HTMR-based universal treatment standards to the toxicity characteristics metal wastes for underlying hazardous constituents.

RESPONSE

In response to public comment on the beryllium treatment standard proposed in the second supplemental proposed rule, the Agency conducted a review of the data set used to calculate the proposed standard. As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-concentration beryllium waste. The Agency received stabilization data from Brush Wellman, Inc., consisting of seven data points from the treatment of D008 (lead-containing) rotary filter sludge with cement kiln dust (CKD). These data show that beryllium concentrations in the untreated waste were as follows (mg/L TCLP): 95, 32, 49, 54, 97, 52. After treatment, the beryllium concentrations (mg/L TCLP) were: 0.58, less than 0.05, 0.31, 0.07, 0.06, less than 0.05, and 0.2. Upon examination, the Agency determined that this waste stream reflects a difficult to treat beryllium waste and should be used in the calculation of the treatment standard. (The use of this data also addresses a major concern of this commenter and another commenter, which was that while the standard was acceptable, it would not or may not be appropriate with higher levels of beryllium in the waste stream.) The Agency believes that the data used in the Second Supplemental was not representative of a "difficult to treat" beryllium-containing waste in that the untreated waste concentrations were from two to four orders of magnitude less than the untreated waste concentrations (mg/L TCLP) in the data submitted by Brush Wellman (0.016, less than 0.5, 0.008, less than 0.0050). The Agency has determined that the data used to calculate the UTS for beryllium-containing nonwastewaters was inadequate and not reflective of a difficult to treat beryllium waste. As such, that data has been removed from the UTS data set used in the Second Supplemental proposal and replaced with the seven data points collected by Brush Wellman. The Agency believes that this data is more appropriate fro the beryllium UTS and addresses the concerns raised by the commenters. See the Background Document for Metal Wastes in the Docket for this rule). As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P082
COMMENTER Brush Wellman
RESPONDER AC
SUBJECT BERY
SUBJNUM 082
COMMENT
III. EPA Has Not Adequately Considered the Ramifications of Applying the Universal treatment Standards for Metals to the Toxicity Characteristic Metal Wastes, Including the Requirement that Underlying Hazardous Constituents of Such Wastes Meet Those Standards.

With its proposed expansion of the application of the universal treatment standards to the toxicity characteristics metal wastes, EPA has greatly increased the universe of wastes which will be required to achieve the BDAT-based standards. However, Brush Wellman is concerned that EPA's reliance solely upon previously existing data relating to a single waste stream (as least as far as beryllium is concerned) accompanied by the Agencies failure to develop and consider treatment data from different waste streams with significantly different chemical and physical compositions constitutes an inadequate technical basis for imposing such a significant change upon the regulated community.

No longer will the universal treatment standard for beryllium apply just to K061; rather, EPA proposes to apply it to any toxicity characteristic metal waste which contains beryllium. Brush Wellman believes it is inappropriate to take a treatment standard which was derived solely from treatment data for a single low-beryllium waste stream and apply such a standard to many diverse waste streams which may contain significantly higher concentrations of beryllium.

In anticipation of EPA's proposal, Brush Wellman began to make inquiries regarding commercially available HTMR processes for its waste streams. Brush Wellman discussed with Horsehead Resource Development Company ("Horsehead") its ability to process Brush Wellman's beryllium-containing wastes. One such waste stream, a rotary filter sludge with lead concentrations above the toxicity characteristic level, is the hazardous waste with the highest beryllium content currently generated by Brush Wellman. This waste contains more than 14%beryllium. At the time of Brush Wellman's inquiry, Horsehead had a commercially available HTMR process in which it would treat the waste to recover copper values. However, according to Horsehead, it estimated that the beryllium content of the remaining slag would range between 7,800-8,700 ppm TCLP, well above the universal treatment standard for beryllium. A different waste stream, containing only 0.4% beryllium was anticipated to create a HTMR slag ranging between 100-120 ppm TCLP, also above the beryllium standard. Brush Wellman has recently learned that Horsehead has discontinued this process and currently will accept only K061 for HTMR processing. Thus, the only commercial HTMR outlet for Brush Wellman's toxicity characteristic wastes is no longer available and, if it were, it would not be able to process Brush Wellman's waste so as to satisfy the universal treatment standard

EPA suggests that stabilization is an alternative treatment technology that is available for use by generators of toxicity characteristic metal wastes to meet the universal treatment standards.

Indeed, EPA's background document evaluating available capacity for treating these wastes focuses solely on stabilization capacity and does not present any information regarding commercial capacity for HTMR. As discussed previously, Brush Wellman is not aware of a commercial HTMR process which is available to treat its beryllium-containing toxicity characteristic metal wastes. It is not reasonable for the Agency to promulgate a BDAT-based standard based on one technology and expect compliance based on use of a different technology which has not been thoroughly evaluated for performance and capacity. Brush Wellman is not aware of any data in the administrative record which demonstrate that the universal treatment standard for beryllium is attainable through stabilization. Without such data, Brush Wellman must question how EPA could make a supportable determination that the beryllium standard is achievable or even desirable with respect to toxicity characteristic metal wastes. For example, has EPA considered how much additional stabilization agent may be necessary to treat beryllium to the required level and how much additional landfill capacity will be necessary in order to accommodate the increased volume of the treated waste? Finally, it is not clear from a review of the capacity background document that EPA even considered the additional stabilization of toxicity characteristic metal wastes which may be necessary in order to meet the universal treatment standards with respect to underlying hazardous constituents such as beryllium.

RESPONSE

The Agency provided several opportunities for the commenters to submit additional data on the treatability of beryllium using stabilization and HTMR technologies in the Phase IV original proposal (60 FR 43654, August 22, 1995), the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996), and the most recently proposed Phase IV second supplemental proposal (62 FR 26041, May 12, 1997). Since no information was provided by the commenters, the Agency collected its own performance data (based on grab samples) from commercial HTMR and stabilization facilities. EPA calculated the treatment standards based on both HTMR and stabilization and selected the highest standard (less stringent) for each metal to establish the UTS and allow for process variability and detection limit difficulties. Based on these data, EPA re-proposed a beryllium treatment standard of 0.018 mg/l TCLP (actually, 0.02 mg/l due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997).

In response to the second supplemental proposal several commenters stated that the beryllium stabilization performance data used by the Agency was quite limited and reflected the treatment of wastes having a very low beryllium content. Furthermore, commenters questioned whether the proposed standard of 0.02 mg/l TCLP could be met by conventional stabilization techniques in the case of higher beryllium content wastes. Other commenters stated that they could not support the treatment standards because EPA has not demonstrated that existing commercial technologies were capable of achieving the proposed standards or that technologies were otherwise available.

In response to the comments received on the beryllium treatment standard, the Agency conducted a review of the data set used to calculate the proposed standard. The review indicated that, consistent with the commenter's concerns, the data used by the Agency to calculate the standard was based on wastes containing low concentrations of beryllium (between 0.0050 and 0.5 mg/l TCLP). As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-con [The Agency acknowledges the commenters concerns, and notes that the beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. Recognizing that the use of composite data was not consistent with the BDAT methodology, the Agency re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually, 0.02 mg/l due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency made the data and the methodology used to calculate this new standard available to the public as part of the second supplemental proposal and provided sufficient time for the commenters to review the data and submit comments.

In response to public comment on the beryllium treatment standard proposed in the second supplemental proposed rule, the Agency conducted a review of the data set used to calculate the proposed standard. As a result, the Agency agrees with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes. The Agency believes that the proposed UTS for beryllium must be revised to reflect a more difficult-to-treat, high-concentration beryllium waste. The Agency received stabilization data from Brush Wellman, Inc., consisting of seven data points from the treatment of D008 (lead-containing) rotary filter sludge with cement kiln dust (CKD). These data show that beryllium concentrations in the untreated waste were as follows (mg/L TCLP): 95, 32, 49, 54, 97, 52. After treatment, the beryllium concentrations (mg/L TCLP) were: 0.58, less than 0.05, 0.31, 0.07, 0.06, less than 0.05, and 0.2. Upon examination, the Agency determined that this waste stream reflects a difficult to treat beryllium waste and should be used in the calculation of the treatment standard. (The use of this data also addresses a major concern of this commenter and another commenter, which was that while the standard was acceptable, it would not or may not be appropriate with higher levels of beryllium in the waste stream.) The Agency believes that the data used in the Second Supplemental was not representative of a "difficult to treat" beryllium-containing waste in that the untreated waste concentrations were from two to four orders of magnitude less than the untreated waste concentrations (mg/L TCLP) in the data submitted by Brush Wellman (0.016, less than 0.5, 0.008, less than 0.0050). The Agency has determined that the data used to calculate the UTS for beryllium-containing nonwastewaters was inadequate and not reflective of a difficult to treat beryllium waste. As such, that data has been removed from the UTS data set used in the Second Supplemental proposal and replaced with the seven data points collected by Brush Wellman. The Agency believes that this data is more appropriate fro the beryllium UTS and addresses the concerns raised by the commenters. See the Background Document for Metal Wastes in the Docket for this rule). As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER AC
SUBJECT CADM
SUBJNUM 026
COMMENT

2) The Agency is apparently unaware of the availability or the effectiveness of stabilization practices on multiple contaminant characteristic hazardous wastes.

The Agency has completed extensive work on the ability of stabilization technologies to eliminate the leach characteristic of many waste streams with single inorganic constituents. For example, cement stabilization has been shown as an effective method for stabilizing lead, cadmium and chrome compounds, all near or below the proposed Phase Four standards. However, it should be noted that the same stabilization chemistry at a given percentage of addition may be more or less effective in stabilizing each of the constituents, and little is known about the effects of combined stabilization processes on a single waste stream. For example, cement stabilization of foundry baghouse dusts will require a greater overall addition of cement to treat lead, cadmium and chrome constituents (when present) in the same waste stream. In certain cases requiring maximum addition of treatment reagent, effective treatment of chrome creates a condition where the treatment begins to elevate the leachability of lead (due to the amphoteric nature of lead).

RESPONSE

The Agency agrees with the commenter that the stabilization chemistry can be different from one waste to another. In order to better account for such variations in waste characteristics, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterize the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990)), the Agency believes that the standards being proposed today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule.

In the 1991 USEPA document entitled, "Treatment Technology Background Document" EPA it states that, "... determining whether stabilization will achieve the same level of performance on an untested waste that it achieved on a previously tested waste and whether performance levels can be transferred, EPA examines the following waste characteristics: (a) the concentration of fine particulates, (b) the concentration of oil and grease, (c) the concentration of organic compounds, (d) the concentration of sulfate and chloride compounds, and (e) the solubility of the metal compound. For both cement-based and lime-pozzzolan-based processes, very fine solid materials (i.e., those that pass through a No. 200 mesh sieve weaken the bonding between waste particles and the cement or lime/pozzolan binder by the coating particles.....Oil and grease in both cement-based and lime/pozzolan-based systems result in the coating of waste particles and the weakening of the bond between the particles and the stabilizing agent, thereby decreasing the resistance of the material to leaching.....Organic compounds in the waste interfere with the stabilization chemical reactions and bond formation, thus inhibiting curing of the stabilized material. This interference results in a stabilized waste having decreased resistance to leaching.....Sulfate and chloride compounds interfere with the stabilization chemical reactions, weakening bond strength and prolonging setting and curing time. Sulfate and chloride compounds may reduce the dimensional stability of the cured matrix, thereby increasing leachability potential....The metal to be stabilized should be in its least soluble state, or the stabilized waste may exhibit a potential for increased leachability..."

While the Agency cannot be aware of all "waste" situations, information available to the Agency does suggests that multiple metals would not be difficult to treat to the promulgated treatment standards when an appropriate and optimized stabilization "recipe" is employed. While the size of the particulate may pose a problem, the Agency has information that foundry sand would have a mesh sieve size ranging from between 70 and 80. (See "Leaded Copper Alloy Reactions With Molding Sands and Sand Response to Acid Leaching," in the docket), this size of sand would not negatively affect the stabilization of a foundry sand. Based on all this information, the Agency believes that the performance data used to develop the UTS finalized in the Second Supplemental rule (62 FR 26041, May 12, 1997) adequately characterizes the diversity among metal-bearing wastes including wastes containing multiple metals.

However, the Agency has identified a technical error in the BDAT determination of the proposed cadmium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. As stated in the EPA document, "Final Best Demonstrated Available Technology for Quality Assurance Quality Control Procedures and Methodology." October 23, 1991 " ...an outlier in a data set is an observation (or data point) that is significantly different from the other data. The measure of difference is determined by the statistical methods know as a Z-score. Because the outlier test assumes data to be normally distributed, it is necessary to transform the data by computing the logarithm of each data point before performing the outlier test. The Z-score is calculated by dividing the difference between the data point and the average of the data set by the standard deviation. For data, that is normally distributed, 95 percent (or two standard deviations) of the measurements will have a Z-score between -2.0 and 2.0. A data point outside this range is not considered to be representative of the population from which the data are drawn. EPA uses this statistical method to confirm that certain data do not represent treatment by a well-operated system. The Agency uses this method only in cases where data on the design and operation of a treatment system were limited. This method is a commonly used technique for evaluating data sets."

The Agency corrected this error and re-calculated the cadmium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by treatment technologies such as stabilization and HTMR. With respect to data submitted in response to the Second Supplemental, two commenters submitted data on chromium, one commenter submitted data with 152 data points, all of which were recorded as less than 0.02 mg/L TCLP. The other commenter submitted 106 data points on treated battery slag which ranged from 0.01 to 0.04 mg/L TCLP. EPA's own stabilization data on cadmium showed a calculated treatment standard of 0.014 mg/L TCLP. One commenter, ETC did submit a comment which provided treatment standards statistically derived from ETC data from which a standard of 0.20 mg/L TCLP was calculated. However, the Agency was unable to assess the accuracy of the calculation (The commenter did state that there may be outliers in their data) or view the raw data.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER AC
SUBJECT CADM
SUBJNUM 045
COMMENT
11. Other metals, such as cadmium and selenium, also have unique analytical problems in the high TDS matrices at very low concentrations. In the proposed LDR Phase IV, both cadmium and selenium are proposed at concentrations that are almost an order of magnitude below the current limit. The proposed TCLP concentrations for these metals thus is likely to fall outside the PQL for analytical methods currently in use.

RESPONSE

The Agency notes that high Total Dissolved Solids (TDS) may interfere in determination methods during the analysis of wastewaters because of viscosity and chemical differences between the standards and the sample. However, this interference may be compensated for by using dilution, matrix matching, and/or the method of standard additions. The Agency believes that the commenter is in error regarding the proposed treatment levels and that the levels to which cadmium and selenium may be accurately measured in a TCLP extract. The cadmium and selenium standards of 0.11 mg/l and 5.7 mg/l TCLP are over 1,000 times the detection limits of available determinative methods employing FLAA, GFAA, or ICPMS.

DCN PH4P072
COMMENTER Non-Ferrous Founder's Soc
RESPONDER AC
SUBJECT CADM
SUBJNUM 072
COMMENT
More Stabilization Technology Performance Data is Necessary to set the UTS for Cadmium and Lead: Comments submitted by the AFS demonstrate the need for data on this important aspect of the LDR IV proposed rule. NFFS firmly believes that UTS levels for TC metals (non-wastewater) cannot be established by EPA until such data is reviewed by the agency. In addition, BDAT is dependent on HTMR being demonstrated and commercially available.

RESPONSE

The Agency notes that, in response to the concerns raised by the commenter regarding the lack of stabilization data for TC metal wastes, EPA conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. In order to better account for such variations in waste characteristics, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterize the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

In the 1991 USEPA document entitled, "Treatment Technology Background Document" EPA it states that, "... determining whether stabilization will achieve the same level of performance on an untested waste that it achieved on a previously tested waste and whether performance levels can be transferred, EPA examines the following waste characteristics: (a) the concentration of fine particulates, (b) the concentration of oil and grease, (c) the concentration of organic compounds, (d) the concentration of sulfate and chloride compounds, and (e) the solubility of the metal compound. For both cement-based and lime-pozzzolan-based processes, very fine solid materials (i.e., those that pass through a No. 200 mesh sieve weaken the bonding between waste particles and the cement or lime/pozzolan binder by the coating particles.....Oil and grease in both cement-based and lime/pozzolan-based systems result in the coating of waste particles and the weakening of the bond between the particles and the stabilizing agent, thereby decreasing the resistance of the material to leaching.....Organic compounds in the waste interfere with the stabilization chemical reactions and bond formation, thus inhibiting curing of the stabilized material. This interference results in a stabilized waste having decreased resistance to leaching.....Sulfate and chloride compounds interfere with the stabilization chemical reactions, weakening bond strength and prolonging setting and curing time. Sulfate and chloride compounds may reduce the dimensional stability of the cured matrix, thereby increasing leachability potential....The metal to be stabilized should be in its least soluble state, or the stabilized waste may exhibit a potential for increased leachability..."

While the Agency can not be aware of all "waste" situations, information available to the Agency does suggests that multiple metals would not be difficult to treat to the promulgated treatment standards when an appropriate and optimized stabilization "recipe" is employed. While the size of the particulate may pose a problem, the Agency has information that foundry sand would have a mesh sieve size ranging from between 70 and 80. (See "Leaded Copper Alloy Reactions With Molding Sands and Sand Response to Acid Leaching," in the docket), this size of sand would not negatively affect the stabilization of a foundry sand. Based on all this information, the Agency believes that the performance data used to develop the UTS finalized in the Second Supplemental rule (62 FR 26041, May 12, 1997) adequately characterizes the diversity among metal-bearing wastes including wastes containing multiple metals.

However, the Agency has identified a technical error in the BDAT determination of the proposed cadmium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. As stated in the EPA document, "Final Best Demonstrated Available Technology for Quality Assurance Quality Control Procedures and Methodology." October 23, 1991 " ...an outlier in a data set is an observation (or data point) that is significantly different from the other data. The measure of difference is determined by the statistical methods know as a Z-score. Because the outlier test assumes data to be normally distributed, it is necessary to transform the data by computing the logarithm of each data point before performing the outlier test. The Z-score is calculated by dividing the difference between the data point and the average of the data set by the standard deviation. For data, that is normally distributed, 95 percent (or two standard deviations) of the measurements will have a Z-score between -2.0 and 2.0. A data point outside this range is not considered to be representative of the population from which the data are drawn. EPA uses this statistical method to confirm that certain data do not represent treatment by a well-operated system. The Agency uses this method only in cases where data on the design and operation of a treatment system were limited. This method is a commonly used technique for evaluating data sets."

The Agency corrected this error and re-calculated the cadmium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by treatment technologies such as stabilization and HTMR. With respect to data submitted in response to the Second Supplemental, two commenters submitted data on chromium, one commenter submitted data with 152 data points, all of which were recorded as less than 0.02 mg/L TCLP. The other commenter submitted 106 data points on treated battery slag which ranged from 0.01 to 0.04 mg/L TCLP. EPA's own stabilization data on cadmium showed a calculated treatment standard of 0.014 mg/L TCLP. One commenter, ETC did submit a comment which provided treatment standards statistically derived from ETC data from which a standard of 0.20 mg/L TCLP was calculated. However, the Agency was unable to assess the accuracy of the calculation (The commenter did state that there may be outliers in their data) or view the raw data.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER AC
SUBJECT CADM
SUBJNUM 045
COMMENT
11. Other metals, such as cadmium and selenium, also have unique analytical problems in the high TDS matrices at very low concentrations. In the proposed LDR Phase IV, both cadmium and selenium are proposed at concentrations that are almost an order of magnitude below the current limit. The proposed TCLP concentrations for these metals thus is likely to fall outside the PQL for analytical methods currently in use.

RESPONSE

The Agency notes that high Total Dissolved Solids (TDS) may interfere in determination methods during the analysis of wastewaters because of viscosity and chemical differences between the standards and the sample. However, this interference may be compensated for by using dilution, matrix matching, and/or the method of standard additions. The Agency believes that the commenter is in error regarding the proposed treatment levels and that the levels to which cadmium and selenium may be accurately measured in a TCLP extract. The cadmium and selenium standards of 0.11 mg/l and 5.7 mg/l TCLP are over 1,000 times the detection limits of available determinative methods employing FLAA, GFAA, or ICPMS.

DCN PH4P077
COMMENTER American Foundryman's Soc
RESPONDERP AC
SUBJECT CD/CR
SUBJNUM 077
COMMENT
II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, LEAD, AND SELENIUM SHOULD BE BASED ON

STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR FOUNDRY WASTES

A.Because Stabilization is the OnlyCommercially "Available" Technology For Foundry Wastes, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, Selenium, and Chromium

As indicated above, HTMR is not commercially available for treatment of foundry wastes. However, certain stabilization technologies are commercially available for foundry wastes. Although the database of stabilization treatment results for foundry wastes presented in the rulemaking record is not comprehensive, (See Proposed BDAT Background Document fort TC Metal Wastes D004-D011 (July 26, 1995), at A-16 to A-27), only stabilization technologies are demonstrated to effectively treat foundry wastes. Stabilization technologies are also the only practical technology for foundry wastes that meet the statutory requirement to"substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized."RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, the results from commercially-available stabilization technologies applied to foundry wastes should be used to establish the UTS for TC METAL wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

B.Stabilization Technologies For Lead, Chromium, Cadmium, and Selenium Have Not Been Demonstrated to Treat Foundry Sands to Meet the Proposed UTS

Commercially available stabilization technologies for foundry wastes have not been demonstrated to consistently meet the proposed UTS levels. The results presented in Appendix A to the Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26,1995, indicate that over half of the waste sample sets treated with stabilization technologies would fail to meet UTS for either cadmium, chromium, lead, or selenium. In particular, eight out of ten stabilization sample sets for foundry-related wastes identified in the record would also fail for the same reason.

C.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, Lead and Selenium

There is only limited performance data for stabilization technologies in the rulemaking record. Some of the results of stabilization in the LDR Phase IV rulemaking record we resubmitted by AFS as comments to the proposed LDR Phase III rulemaking. However, the stabilization data submitted by AFS for LDR Phase III is not sufficient to determine treatment standards for TC metals under UTS. For example, one of the sample sets in the record that presumably represents foundry waste would be more appropriately described as "landfill wastes." 3/ See Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, n. 28 to Table A-4 at A-25. Furthermore, the Agency does not even have information about the untreated characteristics of these "landfill waste" samples. Therefore, any treatment values reported for these wastes would be inconclusive. For example, the wastes could have been diluted during landfill processing, or perhaps the waste samples never had any UHCs in the first place. Either way, the Agency should not rely on these landfill waste samples to determine the performance of stabilization technologies for foundry wastes. Otherwise, the Agency could misinterpret the ability of stabilization technologies to meet UTS for foundry wastes, as the Agency has apparently done with LDR Phase IV. The data in the record is also not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061(Aug.1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id. More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UCS need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The Agency has previously recognized and accommodated a similar situation. In the LDR Phase II rule, the Agency raised the treatment standard for chromium wastes from 0.33 mg/L to 0.86 mg/L on a showing by industry that stabilization technologies for certain chromium wastes were unable to meet the treatment standard based primarily on processed K061. 59 Fed. Reg. 47,983, 47,999 (Sept. 19, 1994). The data in the record of the Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, LEAD, AND selenium in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal foundry wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UCS in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. These stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic), including metal manufacturing and foundry wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: two sets of lead and cadmium data (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

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While the Agency can not be aware of all "waste" situations, information available to the Agency does suggests that multiple metals would not be difficult to treat to the promulgated treatment standards when an appropriate and optimized stabilization "recipe" is employed. While the size of the particulate may pose a problem, the Agency has information that foundry sand would have a mesh sieve size ranging from between 70 and 80. (See "Leaded Copper Alloy Reactions With Molding Sands and Sand Response to Acid Leaching," in the docket), this size of sand would not negatively affect the stabilization of a foundry sand. Based on all this information, the Agency believes that the performance data used to develop the UTS finalized in the Second Supplemental rule (62 FR 26041, May 12, 1997) adequately characterizes the diversity among metal-bearing wastes including wastes containing multiple metals.

However, the Agency has identified a technical error in the BDAT determination of the proposed cadmium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. As stated in the EPA document, "Final Best Demonstrated Available Technology for Quality Assurance Quality Control Procedures and Methodology." October 23, 1991 " ...an outlier in a data set is an observation (or data point) that is significantly different from the other data. The measure of difference is determined by the statistical methods know as a Z-score. Because the outlier test assumes data to be normally distributed, it is necessary to transform the data by computing the logarithm of each data point before performing the outlier test. The Z-score is calculated by dividing the difference between the data point and the average of the data set by the standard deviation. For data, that is normally distributed, 95 percent (or two standard deviations) of the measurements will have a Z-score between -2.0 and 2.0. A data point outside this range is not considered to be representative of the population from which the data are drawn. EPA uses this statistical method to confirm that certain data do not represent treatment by a well-operated system. The Agency uses this method only in cases where data on the design and operation of a treatment system were limited. This method is a commonly used technique for evaluating data sets."

The Agency corrected this error and re-calculated the cadmium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by treatment technologies such as stabilization and HTMR. With respect to data submitted in response to the Second Supplemental, two commenters submitted data on chromium, one commenter submitted data with 152 data points, all of which were recorded as less than 0.02 mg/L TCLP. The other commenter submitted 106 data points on treated battery slag which ranged from 0.01 to 0.04 mg/L TCLP. EPA's own stabilization data on cadmium showed a calculated treatment standard of 0.014 mg/L TCLP. One commenter, ETC did submit a comment which provided treatment standards statistically derived from ETC data from which a standard of 0.20 mg/L TCLP was calculated. However, the Agency was unable to assess the accuracy of the calculation (The commenter did state that there may be outliers in their data) or view the raw data.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

Regarding the comment on likely interferences in stabilization technologies, e.g., pH and the presence of low concentrations of organics, EPA notes that a well operated and optimized treatment system can overcome such interferences and treat the waste to the UTS. For example, if the presence of organics interfere in the stabilization process, the waste could be pre-treated (e.g., thermal treatment) to remove the organics prior to stabilization.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

Finally, regarding the comment that eight out of ten stabilization sample sets for foundry-related wastes identified in the record would also fail the proposed UTS (See Appendix A to the Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995), the Agency would note that the practice of iron addition for the stabilization of lead-containing wastes, including foundry sands, has been determined by the Agency to be impermissible dilution and as such a prohibited treatment for achieving the treatment standards, effective with the promulgation of this rule. As such, any data that was based on this technology was excluded from consideration in this rule.

DCN PH4P083
COMMENTER Steel Manufacturer's Association
RESPONDER AC
SUBJECT CADM
SUBJNUM 083
COMMENT

II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES

A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Wastes. Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium

As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable Stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

In addition, in establishing the UTS, the Agency reviewed treatment performance data from commercially demonstrated and available stabilization and HTMR technologies. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

DCN PH4P083
COMMENTER Steel Manufacturer's Association
RESPONDER AC
SUBJECT CADM
SUBJNUM 083
COMMENT
B. There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, and Lead

There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with Stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061(Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes.

The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996).

A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity in metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P086
COMMENTER American Gas Association

RESPONDER AC
SUBJECT CADM
SUBJNUM 086
COMMENT
A.G.A. is very concerned that the proposed treatment standards are inconsistent with the current philosophy and policy directives from Congress for EPA to use risk-based standards. The proposed treatment standards for mercury, chromium, cadmium and lead are based on levels that one could possibly technically treat to. As such, they are too low and cannot practicably be reached using conventional remediation technologies. A.G.A. urges EPA to perform reasonable risk assessments to determine if ratcheting down on treatment standards is environmentally necessary. Until EPA does this, the present standards for these metals and other wastes should be retained. The significant reductions being proposed have not been shown to be necessary from a human health or environmental standpoint.

RESPONSE

The Agency disagrees with the commenter that the treatment standards are inconsistent with the current philosophy and policy directives from Congress. Technology-based standard have been upheld as a permissible means of implementing Section 3004 (m), HWTC III, 886 F. 2d 345 (D.C. Cir. 1990). EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level. This approach likewise was upheld in the Third Third case (976 F. 2d 2), and in fact, certain standards for chromium and lead were remanded or not being established below the characteristic level (976 F 2d at 27, 32).

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment (886 F. 2d at 362-65.) The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

DCN PH4P090
COMMENTER International Cadmium Association
RESPONDER AC
SUBJECT CADM
SUBJNUM 090
COMMENT
The Cadmium Council, a trade association whose members are producers of cadmium, urges EPA not to adopt the above rule insofar as it would apply Universal Treatment Standards for cadmium to characteristic metal wastes thereby lowering the cadmium treatment standard from 1.0 to 0.19 mg/1.

EPA is required by Section 3004(m) of the Resource Conservation and Recovery Act to find that the "levels or methods of treatment" it specifies will serve to minimize "short-term and long-term threats to human health and the environment. . ." In its discussion of treatment standards for toxic characteristic metal wastes, the preamble to EPA's proposed regulation explains that the Agency is ". . . proposing to change the treatment standards for characteristic metal wastes from those established in the Third Third rule at the characteristic levels to previously promulgated UTS levels for metal constituents (60 Fed. Reg. 43682). No effort is made in the preamble to tie these changes to any human health or environmental risk, and no showing has been made by EPA that under the present RCRA requirements cadmium-bearing wastes pose any such threats. The proposal thus fails to meet requirements of Section 3004(m)and should therefore be withdrawn.

RESPONSE

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third

Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. EPA also notes that the characteristic level is the level at which wastes clearly are hazardous, certainly not the level at which threats are minimized. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement and EPA is unable to so now on a national basis (in spite of all the effort lavished on the HWIR process), EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m). The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P105
COMMENTER SMA
RESPONDER AC
SUBJECT CADM
SUBJNUM 105
COMMENTII. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Waste, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA 3004(m), 42 U.S.C. 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal

wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes. B.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, and Lead There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For An Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061 (Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. The Agency also agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996). A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes, due to high total and leachable levels of metalls, pH variations and the presence of multiple hazardous metal constituents. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity among metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER AC
SUBJECT CHRM
SUBJNUM 026
COMMENT

2) The Agency is apparently unaware of the availability or the effectiveness of stabilization practices on multiple contaminant characteristic hazardous wastes.
The Agency has completed extensive work on the ability of stabilization technologies to eliminate the leach characteristic of many waste streams with single inorganic constituents. For example, cement stabilization has been shown as an effective method for stabilizing lead, cadmium and chrome compounds, all near or below the proposed Phase Four standards. However, it should be noted that the same stabilization chemistry at a given percentage of addition may be more or less effective in stabilizing each of the constituents, and little is known about the effects of combined stabilization processes on a singe waste stream. For example, cement stabilization of foundry baghouse dusts will require a greater overall addition of cement to treat lead, cadmium and chrome constituents (when present) in the same waste stream. In certain cases requiring maximum addition of treatment reagent, effective treatment of chrome creates a condition where the treatment begins to elevate the leachability of lead (due to the amphoteric nature of lead).

RESPONSE

The Agency agrees with the commenter that the stabilization chemistry can be different from one waste to another. In order to account for such variations in waste characteristics, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterize the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6% total), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule. Therefore, the Agency believes that the performance data used to develop the UTS proposed in the Second Supplemental rule (62 FR 26041, May 12, 1997) adequately characterizes the diversity among metal-bearing wastes including wastes containing multiple metals.

However, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER AC
SUBJECT CHRM
SUBJNUM 026
COMMENT

4) Stabilization reagents may increase the likelihood of additional treatment expense.

At the present time, naturally occurring heavy metals and heavy metals present in recycled materials are producing elevated chrome levels in cement. The Portland Cement Association reports that leachable chrome levels in cement may exceed the proposed chrome standard by as much as 100%. It is expected that other reagents may also introduce additional heavy metals into the process, further increasing the risk and cost of stabilization

RESPONSE

For EPA's response on this issue, see the "Comments and Responses Document for Issues Related to Mineral Processing Wastes," in the RCRA docket for today's rulemaking.

DCN	PH4P077
COMMENTER	American Foundryman's Soc
RESPONDER	PAC
SUBJECT	CHRM
SUBJNUM	077

COMMENT

II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, LEAD, AND SELENIUM SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR FOUNDRY WASTES

A.Because Stabilization is the Only Commercially "Available" Technology For Foundry Wastes, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, Selenium, and Chromium

As indicated above, HTMR is not commercially available for treatment of foundry wastes. However, certain stabilization technologies are commercially available for foundry wastes. Although the database of stabilization treatment results for foundry wastes presented in the rulemaking record is not comprehensive, (See Proposed BDAT Background Document fort TC Metal Wastes D004-D011 (July 26, 1995), at A-16 to A-27), only stabilization technologies are demonstrated to effectively treat foundry wastes. Stabilization technologies are also the only practical technology for foundry wastes that meet the statutory requirement to"substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized."RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, the results from commercially-available stabilization technologies applied to foundry wastes should be used to establish the UTS for TC METAL wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

B.Stabilization Technologies For Lead, Chromium, Cadmium, and Selenium Have Not Been Demonstrated to Treat Foundry Sands to Meet the Proposed UTS

Commercially available stabilization technologies for foundry wastes have not been demonstrated to consistently meet the proposed UTS levels. The results presented in Appendix A to the Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26,1995, indicate that over half of the waste sample sets treated with stabilization technologies would fail to meet UTS for either cadmium, chromium, lead, or selenium. In particular, eight out of ten stabilization sample sets for foundry-related wastes identified in the record would also fail for the same reason.

C.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, Lead and Selenium

There is only limited performance data for stabilization technologies in the rulemaking record. Some of the results of stabilization in the LDR Phase IV rulemaking record we resubmitted by AFS as comments to the proposed LDR Phase III rulemaking. However,

the stabilization data submitted by AFS for LDR Phase III is not sufficient to determine treatment standards for TC metals under UTS. For example, one of the sample sets in the record that presumably represents foundry waste would be more appropriately described as "landfill wastes."
3/ See Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, n. 28 to Table A-4 at A-25. Furthermore, the Agency does not even have information about the untreated characteristics of these "landfill waste" samples. Therefore, any treatment values reported for these wastes would be inconclusive. For example, the wastes could have been diluted during landfill processing, or perhaps the waste samples never had any UCS in the first place. Either way, the Agency should not rely on these landfill waste samples to determine the performance of stabilization technologies for foundry wastes. Otherwise, the Agency could misinterpret the ability of stabilization technologies to meet UTS for foundry wastes, as the Agency has apparently done with LDR Phase IV.
The data in the record is also not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061(Aug.1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all

constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id. More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UCS need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The Agency has previously recognized and accommodated a similar situation. In the LDR Phase II rule, the Agency raised the treatment standard for chromium wastes from 0.33 mg/L to 0.86 mg/L on a showing by industry that stabilization technologies for certain chromium wastes were unable to meet the treatment standard based primarily on processed K061. 59 Fed. Reg. 47,983, 47,999 (Sept. 19, 1994).

The data in the record of the Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, LEAD, AND selenium in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal foundry wastes, changing the pH to minimize chromium leachate can increase the solubility of lead.

Therefore, these other characteristics of TC metal
wastes can have a significant impact on stabilization technologies and their ability to treat any UCS in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6% total) respectively), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP respectively). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.]

DCN PH4P083
COMMENTER Steel Manufacturer's Assoc.
RESPONDER AC
SUBJECT CHRM
SUBJNUM 083
COMMENT
II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES

A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Wastes. Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium

As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%)resppectively), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP respectively. Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

DCN PH4P083
COMMENTER Steel Manufacturer's Assoc.
RESPONDER AC
SUBJECT CHRM
SUBJNUM 083
COMMENT

B. There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, and Lead

There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061(Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes.

The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996).

A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, “Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental’s Highway 36 Commercial Waste Treatment Facility and GNB’s Frisco, Texas Waste Treatment Facility,” March 10, 1997. While the Agency notes that in the past it has stated that, “....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents” (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, “Development of Metal Standards” which can be found in the Background Document for Metal Wastes in the RCRA docket for today’s rule.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P086
COMMENTER American Gas Association
RESPONDER AC
SUBJECT CHRM
SUBJNUM 086
COMMENT
A.G.A. is very concerned that the proposed treatment standards are inconsistent with the current philosophy and policy directives from Congress for EPA to use risk-based standards. The proposed treatment standards for mercury, chromium, cadmium and lead are based on levels that one could possibly technically treat to. As such, they are too low and cannot practicably be reached using conventional remediation technologies. A.G.A. urges EPA to perform reasonable risk assessments to determine if ratcheting down on treatment standards is environmentally necessary. Until EPA does this, the present standards for these metals and other wastes should be retained. The significant reductions being proposed have not been shown to be necessary from a human health or environmental standpoint.

RESPONSE

The Agency disagrees with the commenter that the treatment standards are inconsistent with the current philosophy and policy directives from Congress. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

DCN PH4P086
COMMENTER American Gas Association
RESPONDER AC
SUBJECT CHRM
SUBJNUM 086
COMMENT
A similar situation will exist with the other TC metals. For example, if a waste contains chromium at a TCLP level of 4.0 mg/l, it is not a hazardous waste and is not subject to the land disposal restriction. However, if the soil is contaminated at 5.1 mg/l, it must be treated to a level of 0.86 mg/one. Again, this situation is difficult to reconcile, relative to risk.

RESPONSE

The Agency notes that the TC levels that determine whether the waste is hazardous or not but so not represent levels at which threats to human health and the environment are minimized, rather only levels at which wastes clearly are hazardous. 55 FR at 222665. not based on the best demonstrated available technology (BDAT). EPA, under the statutory requirements of the RCRA Sec. 3004(m), is legally obligated to establish treatment standards using the BDAT and therefore, has developed technology based UTS. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN	PH4P104
COMMENTER	SSINA
RESPONDER	AC
SUBJECT	CHRM
SUBJNUM	104

COMMENTII. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD
SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE
STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES A.
Because Stabilization is the Only Commercially "Available"
Technology For Many TC Metal Wastes, Stabilization Technologies
Should Be Used as the Basis For Determining the UTS For Lead.
Cadmium. and Chromium As indicated above, HTMR is not
commercially available for treatment of many TC metal wastes.
However, certain stabilization technologies are commercially
available. Stabilization technologies are also the only
practical technology for many TC metal wastes, meeting the
statutory requirement to "substantially reduce the likelihood of
migration of hazardous constituents from the waste so that
short-term and long-term threats to human health and the
environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m).
Therefore, results from commercially available stabilization
technologies should be used to establish the UTS for TC metal
wastes. However, the Agency should only use reasonable
stabilization technologies that do not require the addition of

excessive amounts of stabilizing material in determining treatment standards for TC metal wastes. B.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium. Chromium. and Lead There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061 (Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id. More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised-in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. The Agency also agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996). A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6% total) respectively), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP respectively). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization “recipe” may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity among metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P105
COMMENTER	SMA
RESPONDER	AC
SUBJECT	CHRM

SUBJNUM 105
COMMENTII. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD
SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Waste, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes. B.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, and Lead There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For An Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061 (Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to

which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. The Agency also agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996). A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency agrees with the commenter that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997. While the Agency notes that in the past it has stated that, "....when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents" (See 55FR 22520,22565 (June 1, 1990), the Agency believes that the standards being finalized today can be met in metal waste streams. See memorandum entitled, "Development of Metal Standards" which can be found in the Background Document for Metal Wastes in the RCRA docket for today's rule.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity among metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the chromium treatment standard and is promulgating the UTS for chromium at 0.60 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P072
COMMENTER Non-Ferrous Founder's Soc
RESPONDER MC
SUBJECT FOUN
SUBJNUM 072
COMMENT

This letter transmits comments on behalf of the Non-Ferrous Founders Society (NFFS) on the U.S. Environmental Protection Agency's (EPA's) proposed rule addressing Phase IV of the Land Disposal Restrictions (LDR IV, 60 Fed. Reg. 43,654, August 22, 1995). NFFS members will experience a significant financial impact from the proposed regulations unless the final rule incorporates the modifications recommended in comments filed by both NFFS and the American Foundrymen's Society (AFS).

NFFS BACKGROUND

The Non-Ferrous Founders' Society is a trade association representing aluminum and brass & bronze foundries throughout the United States and Canada. Of the more than 3,000 foundries operating in North America, more than two-thirds produce castings made with non-ferrous metals.

The majority of non-ferrous foundries are small, privately held businesses, employing on the average fewer than 50 people. According to the Metalcasting Industry Census Guide compiled by Penton Publishing, 72% of all non-ferrous foundries fall into that employment category, and nearly 90% have fewer than 100 employees. Still, it is conservatively estimated that non-ferrous foundries collectively employ more than 150,000 people.

Non-ferrous foundries are located in nearly every state in the union, and non-ferrous castings are widely used as components in nearly every manufacturing sector of the economy. Typical applications include plumbing and fluid handling, construction and machinery, aircraft and aerospace, industrial, marine, appliance, and automobile production. In addition, they play an important role in military and defense (ordnance) applications, so much so that the Defense Department has designated rnetalcasting as a critical technology and both the Energy and Defense Departments have recently invested in technical research supporting the industry. The foundry industry as a whole is one of the nation's leading recyclers. The basic feedstock for most castings is refined ingot, made from material which, in the absence of a viable metalcasting industry, would otherwise be destined for disposal in landfills. In addition, the overwhelming majority of foundries employ a sand molding process wherein molten metal is poured into a sand mold and solidifies into a desired shape. The sand used in this process is typically recycled and reused by the foundry up to as many as 100 times. Few other industries can boast as high a recycling rate in their manufacturing processes.

Several major flaws contained in EPA's LDR IV rulemaking have been identified by AFS. The following issues are of great importance to NFFS members and simply must be addressed by EPA before the final LDR IV rule is published by the agency.

Foundry Waste Variability, Effectiveness of HTMR on Foundry Wastes: As stated by AFS, nonferrous foundry metallic waste constituents and concentrations are highly variable. Typically, the two major types of non-ferrous foundry waste contain a significant amount of non-metallic constituents differentiate foundry waste from K061 wastes which EPA used to establish High Temperature Metal Recovery (HTMR) as the BDAT for TC wastes. As stated by AFS, the variability of foundry wastes may make HTMR and inappropriate treatment technology for this material. Therefore, HTMR is not appropriate for the majority of Foundry TC Wastes.

RESPONSE

The Agency thanks the commenter for providing the industry background information. The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P072
COMMENTER Non-Ferrous Founder's Soc
RESPONDER MC
SUBJECT FOUN
SUBJNUM 072
COMMENT

UTS Revision for TC Metals (Non wastewater): Since none of the commercially available treatment or stabilization technologies for foundry wastes have been demonstrated to meet HTMR-derived UTS for TC metal wastes, EPA must revise the UTS to reflect the results of technologies that are demonstrated and commercially available for foundry wastes. As stated in the AFS comments to EPA regarding this matter, "Establishing a technology forcing standard for foundries' TC metal wastes violates RCRA and the clear and expressed intent of Congress." Further, NFFS believes that the proposed UTS levels for many of the TC metals are so minimal that many naturally occurring soils would not meet the new UTS levels established by EPA in the

LDR IV proposed rulemaking.

More Stabilization Technology Performance Data is Necessary to set the UTS for Cadmium and Lead: Comments submitted by the AFS demonstrate the need for data on this important aspect of the LDR IV proposed rule. NFFS firmly believes that UTS levels for TC metals(non-wastewater) can not be established by EPA until such data is reviewed by the agency. In addition, BDAT is dependent on HTMR being demonstrated and commercially available.

In summary, we believe that the LDR IV proposed rule is flawed for several reasons. There appears to be a lack of information necessary to establish UTS levels for TC Metal wastes (non wastewaters). In addition, EPA has selected a treatment technology (HTMR) that is neither demonstrated (feasible) nor available for the vast majority of foundry TC metal non-ferrous foundry waste. The proposed rule does not contain the information needed by EPA to prepare an adequate Regulatory Impact Analysis as required by Executive Order 12866. We concur with the AFS that the proposed LDR Phase IV rulemaking lacks reasoned decision making and results in "guesswork" by the Agency. NFFS believes that such "guesswork" will have a grave impact on our membership. The vast majority of NFFS members are small businesses whose largest offshore competitor is the Peoples Republic of China; a nation not known for its commitment to environmental protection. Finally, the costs of the LDR IV proposed rule have not been appropriately quantified by EPA and the environmental benefit of the proposal seems minimal at best.

As always, NFFS appreciates the opportunity to comment on EPA rulemaking proceedings. We trust that the agency will address the mistakes and lack of data highlighted in NFFS and AFS comments before promulgating the LDR IV final rule.

RESPONSE

It's noted that the Agency is establishing a concentration-based standard and is not requiring the use of a specific treatment technology. They Agency has demonstrated that commercially available technologies can treat wastes that are at least as difficult to treat as the foundry sands to the UTS, and therefore, has neither violated RCRA requirements nor the intent of Congress. The Agency also disagrees with the commenter that none of the commercially available treatment technologies have been demonstrated to meet the UTS for TC metal wastes.

The Agency had inadequate data on foundry sands prior to the second supplemental proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

For EPA's response on the issues related to the RIA, see the "Comments and Response Document for Mineral Processing Wastes," in the RCRA docket for today's rulemaking.

DCN	PH4P077
COMMENTER	American Foundryman's Soc
RESPONDER	MC
SUBJECT	FOUN

SUBJNUM 077
COMMENT

On behalf of the American Foundrymen's Society ("AFS"), we are submitting the following comments on the U.S. Environmental Protection Agency's ("EPA's" or "the Agency's") proposed Land Disposal Restrictions Phase IV Rule ("LDR Phase IV"). See 60 Fed. Reg. 43,654 (Aug. 22, 1995). AFS members will be adversely affected by EPA's proposed revisions unless the final rule incorporates the modifications recommended in these comments.

AFS is a national trade organization representing over 550 corporate members and approximately 13,000 individual professional members. Through its corporate and professional membership, AFS represents companies responsible for approximately 90 percent of the tonnage poured by the U.S. foundry industry. The U.S. foundry industry, our nation's sixth largest industry, is comprised of 3100 engineering production units employing 250,000 persons. Approximately eighty percent of the U.S. foundry industry are small businesses, having fewer than 100 employees.

The foundry industry produces castings for all aspects of daily life. Water faucets, engine blocks, jet engine turbine blades, fire hydrants, and parts to military equipment are just a few examples of products depending on castings. Castings may range in size from a fraction of an ounce (magnet in a hearing aid) to well over 400 tons (rolling mill housing). Ferrous and nonferrous castings have ultimately found uses, either directly or indirectly, in ninety percent of all manufactured items.

As far back as 1981, AFS has worked cooperatively with the Agency to characterize foundry wastes. See, Sampling and Analysis of Wastes Generated by Gray Iron Foundries Agency, EPA Office of Solid Waste (April 1981). AFS has also been active in the development of Land Disposal Restrictions ("LDRs") and has worked cooperatively with the Agency in developing LDRs applicable to foundry wastes. In both the LDR Third-Third and Phase III rulemaking, AFS submitted comments and provided the Agency with foundry waste treatment and stabilization information. See List of Previous Correspondence with the Agency on LDRs attached as Exhibit 1. In fact, some of the data AFS submitted for LDR Phase III is included in the record for LDR Phase IV, but apparently this data was either inexplicably ignored or discounted in the proposed rulemaking. With these comments, AFS wishes to draw the Agency's attention to the extensive body of information on foundry wastes that AFS has provided the Agency. This information helps illustrate that: (1) High Temperature Metals Recovery ("HTMR") has not been demonstrated to effectively treat foundry wastes on a commercial basis; (2) HTMR is not available for most foundry wastes; and (3) the stabilization technologies that are commercially available have not been demonstrated to treat the diverse universe of all Toxicity Characteristic ("TC") metal wastes to meet the HTMR-derived treatment standards. Therefore, AFS asks the Agency to review this information and then establish realistic and well reasoned treatment standards for TC metal wastes that will accommodate foundry wastes.

BACKGROUND ON FOUNDRY WASTES

A.Emission Control Dust

The foundry industry is a significant part of the largest U.S. recycling industry. Each year, AFS members recycle more than 35 billion pounds of the 77 billion pounds of ferrous metal scrap recycled by the entire U.S. iron and steel industry. During normal iron and steel foundry operations, AFS members operate state-of-the-art air emission control systems and generate approximately 20 pounds of emission control dust ("EC dust") or sludges for every ton of metal melted.1/ In other words, recycling the more than 35 billion pounds of ferrous metal scrap generates approximately 350 million pounds of EC dust, of which about 220 million pounds (or 110,000 tons) are TC metal wastes. See calculations attached as Exhibit 2. EC dust may exhibit the toxicity characteristic for cadmium (D006), chromium (D007), lead (D008) or selenium (D010).

B.Foundry Sand

The foundry sand system is a critical and necessary component of the casting manufacturing process. Foundry sand is repeatedly recycled to form sand molds for molten metal. The use of foundry sand in the foundry production cycle is a continuous loop, consisting of a: (1) mulling/mixing operation; (2) molding operation; (3) pouring/cooling operation; (4) shakeout operation; and (5) return to the mulling/mixing operation. A thin layer of sand in contact with molten metal is degraded each time a casting is made. The rest of the sand in a mold provides physical support and a heat sink to receive the energy of the molten metal during cooling. At some point in the production cycle, the degraded portion of the system sand is removed.

The foundry industry uses over 100 million tons of sand each year to make castings. Because foundry sand is repeatedly recycled, foundries purchase approximately 7 million tons of new sand each year and dispose of about the same amount. However, of the approximate 7 million tons of sand disposed each year, only about 300 thousand tons exhibit the toxicity characteristic for lead (D008). See calculations attached as Exhibit 2.

C. Total Annual Volume of Foundry Wastes

The ability of iron and steel foundries to continue recycling 35 billion pounds of ferrous metal scrap each year depends on their ability to manage their foundry wastes in a cost effective manner. Each year, foundries in the U.S. generate an estimated 410,000 tons of EC dust and foundry sand that exhibit a hazardous characteristic for toxicity. See calculations attached as Exhibit 2. In addition to EC dust and foundry sand, other foundry waste streams potentially subject to the proposed LDR Phase IV rulemaking include byproducts to melting operations, and other waste streams from cleaning and processing operations. Assuming that available stabilization technologies could treat these foundry wastes to meet the proposed treatment standards, they would cost between $150 to $200 per ton for stabilization and disposal of these wastes off-site. Consequently, the proposed rule would impose between $62 to $82 million in total annual treatment and disposal costs on the foundry industry (approximately double the current costs of treatment and disposal). In fact, these costs could be even higher because of the inherent variability of foundry wastes which make them more difficult to consistently stabilize.

D.Variability in Foundry Wastes

Physically, foundry wastes may vary from fine, dry particulate dust to coarse foundry sand. The pH of these waste may be acidic, neutral, or basic depending on the melting/molding practices of the foundry. This variability in waste stream characteristics results from a wide variety of processes and materials that a foundry must use to produce castings to meet their customers' quality and metallurgical requirements. For example, a captive brass foundry (one which produces castings solely for their parent company) may melt only a relatively small number of alloys, whereas a jobbing brass foundry (one which produces castings on a batch basis for a multitude of customers) may melt up to 70-80 different alloys. Since each alloy has its own unique chemistry (e.g., lead may range from 0-25 percent by weight), the characteristics of the waste generated by a jobbing brass foundry will be more variable than the waste generated by a captive brass foundry.

The same can be said for captive versus jobbing iron and steel foundries. A captive iron foundry producing ductile iron castings for the automotive market must melt iron with few trace elements (due to the post melting treatment of the molten iron to enhance its ductile properties). These foundries will melt scrap of known chemistries (e.g., pig iron or in-house scrap) with tight ranges on contaminant levels. On the other hand, a jobbing iron foundry may melt a wide variety of scrap with broader ranges of contaminants (e.g., shredded automobile scrap) since customer demands for chemistry are less stringent. For example, the chemistry of a fork truck counterweight casting is much less important than the chemistry of a turbine blade casting. This variability in the quality of the scrap being melted results in unpredictable values of heavy metals in the wastes. Another variable for all foundries is the wide range of melting temperatures (1300 F - 3000 F) and the effect this has on the type, quantity, and chemical (oxidation) state of the metals found in the waste sand, dust, and sludges.

BACKGROUND ON LDR PHASE IV

In the Third-Third LDR rule, EPA established treatment standards for metal wastes that were characteristically hazardous under the Extraction Procedure ("EP") test. Since promulgation of the TC rule in September 1990, the Toxicity Characteristic Leaching Procedure ("TCLP") is used to determine whether a metal waste is characteristically hazardous. Wastes that are characteristic under the TCLP but not under the EP test are considered "newly identified" wastes and are not currently subject to LDRs. Under LDR Phase IV, all TC metal wastes will be subject to LDRs and will have to be treated to meet Universal Treatment Standards ("UTS") for the TC metal and any underlying hazardous constituents ("UHCs"). LDR Phase IV will impose much more stringent treatment standards for most TC metal wastes than the current treatment standards which are appropriately set at the characteristic level.

The proposed rule will have a specific adverse impact on foundries in the following respects: (1)

all foundry wastes that qualify as TC metal wastes will have to meet much more stringent treatment standards under UTS for TC metals (e.g., cadmium, chromium, lead, and selenium) before being land disposed; and (2) foundries will have to determine if their wastes have UHCs and then treat these wastes to meet the UTS levels for these UHCs, even if such constituents did not cause the waste to be hazardous.

The proposed treatment standards for nonwastewaters under UTS would dramatically increase the stringency of the existing treatment standards (by roughly an order of magnitude) for cadmium (from 1.0 to 0.19 mg/L), for chromium (from 5.0 to 0.86 mg/L), for lead (from 5.0to 0.37 mg/L), and for selenium (from 1.0 to 0.16 mg/L). The proposed treatment standard for chromium under UTS was derived from chemical stabilization of a limited number of chrome-bearing wastes.2/ The more stringent treatment standards for cadmium, lead, and selenium were solely derived from the application of High Temperature Metal Recovery ("HTMR") technology to emission control dust/sludge from the primary production of
steel in electric arc furnaces ("K061"). It is entirely inappropriate for EPA to assume that the thousands of diverse and varied wastes that exhibit the TC characteristic for cadmium, lead, or selenium will respond like K061 when subjected to HTMR.

Foundry sand differs from K061 in the following critical respects: (1) K061 typically has a much higher concentration of recoverable heavy metals (primarily zinc), see Table attached as Exhibit 3; and (2) K061 does not have an extremely high sand content in its waste matrix. EC dust from foundries also differs from K061 because K061 typically has a much higher overall concentration of recoverable heavy metals (primarily zinc), see Table attached as Exhibit 3. Because of these critical differences, HTMR is not available or practical for foundry wastes. For example, HTMR on foundry sand would really be vitrification because of the large amounts of sand. The low concentrations of heavy metals in the sand are essentially rendered unrecoverable at extreme temperatures. EC dust has similar low and essentially unrecoverable concentrations of heavy metals.

SUMMARY OF COMMENTS

Under LDR Phase IV, AFS member companies would have to achieve UTS levels through either HTMR or stabilization. HTMR is not commercially available for foundry wastes. Therefore, stabilization is the only practical alternative for foundry wastes. Although stabilization is commercially available, stabilization technologies have not been demonstrated to treat foundry wastes to meet the proposed treatment standards in LDR Phase IV. AFS is concerned that foundry wastes will be unable to meet the HTMR- derived UTS with stabilization technologies, the only technologies commercially available for foundry wastes.

These limitations on stabilization technologies need to be resolved by the Agency before promulgating LDR Phase IV as a final rule. Otherwise, foundries generating TC metal waste swill suffer significant economic harm by being forced to develop technologies to treat their wastes to meet inappropriate and overly stringent treatment standards proposed under LDR Phase IV.

The Agency must assess the effects of stabilization technologies on foundry wastes before promulgating new treatment standards for these wastes. The information in the record is inadequate to make this assessment. Unless and until EPA develops adequate data demonstrating foundry and other diverse TC wastes can meet more stringent standards, the applicable treatment standards under UTS for chromium, cadmium, lead, and selenium should remain at the current and appropriate characteristic levels.

RESPONSE

First, the Agency thanks the commenter for providing industry background information and notes that the treatment standards for cadmium, chromium, lead, and selenium have been revised (based on additional performance data - see the BDAT Background Document for additional information) to 0.11 mg/l, 0.60 mg/l, 0.75 mg/l, and 5.7 mg/l respectively.

Second, the Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposed rule, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization and HTMR performance data (based on grab samples), collected by the Agency, represented a wide range of metal-bearing wastes (both listed and characteristic), including metal manufacturing and foundry wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. EPA believes that these wastes are at least as difficult to treat as the foundry sands.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the proposed standards are achievable through commercially available stabilization and HTMR technologies.

Finally, the Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

HWIR COMMENTS TO THE ORIGINAL PHASE IV PROPOSAL, AUGUST 22, 1995

DCN PH4P019
COMMENTER ASARCO
RESPONDER SS
SUBJECT HWIR
SUBJNUM 017
COMMENT

In fact, EPA has failed to present any evidence that setting LDR treatment standards at UTS levels, rather than at TCLP levels, is necessary to reduce risks beyond those presented by the hazardous characteristics themselves. In promulgating TCLP levels as regulatory thresholds for characteristic wastes in 1990, EPA announced its determination that constituent levels below TCLP do not pose a substantial present or potential hazard to human health and the environment. See 55 Fed. Reg. 11798, 11805 (March 29, 1990). In doing so, EPA touted the benefits of the characteristic approach, and correctly noted that the approach avoids "over-inclusiveness" by" reducing the potential of wastes that do not, in fact, present a threat." Id. at 11805-06. By uniformly setting the LDR treatment standards at UTS, rather than TCLP levels, EPA ignores its own prior evaluations regarding the lack of any threat posed to human health and the environment, and creates the over-inclusiveness that the characteristic approach was designed to avoid.

The lack of any sound scientific or legal basis for the arbitrary manner in which EPA imposes the UTS levels as LDR treatment standards is exemplified in the proposed treatment standard for lead. In this Proposed Rule, EPA proposes to change the treatment standard for lead in non-wastewater from 5.0 to .37 milligrams per liter ("mg/l"). In contrast, in section X of its August 4, 1995 draft preamble to the proposed Hazardous Waste Identification Rule ("HWIR") entitled "Toxicity Characteristic Level for Lead," EPA discusses new information that could provide a basis for raising the TC level for lead. EPA suggests in the HWIR proposal that, based on this new information, the TC level for lead could be raised to 11 mg/1, and possibly to as high as 75 mg/1. It is clear from this inconsistency that EPA has failed to consider or identify any scientific basis for proposing LDR treatment standards for TC metal wastes or any rationalization or explanation for its vastly different approaches.

> Since EPA has determined that the TCLP levels are sufficiently protective of human health and the environment, those regulatory thresholds should be utilized in establishing LDRs. In utilizing and establishing the TCLP levels, EPA identified the regulatory threshold at which the waste is considered "non-hazardous." EPA promulgated these levels in fulfillment of Congress' mandate to identify as "hazardous" those wastes presenting a significant risk to human health and the environment. See generally 55 Fed. Reg. 11798. The underlying assumption, therefore, is that the TCLP levels are protective of human health and the environment.

RESPONSE

The treatment standards in this rule are not established below levels which pose threats to human health and the environment. The characteristic, or TC levels, are the levels at which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. See 55 FR at 22652 (June 1, 1990); 51 FR at 21648 (June 13, 1986); 55 FR 11798 (March 29, 1990). EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines national-level, risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) best fulfills the statutory charge. Reliance upon BDAT treatment removes, as much as possible, the inherent uncertainty associated with use of predictive models in ascertaining the effects of land disposal. 55 FR at 6642 (February 26, 1990).

The commenter referred to the suggestion in the EPA's proposed Hazardous Waste Identification Rule (HWIR) that the TC level for lead could be raised to a higher level. The lead level in HWIR is based on risk modeling that is being modified. The schedule for the HWIR rulemaking is being extended to allow the Agency time to address the substantive technical comments on the risk assessment by the Science Advisory Board and others. Due to the court-order schedule for the Phase IV rule, it was not possible to wait for the HWIR process to be complete before setting treatment standards on the Phase IV wastes.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER SS
SUBJECT HWIR
SUBJNUM 045
COMMENT

Indeed, in direct contradiction to the instant LDR proposal, EPA's HWIR proposes risk-based exit levels (from RCRA Subtitle C Regulation) for D008 lead constituents which are over 32 times greater, and over 2 times greater for selenium, than the limits established by EPA in this LDR Phase IV rule. 28 These levels are based on risk modeling to a hazard quotient of 1 and 1 x 10-6 cancer risk, and, according to the proposed HWIR, serve as "minimum threat levels" to potentially cap BDAT treatment standards for the LDR. BCI believes the Agency's HWIR approach is far more well-founded than the one reflected in the instant proposal. 29
In any event, the Agency cannot simultaneously rationally pursue the approach embodied in this rule and the approach in the HWIR proposal. 30 In BCI's view, that rulemaking, rather than this one, presents a more appropriate context for any reevaluation or the treatment standards for D008 wastes.

Moreover, BCI notes that EPA is under no obligation to proceed with this issue in the instant rulemaking. The consent decree and settlement agreement which required publication of the proposal by August 11, 1995, do not address this issue. Rather, they relate to such other issues as equivalency determination for surface impoundments. 31 Nor does any other court decision require EPA to regulate underlying hazardous constituents in toxicity characteristic (TC) wastes. To the contrary, the courts have recognized that no action may be appropriate. 32

RESPONSE

The commenter is concerned that the Phase IV treatment standards are in contradiction with the proposed HWIR risk-based “exit levels.” Constituent levels in the proposed HWIR were based on risk modeling that is being modified. The schedule for the HWIR rulemaking is being extended to allow the Agency time to address the substantive technical comments on the risk assessment by the Science Advisory Board and others. Due to the court-order schedule for the Phase IV rule, it was not possible to wait for the HWIR process to be complete before setting treatment standards on the Phase IV wastes.

DCN PH4P059
COMMENTER Exxon Chemicals Americas
RESPONDER SS
SUBJECT HWIR
SUBJNUM 059
COMMENT

6. ECA recommends that the LDR Phase III and IV rules be

progressed only after integrating rule comments, finalizing the Point of Generation definition, providing regulatory text, and integrating the Hazardous Waste Identification Rule impacts and timing.

EPA has stated that the Phase III comments were not reviewed prior to the time the proposed Phase IV was issued. With the LDR Phase IV rule expected to address leaks, air emissions, and sludges in non-hazardous CWA surface impoundments, both LDR Phase III and IV rules have the potential to significantly affect the operation and facility requirements of CWA systems. Consequently, the effective date of the two rules should be the same. Otherwise, the steps taken by industry to comply with Phase III regulations may turn out to be inefficient/wasted if Phase IV regulations require different operating steps or facilities. For example, if a facility constructs or modifies a surface impoundment-based biological system to meet the LDR Phase III requirements, Phase IV requirements could potentially drive the facility to close the surface impoundment and construct a tank system. To avoid the unreasonable imposition of regulatory costs, the rulemaking must be coordinated.

In addition, clarification of the Point of Generation and the impact of the Hazardous Waste Identification Rule (HWIR) for process wastes is necessary to determine rule applicability and requirements. In order for a facility to properly assess the need to upgrade or replace surface impoundments, the wastewater discharge, air emission, leaks/groundwater and sludge requirements need to be clarified. Rolling out regulations sequentially may lead to facilities implementing projects which change with succeeding regulations. For example, it is possible that the LDR standards may drive a facility to invest capital which would not be necessary under HWIR due to the ability to exit Subtitle C for low risk wastes.

On the Point of Generation definition, this is a critical issue to determine the applicability of the proposed LDR rules to a facility. The absence of a resolution of this issue has made it extremely difficult for companies to assess the impact of the rules.

Also, compounding the difficulty in assessing rule impact is the lack of regulatory language on the Phase IV rule. Experience has indicated that numerous additional issues will be identified when EPA writes the detailed regulatory language for the Phase IV option selected. In fairness to the regulated community, EPA, after selecting a Phase IV option, should prepare the regulatory language and seek additional comments.

RESPONSE

EPA agrees with the commenter in general on the importance of close coordination on the decision-making and scheduling of the LDR rules, the Hazardous Waste Identification Rule (HWIR) for process wastes, and regulatory changes to the Definition of Solid Waste. Since the comment was submitted to EPA, two events occurred which eliminate the commenter's particular concerns. First, the sections of the Phase IV original proposal on August 22, 1995 pertaining to equivalent treatment for decharacterized wastewaters in surface impoundments (controls of leaks, sludges, and air emissions) were removed from this rule due to the Land Disposal Flexibility Act of 1996. That Act reinstated the exemption from the dilution prohibition for these wastes and required EPA to conduct a study to determine if regulation is necessary. Second, the timetable on the HWIR rule has been extended well beyond the required promulgation date of the Phase IV final rule, which removes concern about implementation problems. The new treatment standards in the Phase IV final rule will go into effect well before the complex work on the HWIR rule is complete. The HWIR provisions are being developed in conjunction with the Land Disposal Restrictions rules.

Regarding the commenter's last point on regulatory language, the proposed rule on which this comment was submitted did indeed contain complete regulatory language.

DCN PH4P078
COMMENTER Battery Council International
RESPONDER SS
SUBJECT HWIR
SUBJNUM 078
COMMENT

Indeed, in direct contradiction to the instant LDR proposal, EPA's HWIR proposes risk-based exit levels (from RCRA Subtitle C Regulation) for D008 lead constituents which are over 32 times greater, and over 2 times greater for selenium, than the limits established by EPA in this LDR Phase IV rule.29 These levels are based on risk modeling to a hazard quotient of 1 and 1x 10-6 cancer risk, and, according to the proposed HWIR, serve as "minimum threat levels" to potentially cap BDAT treatment standards for the LDR. BCI believes the Agency's HWIR APPROACH is far more well-founded than the one reflected in the instant proposal.30 In any event, the Agency cannot simultaneously rationally pursue the approach embodied in this rule and the approach in the HWIR proposal. 31/ In BCI's view, that rulemaking, rather than this one, presents a more appropriate context for any reevaluation or the treatment standards for D008 wastes.

Moreover, BCI notes that EPA is under no obligation to proceed with this issue in the instant rulemaking. The consent decree and settlement agreement which required publication of the proposal by August 11, 1995, do not address this issue. Rather, they relate to such other issues as equivalency determination for surface impoundments. 32/ Nor does any other court decision require EPA to regulate underlying hazardous constituents in toxicity characteristic (TC) wastes. to the contrary, The courts have recognized that no action may be appropriate. 33

RESPONSE

The commenter is concerned that the Phase IV treatment standards are in contradiction with the proposed HWIR risk-based "exit levels." Constituent levels in the proposed HWIR were based on risk modeling that is being modified. The schedule for the HWIR rulemaking is being extended to allow the Agency time to address the substantive technical comments on the risk assessment by the Science Advisory Board and others. Due to the court-order schedule for the Phase IV rule, it was not possible to wait for the HWIR process to be complete before setting treatment standards on the Phase IV wastes.

DCN PH4P095
COMMENTER GE
RESPONDER SS
SUBJECT HWIR
SUBJNUM 095
COMMENT

5. If the Agency adopts Option 2, the Agency should make the applicability trigger levels in Option 2 consistent with the levels to be proposed under the HWIR.

As noted above, the Agency is intending to promulgate concentrations of hazardous constituents in waste, below which the waste would not be subject to regulation under RCRA. It is GE's understanding that these "exit" levels will, for certain hazardous constituents, be higher than the exemption levels in the Proposed Rule. GE is unaware of any reason why the exemption levels in the Proposed Rule should be lower (i.e., more stringent than) than the HWIR criteria. Moreover, because the HWIR exit levels are to be risk-based, those levels are more consistent with the intent of RCRA º 3004(m)(1) and the court's decision in Chemical Waste Management, both of which confirm that land disposal requirements should insure minimization of risks from hazardous constituents. Therefore, if the Agency adopts Option 2, it should insure that the exemption levels for wastewater and sludges are not lower (i.e. more stringent than) the HWIR exit criteria....

7. The Agency should not revise the TCLP levels for metals until the HWIR rule is finalized.

In the Proposed rule, the Agency has also proposed to lower the toxicity characteristic leaching procedure ("TCLP") threshold concentrations for certain metals. These threshold concentrations are used to determine if a waste exhibits the characteristic of toxicity and, accordingly, is a hazardous waste. As discussed above, it is GE's understanding that the Agency will be proposing in the near future the HWIR, which will set "exit" concentrations of hazardous constituents, below which the waste will not be subject to regulation under RCRA. Both the HWIR "exit" concentrations and the TCLP levels, therefore, will be relevant in determining whether a waste is subject to regulation under RCRA. It is imperative, therefore, that the HWIR "exit" criteria and the TCLP concentrations are consistent. If the TCLP "entrance" concentrations were lower than the HWIR "exit" criteria, the two provisions would be contradictory. Accordingly, the Agency should postpone revising the TCLP levels until the HWIR rule is finalized to insure that the two are consistent. Alternatively, the TCLP levels should reflect the Agency's views under the HWIR rule.

RESPONSE

The commenter urged EPA to coordinate the Hazardous Waste Identification Rule provisions with the options in the original Phase IV proposed rule (August 22, 1995) concerning leaks, sludges, and air emissions from surface impoundments, and to make the HWIR exit criteria consistent with the LDR treatment standards for metal wastes.

Since the comment was submitted to EPA, two events have occurred which prevent the coordination problems the commenter foresaw. First, the sections of the Phase IV original proposal on August 22, 1995 pertaining to equivalent treatment for decharacterized wastewaters in surface impoundments (controls of leaks, sludges, and air emissions) were removed from this rule due to the Land Disposal Flexibility Act of 1996. That Act reinstated the exemption from the dilution prohibition for these wastes and required EPA to conduct a study to determine if regulation is necessary. Second, the timetable on the HWIR rule has been extended well beyond the required promulgation date of the Phase IV final rule, which removes concern about implementation problems. The new treatment standards in the Phase IV final rule will go into effect well before the complex work on the HWIR rule is complete. The HWIR provisions are being developed in conjunction with the Land Disposal Restrictions rules.

Comments and Responses for Issues Related to UTS for Lead (Vol. 1)

DCN	PH4P026
COMMENTER	The TDJ Group
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	026

COMMENT

2) The Agency is apparently unaware of the availability or the effectiveness of stabilization practices on multiple contaminant characteristic hazardous wastes.
The Agency has completed extensive work on the ability of stabilization technologies to eliminate the leach characteristic of many waste streams with single inorganic constituents. For example, cement stabilization has been shown as an effective method for stabilizing lead, cadmium and chrome compounds, all near or below the proposed Phase Four standards. However, it should be noted that the same stabilization chemistry at a given percentage of addition may be more or less effective in stabilizing each of the constituents, and little is known about the effects of combined stabilization processes on a single waste stream. For example, cement stabilization of foundry baghouse dusts will require a greater overall addition of cement to treat lead, cadmium and chrome constituents (when present)in the same waste stream. In certain cases requiring maximum addition of treatment reagent, effective treatment of chrome creates a condition where the treatment begins to elevate the leachability of lead (due to the amphoteric nature of lead).

RESPONSE

The Agency agrees with the commenter that the stabilization chemistry can be different from one waste to another. In order to account for such variations in waste characteristics, the Agency conducted site visits at commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data to better characterize the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. EPA believes that these wastes represent the most difficult to treat wastes. Therefore, the Agency believes that the performance data used to develop the UTS proposed in the second supplemental rule (62 FR 26041, May 12, 1997) and being promulgated in today's rulemaking, adequately characterize the diversity among metal-bearing wastes including wastes containing multiple metals.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P038
COMMENTER	Association of Battery Recyclers
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	038

COMMENT

The Association of Battery Recyclers ("ABR") submits the following comments on the proposed rule; Land Disposal Restrictions - - Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes ("Phase IV LDR Rule"), published by the Environmental Protection Agency ("EPA"), on August 22, 1995. 60 Fed. Reg. 43,654 (1995). In submitting these comments, the ABR also supports the positions expressed in comments being filed contemporaneously by the Battery Council International ("BCI"), and the Lead Industries Association, Inc. ("LIA").

I. Introduction

The ABR is a national trade association whose members include companies in the battery recycling and manufacturing industries, and the lead chemicals industry. The battery recycling industry members of the ABR collectively represent approximately 85% of the lead recycling capacity currently available in the United States. Certain provisions of the proposed Phase IV LDR Rule, as currently drafted, would have a direct detrimental impact on these ABR member companies. Specifically, the imposition of the new proposed land disposal restrictions ("LDR") treatment standards would effectively render ineffectual, the industry's current waste treatment systems -- systems developed and installed fewer than five years ago, at great expense, to ensure compliance with LDR rules promulgated in 1990.

The proposed Phase IV LDR Rule would apply universal treatment standards ("UTSs") promulgated by EPA on September 19, 1994, to characteristic metal wastes, including lead (i.e., D008 wastes generated by the lead recycling process). The effect of the proposed rule would be to lower the land disposal restrictions ("LDR") treatment standard for D008 nonwastewaters from 5.0 milligrams per liter ("mg/l"), to 0.37 mg/l. The corresponding treatment standard for D008 wastewaters would be changed from 5.0 mg/l to 0.69 mg/l.

The proposed imposition of these excessively stringent treatment standards virtually on the heels of the 1990 standards, is patently inequitable and is not adequately supported by relevant data. Moreover, the escalated waste management costs associated with the proposed action would pose a potentially insurmountable impediment to the beneficial recycling of secondary lead. Not only is this an undesirable result from an environmental perspective, it directly contravenes the recycling goals of the Resource Conservation and Recovery Act ("RCRA") and the administration's stated objectives in the "Reinventing Environmental Regulation" initiative. Specifically, the ABR maintains that: (I) the imposition of the UTSs to D008 materials is unnecessary to ensure the protection of human and the environment under RCRA §3004 (m): (ii)the UTSs are unachievable using demonstrated and available treatment technology; (iii) the proposal to apply the UTSs to D008 materials is not supported by relevant and material technical data; and (iv) the proposed imposition of unnecessarily stringent standards is contrary to the administration's announced objectives in the "Reinventing Environmental Regulation" initiative.

RESPONSE

The Agency disagrees with the commenter that the UTS contradicts the recycling goals of RCRA and the objectives of the Reinventing Environmental Regulation initiative. The Agency notes that EPA has been subject to litigation on setting treatment standards. In the case of CMA vs. EPA regarding the characteristic level for TC pesticides, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Although the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

The Agency also disagrees with the commenter that the UTS are unachievable using existing treatment technology. To compile additional evidence regarding the treatability of TC metal wastes, including D008 wastes, to the UTS, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization and HTMR treatment performance data that better represent the diversity of metal wastes than those previously used. The treatment performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. The types of waste treated included battery slag, mineral processing wastes, baghouse dust, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the UTS, thus, allowing for process variability and detection limit difficulties.

Thus, the Agency re-proposed a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard.

DCN	PH4P038
COMMENTER	Association of Battery Reyclers
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	038

COMMENT

Approximately 80% of the lead material consumed in the United States is used in the manufacture of lead-acid batteries. After the batteries' use, most of this lead is then beneficially recycled.
In the past decade, lead-acid battery recycling rates have consistently exceeded 90%. The average recycling rate for the past five years is 95%.
The recycling of secondary lead using high temperature metals recovery ("HTMR"), produces refined lead for use in the manufacture of new lead products. The HTMR process also generates a residual "slag" material which may contain recoverable amounts of lead.
Slag that contains a sufficient amount of recoverable lead is reclaimed using the HTMR process, resulting, ultimately, in the production of additional refined lead material and slag with a concentration of lead too low to be amenable to further HTMR processing.
Under current RCRA LDR regulations, slag wastes generated by the

recycling of secondary lead must meet the treatment standard for D008 nonwastewaters. 55 Fed. Reg. 22, 568 (1990). The applicable D008 treatment standard was promulgated by EPA at the characteristic level (i.e. , 5.0mg/l), in the "Third Third" LDR Rule. 55 Fed. Reg. 22, 520 1. Accordingly, residual slag material containing unrecoverable amounts of lead that is determined to be hazardous, is treated by "stabilization," or "fixation" to a level at or below 5.0 mg/l, and disposed in accordance with applicable federal and state requirements. (See, discussion of dilution attenuation factor ("DAF")included in comments submitted by LIA). The 5.0 mg/l concentration level is consistently achievable using currently available stabilization technology. However, the proposed lower level of 0.37 mg/l cannot be achieved using these stabilization systems. Moreover, the UTS treatment standards for underlying hazardous constituents ("UHCs"), that also would be applicable under the proposed rule, cannot be achieved using the stabilization technology developed by the industry. Technical data supporting these assertions is attached hereto.

RESPONSE

The Agency has provided adequate data to show the capability and availability of commercial treatment technologies (stabilization and HTMR) for treating the TC metals to the UTS levels. (See the BDAT background document for this rule). To compile additional evidence regarding the treatability of TC metal wastes to the UTS, the Agency conducted site visits to several commercial hazardous waste treatment facilities and collected additional stabilization and HTMR treatment performance data that better represent the diversity of metal wastes. The performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. The types of waste treated included battery slag wastes, mineral processing wastes, baghouse dust, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. Thus, the Agency re-proposed a UTS of 0.75 mg/l TCLP for lead (D008) in the Second Supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today’s rulemaking. Therefore, based on the treatment performance data reviewed, the Agency believes that the lead UTS can readily be achieved through commercially available treatment technologies. See the BDAT background materials in the RCRA docket for today’s rule for additional information on the treatment performance data used in determining the revised lead standard.

The Agency would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P038
COMMENTER	Association of Battery Recyclers
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	038

COMMENT

EPA also has failed to demonstrate that the UTSs can be met by stabilization as BDAT. As explained below, EPA has apparently disregarded D008 stabilization data submitted in connection with earlier LDR rulemakings that conclusively shows that the UTSs cannot be met for D008 wastes using demonstrated and available stabilization technology. Moreover, data included in the docket indicates that considerable difficulty may be encountered in achieving the UTSs for stabilized K061. See, DOC PH4P-50284, Table A-27 (Nov. 24, 1994).

Attached to these comments is recently compiled data provided by facilities in the lead recycling industry, demonstrating that stabilization of D008 wastes cannot achieve the UTSs. Using EPA's recommended methodology, the attached analysis of constituent concentration levels achieved by stabilization shows an average lead level of 2.97 mg/l, and a level of 2.48 mg/l for selenium. These concentration levels are significantly higher than the proposed levels of 0.37 mg/l for lead and 0.16 mg/l for selenium.

This data is consistent with data submitted to EPA during the Third Third rulemaking. The ABR(formerly the Secondary Lead Smelters Association ("SLSA"), submitted comments and data on the proposed Third Third Rule demonstrating that lead concentration levels achieved by stabilization were consistently under the characteristic level, but still were far removed from the current 0.37 mg/1 UTS. At that time, the Agency performed its own calculations and concluded that a treatment standard considerably below the characteristic level would be unachievable using demonstrated and available technology. EPA stated in the preamble to the final rule:

The Agency does not agree . . . that these [stabilization] data support treatment levels significantly below the characteristic level. The data provided by SLSA clearly show that two treated data points of 87 were above the characteristic level. The Agency used the data to calculate a treatment standard of 4.82 mg/1, very close to the 5.0 mg/l characteristic level. In addition, the Agency does not agree . . . that other stabilizing agents may provide a higher degree of stabilization. . . [T]he data do not support the assumption that characteristic lead nonwastewaters can typically be treated to levels significantly less than the EP characteristic level.

55 Fed. Reg. 22, 566.

As shown by the attached data, the foregoing conclusions remain valid. In order to comply with the proposed Phase IV LDR Rule, the lead recycling industry would be forced to abandon the stabilization treatment technology developed in response to the Third Third Rule, and develop or acquire some new or enhanced treatment technology -- assuming that a technology capable of consistently meeting the UTSs exists and is commercially available.9

RESPONSE

The Agency disagrees with the commenter's statement that EPA has not demonstrated the capability of commercial treatment technologies such as stabilization to treat lead to the UTS. The Agency has provided adequate data to show the capability and availability of commercial treatment technologies (stabilization and HTMR) for treating lead to the UTS levels. (See the BDAT background document for this rule). To compile additional evidence regarding the treatability of TC metal wastes to the UTS, the Agency conducted site visits to several commercial hazardous waste treatment facilities and collected additional stabilization and HTMR treatment performance data that better represent the diversity of metal wastes. The performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. The types of waste treated included battery slag wastes, mineral processing wastes, baghouse dust, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. The Agency believes that these wastes are at least as difficult to treat as lead containing wastes. It is also noted that, EPA is revising the lead standards based on these newly collected performance data, and therefore, is not transferring the treatment standards based on K061 wastes.

Thus, the Agency re-proposed a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. Therefore, based on the treatment performance data reviewed, the Agency believes that the lead UTS can readily be achieved through commercially available treatment technologies. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard.

The Agency also reviewed the data submitted by the commenter, and found the data to be seriously lacking in form and quality assurance/quality control prerequisites. Specifically, the data submitted to the Agency were: (1) based on composite samples rather than grab samples, the latter being the only type used to develop BDAT treatment standards; (2) lacking in any quality assurance/quality control documentation; and (3) not accompanied with adequate indication that treatment process was in fact well designed and operated. Therefore, the Agency was unable to use the data for developing the BDAT treatment standards.

The Agency would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P038
COMMENTER	Association of Battery Recyclers
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	038

COMMENT

EPA states in the proposed Phase IV Rule that the Agency has performed a "comprehensive reevaluation" of treatment performance data for metals included in the UTS table in order to determine if the UTS are appropriate for transfer to characteristic metal wastes. 60 Fed. Reg.43,682 - 43,683. The Agency then concludes, based upon this comprehensive reevaluation, that the use of HTMR and stabilization for treatment of D008 materials will achieve the UTSs. This conclusion is not, however, supported by relevant data. In the proposed Phase IV Rule, the Agency specifically refers to the BDAT Background Document for Toxicity Characteristics Metal Wastes D004-D011 ("BDAT Background Document"), as support for the imposition of the UTSs. Id. This document does indicate that some stabilization data was reviewed in preparing the proposed rule. However, the document also indicates that the proposed expansion of the UTSs to constituents regulated in nonwastewater forms of D008 were based, principally, upon treatment performance data from HTMR for listed hazardous wastes. BDAT Background Document, at 1-6; Table A-4.

The majority of the stabilization data reviewed by EPA and included in the Background Document, is data for the treatment of KO61.11 As previously noted, however, this data fails to demonstrate that the UTSs can consistently be met for this material. Id - at Table A-4. Moreover, the technical data in the Background Document that is actually relevant to the treatment of D008 materials, evidences much higher TCLP values, ranging from 0.1 mg/l to 8.5 mg/l. Id - Based on this data, EPA's conclusion in the Background Document that the UTS of 0.37 mg/l can be achieved "for a wide variety of waste matrices," is both incongruous and grossly exaggerated.

The foregoing Background Document references a second EPA document as containing "a more detailed discussion of the Agency's rationale and technical support for establishing universal standards for nonwastewater forms of wastes." BDAT Background Document at 1-7. However, this report, entitled, Final Best Demonstrated Available Technology (BDAT) Background Document for Universal Standards, Volume A: Universal Standards for Nonwastewater Forms of Listed Hazardous Wastes, does not include an examination of any stabilization treatment data for D008 wastes. Rather, this document merely confirms that the UTSs for listed toxicity characteristic metals were based solely on HTMR, not on stabilization or on HTMR in combination with stabilization.

Given the foregoing, the ABR questions the validity of EPA's conclusion in the preamble of the proposed Phase IV Rule, that "the UTS for metal nonwastewaters can be achieved by [HTMR] or stabilization." 60 Fed. Reg. 43,683.12 The Agency, clearly, has not evaluated data sufficient to support the proposed revision of the D008 treatment standard. In fact, all of the relevant technical data regarding the treatment of D008 materials now in EPA's possession, indicates that a treatment standard of 0.37 mg/l cannot be met using demonstrated and available technology.

RESPONSE

The Agency notes that, to respond to the comments on the adequacy of performance data, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization and HTMR treatment performance data that better represent the diversity of metal wastes than those previously used. The treatment performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. The types of waste treated included battery slag, mineral processing wastes, baghouse dust, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for process variability and detection limit difficulties.

Thus, EPA revised the lead treatment standard, based on additional data form commercial stabilization and HTMR facilities (based on grab samples), and proposed the lead UTS at 0.75 mg/l TCLP in the Phase IV second supplemental proposal (62 FR 26045, May 12, 1997), and is finalizing this standard in today's rulemaking. The Agency also notes that this standard is less stringent than the standard (0.37 mg/l) proposed in the original Phase IV rule (60 FR 43654, August 22, 1995). Therefore, based on the treatment performance data reviewed, the Agency believes that the lead UTS can readily be achieved through commercially available treatment technologies. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard.

DCN PH4P043
COMMENTER Lead Industries Association
RESPONDER EE/MC
SUBJECT LEAD1
SUBJNUM 043

COMMENT

DAF.

To take into account potential migration of lead through soil, EPA assumed a DAF of 100 for purposes of assigning a toxic characteristic level to lead. In other words, EPA assumed that lead released in solution from a landfill would attenuate 100 times before reaching an underground water body. EPA stated at the time it adopted the 100 DAF that the number was the product of modeling based on very limited data, 55 Fed. Reg. 11827 (March 29, 1990), and the evidence that has been gathered since then demonstrates that lead tends to be immobilized in soil, and that the 100 DAF is therefore too low. This tendency was noted by EPA in a report submitted to the OECD Environment Directorate in May 1991 in connection with the OECD lead risk reduction program. The report notes that lead tends to be immobilized "in organic complexes or adsorbed to hydrous iron oxides which limits [lead's] availability to humans and other terrestrial life" (p.49).

In section XII of its August 4, 1995, draft preamble to the Hazardous Waste Identification Rule(HWIR), EPA discusses new models that use a higher lead-specific DAF. The draft states that, as part of the modeling for the HWIR rule, EPA used a lead specific DAF ranging as high as5000, rather than the generic DAF of 100 the Agency used in the TC rule. The draft HWIR discusses how this information could provide a basis for raising the TC level for lead. Based on this new information, the draft states that the TC level for lead could be raised to 11 mg/l, and possibly as high as 75 mg/l. LIA looks forward to working with EPA in a constructive dialogue to address the range of issues raised by the use of these updated models.

It should also be noted that the question of lead's mobility in soil was examined at length by McCulley, Frick & Gilman in a 1991 literature review. The study, which is submitted as Attachment 1 to these comments, concludes that:

The results of our literature review indicate that, except under rare conditions, lead that infiltrates into the subsurface is immobilized and accumulates in the upper layers of soil. This fate is confirmed both by experimental and empirical data. Lead can be immobilized in most soils by several mechanisms, including solubility controls and adsorption into clays, iron and manganese oxides, and organic matter. The limited solubility of several lead compounds sets an upper limit to lead concentrations in soil pore water, especially at neutral and basic pHs. This solubility control limits the rate at which lead can be exported downward by infiltrating soil water [p. 2].

The McCulley, Frick & Gilman study went on to point out that:

... solubility control may be further enhanced by anthropogenic practices such as the application of fertilizer and lime, which contain inorganic compounds that combine with the lead to form relatively insoluble minerals. At pHs ranging from somewhat acidic through the neutral and basic ranges, the clays present in most soils adsorb lead and result in still lower soil water lead concentrations. Iron and manganese oxides, where present, extend the range of adsorption to quite acidic conditions. Solid organic materials, present especially near the surface of most soils, adsorb lead at pHs ranging from acidic to somewhat basic. These precipitation and adsorption reactions compete for dissolved lead, resulting in an efficient scavenging process that has the net effect of accumulating lead In the upper portion of the soil profile [p. 31].

The validity of these geophysical analyses is confirmed by a recently-published study by Markallet al. of heavy metal migration in soils at smelter sites ranging in age between 220 and approximately 1900 years. The study, which is reproduced in Attachment 2 to these comments, concludes that: (1) only a very small fraction of the lead at each site was available for migration;

(2) the migration rate of the small amount of mobilized lead at these sites was low; and (3) in no instances was any lead found to have migrated more than a few meters.

RESPONSE

The Agency notes the commenter's views on lead mobility and its modeling in groundwater, and continues to develop models in response to the proposed HWIR. It would be premature of the Agency to adopt aspects of the HWIR still in development at this time.

DCN	PH4P045
COMMENTER	BATTERY COUNCIL INTERNATIONAL
RESPONDER	AC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

The Battery Council International (BCI) is pleased to submit the following comments on the U.S. Environmental Protection Agency's (EPA) Land Disposal Restrictions -- Phase IV proposed rule (LDR Phase IV rule), published in the August 22, 1995, Federal Register. 60 Fed. Reg. 43654.

BACKGROUND

BCI is a non-profit trade association representing commercial entities involved in the manufacture, distribution and sale, and reclamation of lead-acid batteries. BCI is members and associate members include manufacturers and distributors of lead acid storage batteries for automotive, marine, industrial, stationary, specialty, consumer and commercial uses, and secondary smelters that reclaim or recycle the batteries once they are spent. BCI's membership represents more than 99 percent of the nation's domestic lead-acid battery manufacturing capacity and more than 84 percent of the nation's lead battery recycling or secondary smelting capacity.

I.THE .37 mg/l FOR D008 TREATMENT STANDARD DOES NOT MEET THE BDAT PRINCIPLES ESTABLISHED BY EPA AND UPHELD IN HAZARDOUS WASTE TREATMENT COUNCIL v. EPA

A.EPA Has Failed To Follow Its BDAT Principles

A concentration-based treatment standard must be a performance level achievable by application of the Best Demonstrated Available Technology (BDAT). To identify BDAT for treatment of a particular waste, EPA considers three factors: whether the technology is "best demonstrated;" whether it is "available;" and whether it is the "best applicable" technology. A treatment technology is considered to be "demonstrated" when full-scale treatment operations are currently being used to treat that waste. To be considered "available," the technology must not be proprietary or a patented process that cannot be purchased or licensed from the proprietor (i.e., it must be commercially available) and must substantially diminish the toxicity of the waste or reduce the likelihood of migration of hazardous constituents from the waste. To be "applicable," a technology must theoretically be able to treat the waste.

RESPONSE

The Agency disagrees with the commenter that the selection of stabilization and HTMR technologies as BDAT does not meet EPA's BDAT principles. EPA notes that the Horsehead Resource Development Company's HTMR facility is a commercially operated facility and accepts TC metals for the purpose of metal recovery. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. The Agency is promulgating a concentration-based treatment standard rather than requiring a specific technology. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology. The Agency reviewed treatment performance data and calculated treatment standards for both HTMR and stabilization.The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties.

Furthermore, based on review of additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. The Agency believes that the proposed UTS levels are achievable through commercially available stabilization and HTMR technologies. The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P045
COMMENTER BATTERY COUNCIL INTERNATIONAL
RESPONDER AC
SUBJECT LEAD1
SUBJNUM 045
COMMENT

The significance of these directives is apparent when they are contrasted to the policies embodied in, for example, the Clean Air and Clean Water Acts. Those statutes expressly require development of standards based on best available technology (BAT) without consideration of economic factors. 40 Here, Congress said such restrictions should not apply. It thus authorized the Agency to develop demonstrated technologies that were both technologically and economically achievable, and consistent with other policies.

This conclusion is fully consistent with the Hazardous Waste Treatment Council decision. There, the D.C. Circuit specifically recognized that EPA's development of treatment standards under Section 3004(m) "lies within the informed discretion of the Agency as long as the result is that short-term and long-term threats to human health and the environment are minimized. 41 That discretion necessarily extends to evaluation of economic impacts and balancing of other policy concerns. 42 EPA itself recognizes that "[t]he plain language of the statute [Section 3004(m)] does not compel the Agency to set treatment standards based exclusively on the capabilities of existing technology. " 43

Second, EPA already has reached essentially the same conclusion in establishing the treatment method for lead-acid batteries. EPA has specified a treatment method -- reclamation in a secondary lead smelter -- as that standard. Much of the D008 nonwastewater materials at issue here are generated as a result or this required method or treatment. They should not be subject tofurther treatment standards.

The Agency's only justification for lowering the treatment standard to the UTS level for D008 wastes is that this approach is "consistent with the promulgated requirements for other characteristic wastes" (D012-D043). However, those other characteristic wastes (i.e., organic constituents and organic (halogenated) pesticide wastes) are fundamentally different from D008 nonwastewaters (metal wastes). Thus EPA's explanation for lowering the treatment standards does not meet the D.C. Circuit's requirement that a reasoned analysis support any disregarding of the Agency's prior policy.

CONCLUSION

BCI would be pleased to provide additional information on our position.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore does not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

Finally, it should be noted that the Agency has been subject to litigation on setting treatment standards. In the case of CMA vs. EPA regarding the characteristic level for TC pesticides, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment.

The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

In lieu of the proposed universal treatment standard (UTS) level, BCI believes that the D008 and D010 treatment standards should be maintained at the current levels and measured by the toxicity characteristic leaching procedure (TCLP), as originally established in EPA's 1990 Land Disposal Restrictions Rule for Third Scheduled Wastes, 55 Fed. Reg. 22520 (June 1, 1990).

RESPONSE

In the supplemental proposed rule (62 FR 26045, May 12, 1997), the Agency amended the proposal to change the UTS for selenium to 5.7 mg/L TCLP and retain the current treatment standard of 5.7 mg/L TCLP for D010 waste. Thus, creating a uniform standard of 5.7 mg/L for nonwastewater forms of selenium. In the same supplemental proposed rule, the Agency re-proposed a lead (D008) nonwastewaters UTS of 0.75 mg/l TCLP. The Agency believes that these standards are achievable through commercially available stabilization technologies for a wide variety of waste matrices (see the BDAT Background Document for additional information on the revised standards). The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

EPA has failed to follow its own BDAT principles in setting treatment standards for lead and selenium. Its selection of High Temperature Metals Recovery (HTMR) and stabilization technologies as BDAT for D008 nonwastewaters is without merit. This is because, first, the HTMR technology used by EPA to determine the BDAT (known as Horsehead Resource Development Company Inc.'s waelz kiln series process) is not "commercially available" to treat D008 nonwastewaters to the proposed treatment levels for lead and selenium. The waelz kiln process is a patented and very expensive process that has not been built into any of the lead battery industry's operations. Moreover, there is no facility operating a waelz kiln permitted to accept and store D008 wastes. Thus, the HTMR cannot be considered an available technology under the Agency's BDAT principles.

RESPONSE

The Agency disagrees with the commenter that the selection of stabilization and HTMR technologies as BDAT is without merit. EPA notes that the Horsehead Resource Development Company's HTMR facility is a commercially operated facility and accepts TC metals for the purpose of metal recovery. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. The Agency is promulgating a concentration-based treatment standard rather than requiring a specific technology. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology. The Agency reviewed treatment performance data and calculated treatment standards for both HTMR and stabilization.The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties.

Furthermore, based on review of additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead in (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. The Agency believes that the proposed UTS levels are achievable through commercially available stabilization and HTMR technologies. The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

Second, D008 nonwastewaters (slags, soils, sludges) cannot be chemically stabilized to the proposed treatment concentrations. As the attached data and letter from Resource Consultants, Inc. (RCI) demonstrates, stabilization treatment of D008 nonwastewaters cannot achieve concentration levels of .37 mg/l for lead or 0.16 mg/l for selenium. 7 Instead, this data shows that based on the 99th percent confidence interval, stabilization treatment of lead and selenium at secondary lead smelters for slag can achieve, at best, concentration levels of 2.97 mg/l for lead and 2.48 for selenium. 8Treatment levels for lead contaminated soils are much higher. RCI's data show that stabilization treatment of lead contaminated soil can achieve, at best, a concentration level of 4.69 mg/l level.

RESPONSE

The Agency disagrees with the commenter's statement that D008 nonwastewaters cannot be chemically stabilized to the UTS. EPA has provided adequate data to show the capability and availability of commercial treatment technologies (stabilization and HTMR) for treating lead to the UTS levels. (See the BDAT background document for this rule). To compile additional evidence regarding the treatability of TC metal wastes to the UTS, the Agency conducted site visits to several commercial hazardous waste treatment facilities and collected additional stabilization and HTMR treatment performance data that better represent the diversity of metal wastes. The performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. The Agency believes that these wastes are at least as difficult to treat as lead containing wastes.

Thus, the Agency re-proposed a UTS of 0.75 mg/l TCLP for lead (D008) in the Second Supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. Therefore, based on the treatment performance data reviewed, the Agency believes that the lead UTS can readily be achieved through commercially available treatment technologies. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard.

The Agency would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045
COMMENT	

Third, EPA's proposed concentration-based limits for lead do not reflect the level of analytical performance "achievable" for the wastes. They are below the practical quantification limits(PQLs) for the TCLP extracts of most secondary lead slags. State-of-the-art testing methods cannot accurately detect lead concentration levels as low as .37 mg/l in some D008nonwastewaters. This inability to accurately detect extremely low levels of lead is particularly a problem where, as often is the case, D008 wastes contain large quantities of sodium salts and other metallics soluble in water. These soluble salts are extracted in the TCLP. This results in very high total dissolved solids (TDS) in the analytical samples. The level of TDSs can result in considerable matrix interference at the proposed regulated LDR limits, where analyses are performed by approved test methods. Thus, the sensitivity of the instruments is reduced. This in turn results in higher minimum detection limits (MDLs) and corresponding increases in PQLs and regulated facilities having this character of D008 wastes simply will not be able to determine whether or not they are in compliance with standards set at the .37 mg/l level.

RESPONSE

High dissolved solids in samples may result in viscosity differences between samples and standards in determining methods that use aspiration. However, the use of the method of standard additions can be used to eliminate the resulting analytical bias. With regards to sensitivity, GFAA achieves a MDL of 0.001 mg/L, FIAA 0.10 mg/L, and ICP 0.028 mg/L. EPA believes each of these methods can achieve reliable measures of the 0.75 mg/L treatment standard.

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

Under Section 3004(m) of RCRA, EPA must promulgate treatment standards for waste subject to the LDRs. These treatment standards must "substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to the human health and the environment are minimized." 18Courts reviewing EPA's LDR program consistently have recognized that the Agency cannot set treatment limits below which the wastes do not pose a threat to human health and the environment. 19 Moreover, to justify any standard, a factual finding, supported by the record, must be made that the specified treatment level is needed to eliminate the threat. 20

The proposed adoption of the UTS D008 nonwastewater standard ignores these principles. There is nothing in the proposed rule or the supporting record that even suggests that human health and the environment are not adequately protected by the current treatment standard (5.0 mg/l) or, conversely, that the proposed treatment standard of .37 mg/l is necessary to achieve the required minimal risk protection. 21 To the contrary, the Agency concedes in the proposed LDR Phase IV rule that the statutory minimized threat standard is achieved by the 5.0 mg/l treatment standard for characteristic metal mixed wastes through stabilization. 22

This is not surprising. First, there is no basis for the Agency to conclude that there is any environmental risk from current industry handling of D008 nonwastewaters (i.e., from recognition of 5.0 mg/l as the treatment standard). D008 nonwastewater material subject to land disposal principally are hazardous slags, contaminated soils, and air emission control dusts. These wastes already are stabilized and sent to RCRA regulated, double-lined landfills or other approved, equivalent facilities.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore does not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

Finally, it should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, and again in the Third Third case, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment.

The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

The application of the UTS to D008 wastes will put this recycling process at risk. It will force the secondary smelter industry to incur substantial costs for, at best, a negligible effect on human health and the environment. The additional costs in meeting the treatment standard will impair the viability of the industry and diminish its ability to recycle lead batteries. Over the long-run, this could result in a much greater threat to human health and the environment as the industry's ability to recycle lead batteries is diminished and they are disposed in landfills and elsewhere.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore does not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

Finally, it should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment.

The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN	PH4P045
COMMENTER	Battery Council International
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	045

COMMENT

C.EPA Lawfully May Consider Economic and Policy Factors In Setting LDR Treatment Standards
The legislative history of RCRA Section 3004(m) indicates that Congress intended the Agency to take into consideration all of the foregoing factors, including economic impact, when developing treatment standards.
For example, during consideration of S. 757 (later incorporated into H.R. 2867, the Hazardous and Solid Waste Amendments of 1984), Sen. Chaffee offered a floor amendment to Section3004(b)(7), which subsequently, became Section 3004(m). The amendment (Amendment No.3409) was intended to clarify the authority of the Administrator in establishing treatment standards applicable to land disposal practices. In explaining his amendment, Sen. Chafee

stated that "[t]he requisite levels of methods of treatment
established by the Agency should be the best that has been
demonstrated to be achievable. This does not require a BAT-type
process as under the Clean Air or Clean Water Acts which
contemplates technology-forcing standards. The intent here is to
require utilization of available technology in lieu of continued
and disposal without prior treatment. it is not intended that every
waste receive repetitive or ultimate levels of methods
or treatment, nor must all inorganic constituents be reclaimed. "

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore does not represent a level at which threats are minimized. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level. Also, EPA sees nothing in the legislative history cited by the commenter (and, of course, no support in statutory language or case law) that would allow economic factors to be considered in determining adequacy of treatment under Section 3004(m).

Finally, it should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment.

The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed

UTS levels, fulfills the statutory charge of section 3004(m).

DCN	PH4P077
COMMENTER	American Foundryman's Soc
RESPONDER	EE/MC
SUBJECT	LEAD1
SUBJNUM	077

COMMENT

II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, LEAD, AND SELENIUM SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR FOUNDRY WASTES

A.Because Stabilization is the Only Commercially "Available" Technology For Foundry Wastes, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, Selenium, and Chromium

As indicated above, HTMR is not commercially available for treatment foundry wastes. However, certain stabilization technologies are commercially available for foundry wastes. Although the database of stabilization treatment results for foundry wastes presented in the rulemaking record is not comprehensive, (See Proposed BDAT Background Document for TC Metal Wastes D004-D011 (July 26, 1995), at A-16 to A-27), only stabilization technologies are demonstrated to effectively treat foundry wastes. Stabilization technologies are also the only practical technology for foundry wastes that meet the statutory requirement to"substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized."RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, the results from commercially-available stabilization technologies applied to foundry wastes should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

B.Stabilization Technologies For Lead, Chromium, Cadmium, and Selenium Have Not Been Demonstrated to Treat Foundry Sands to Meet the proposed UTS

Commercially available stabilization technologies for foundry wastes have not been demonstrated to consistently meet the proposed UTS levels. The results presented in Appendix A to the Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, indicate that over half of the waste sample sets treated with stabilization technologies would fail to meet UTS for either cadmium, chromium, lead, or selenium. In particular, eight out of ten stabilization sample sets for foundry-related wastes identified in the record would also fail for the same reason.

C.There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, Lead and Selenium

There is only limited performance data for stabilization technologies in the rulemaking record. Some of the results of stabilization in the LDR Phase IV rulemaking record were submitted by AFS as comments to the proposed LDR Phase III rulemaking. However, the stabilization data submitted by AFS for LDR Phase III is not sufficient to determine treatment standards for TC metals under UTS. For example, one of the sample sets in the record that presumably represents foundry waste would be more appropriately described as "landfill wastes." 3/ See Proposed BDAT Background Document for TC Metal Wastes D004-D011, July26, 1995, n. 28 to Table A-4 at A-25. Furthermore, the Agency does not even have information about the untreated characteristics of these "landfill waste" samples. Therefore, any treatment values reported for these wastes would be inconclusive. For example, the wastes could have been diluted during landfill processing, or perhaps the waste samples never had any UHCs in the first place. Either way, the Agency should not rely on these landfill waste samples to determine the performance of stabilization technologies for foundry wastes. Otherwise, the Agency could misinterpret the ability of stabilization technologies to meet UTS for foundry wastes, as the Agency has apparently done with LDR Phase IV.

The data in the record is also not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061(Aug.1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id. More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The Agency has previously recognized and accommodated a similar situation. In the LDR Phase II rule, the Agency raised the treatment standard for chromium wastes from 0.33 mg/L to 0.86 mg/L on a showing by industry that stabilization technologies for certain chromium wastes were unable to meet the treatment standard based primarily on processed K061. 59 Fed. Reg. 47,983, 47,999 (Sept. 19, 1994). The data in the record of the Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, lead, and selenium in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal foundry wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

On behalf of AFS, we appreciate this opportunity to comment on EPA's proposed rule for Phase IV of the Land Disposal Restrictions. We expect the Agency to correct the mistakes in the rulemaking record that we have addressed in these comments and hope that EPA considers our recommendations when promulgating the final rule. Until EPA develops the necessary supporting data on the availability and effectiveness of metal recovery and stabilization technologies for foundry wastes, the LDR treatment standards for lead, cadmium, chromium and selenium should remain at the characteristic levels. If we can be of further assistance, please do not hesitate to contact us.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. These stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic), including metal manufacturing and foundry wastes. EPA believes that these wastes are at least as difficult to treat as foundry sands. Regarding the comment on likely interferences in stabilization technologies, e.g., pH and the presence of low concentrations of organics, EPA notes that a well operated and optimized treatment system can overcome such interferences and treat the waste to the UTS. For example, if the presence of organics interfere in the stabilization process, the waste could be pre-treated (e.g., thermal treatment) to remove the organics prior to stabilization.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Thus, based on review of additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. The Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

Phase IV LDR Proposed Rule, August 25, 1995

Comments and Responses for Issues Related to UTS for Lead (Vol. 2)

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 026
COMMENT

1) Reliance on the availability and feasibility of HTMR
At the present time, compliance with the proposed UTS standards for lead, cadmium or chromium wastes requires either the use of stabilization technologies or the use of high temperature metals recovery. The Agency analysis of available capacity appears to be somewhat incomplete, since facility availability for some D008 waste streams is limitedly the amounts of lead present in the waste. Leaded paint contaminated abrasive (produced in projects that sandblast structural steel to remove old paint and repair corrosion damage)may contain as little as 0.5% total lead (in the form of lead oxide) that will result in the classification of the waste as hazardous under TCLP. Many available high temperature metals recovery facilities are unwilling to receive materials with less than 15% total lead content unless a substantial surcharge is paid, and even then, it is not clear whether there will be adequate capacity to receive an additional 300,000 to 500,000 tons of low lead spent abrasive waste annually. As a result, roughly 95% (by weight) of the D008 waste volume for the steel deleading industry will be forced to use stabilization methods for disposal. The question of whether stabilization processes can perform to the standards of the Agency is an issue that will be addressed later in this document.
Processes that concentrate the waste for HTMR in steel structures lead abatement projects(recycled steel grit systems) allow for waste minimization by volume (with maximum toxicity), but they cause substantial increases in the costs of lead paint removal while maximizing the risks to workers in containment. In general, this method of paint removal may increase surface painting costs by as much as 50% over other processes that do not concentrate the waste lead. Most lead paint has less than 30% total lead, and the

diluting effects of grit removal (producing paint chips, spent abrasive, and particles of substrate)will reduce the fraction of lead in the waste to well below the 15% threshold. We estimate that more than 65% of the waste from steel grit systems will fail to meet the minimum lead standard.

RESPONSE

The Agency agrees with the commenter that wastes containing very low concentrations of metals would not be amenable for HTMR treatment. Regarding stabilization, some commenters in response to the original Phase IV proposal, commented on the lack of adequate stabilization performance data to support the UTS. To address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony. The Agency believes that these wastes are at least as difficult to treat as the D008 wastes. The Agency also collected data from commercial HTMR facilities and calculated the treatment standards. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the UTS, thus, allowing for process variability and detection limit difficulties.

Thus, the Agency re-proposed a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing this standard in today's rulemaking. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard. In addition, the Agency conducted a treatment capacity analysis and determined that adequate capacity exist to treat the D008 wastes. See the capacity analysis background document for this rulemaking for additional information on available treatment capacity.

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 026
COMMENT

3) The Agency has not considered the effect of iron additions as

"pretreatment" for D008 wastes as a method of escaping the proposed standard.
In the proposed regulations, the Agency has remained silent on the use of iron or steel filings as a treatment method or as a method of evading the proposed standard. As discussed in earlier proposed regulation, the Agency has proposed to ban the practice of iron addition as impermissible dilution for treatment of D008 wastes.
In the steel deleading industry, it has been common practice to use steel grit or non-metallic grit blended with iron filings for the removal of lead paint. The resultant mix will test non-hazardous for lead, but oxidation of the iron (a common occurrence in a mixed waste facility) can allow the waste to revert to a hazardous condition. Under the proposed regulations, this practice would be allowed to continue, since the lead contaminated wastes would not exceed the 5.0 level for lead. In fact, if stabilization costs increase as a result of these regulations, the regulations may further encourage this practice. The Agency should consider listing waste streams that are high in lead and unoxidized iron waste content.

RESPONSE

In the Land Disposal Restrictions (LDR) Phase III proposed rule (60 FR 11702, March 2, 1995), EPA first raised the issue of whether the addition of iron filings (and iron dust) to lead-contaminated spent foundry sand is a means of diluting the waste impermissibly rather than treating it to conform with the requirements of the LDR rules. Furthermore, in a notice of availability (62 FR 10004, March 5, 1997), EPA presented results of new studies and data on the issue of the treatment adequacy of adding iron to characteristic metal wastes as a method of treatment. The Agency noted that the addition of iron temporarily retards the leachability of lead in spent foundry sand, and thus, allows the waste to pass the TCLP test. The Agency provided information on two different studies conducted on this issue, one by Dr. John Drexler of the University of Colorado and the other by Dr. Douglas Kendall of the National Enforcement Investigation Center (NEIC). These studies found that even after treatment (i.e., iron addition), high concentrations of lead remained available to the environment and also leached in the units receiving the spent foundry wastes. Therefore, these studies concluded that the addition of iron filings or iron dust to lead-contaminated spent foundry sands did not constitute adequate treatment of the waste. See the March 5, 1997 NODA (62 FR 10004) for a full discussion of these studies. The addition of iron also provides no adequate treatment of cadmium. See the Regulatory Impact Analysis Document in support of today's rule for a detailed discussion of this topic.

Several commenters, in response to the NODA, provided comments supporting and opposing the results of these studies. See the "Comment Response Document" for this rulemaking, for a more complete discussion of the comments received and EPA's response. After a through review of the data and comments received on this issue, EPA concludes that addition of iron metal, in the form of fines, filings, or dust fails to provide long-term treatment for characteristic metal waste, regardless of their origin, and constitutes a form of "impermissible dilution."

To codify the determination that the addition of iron to a characteristically hazardous waste is impermissible dilution the Agency has amended 40 CFR 268.3 to read:

40 CFR 268
§ 268.3 Dilution prohibited as a substitute for treatment
* * *
(d) It is a form of impermissible dilution, and therefore prohibited, to add iron filings or other metallic forms of iron to lead-containing hazardous wastes in order to achieve any land disposal restriction treatment standard for lead. Lead-containing wastes include D008 wastes (wastes exhibiting a characteristic due to the presence of lead), all characteristic wastes containing lead as an underlying hazardous constituent, listed wastes containing lead as a regulated constituent, and hazardous media containing any of the aforementioned lead-containing wastes.
* * *

DCN PH4P043
COMMENTER Lead Industries Association
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 043
COMMENT

In comments being filed contemporaneously with LIA's, Battery Council International (BCI) and the Association of Battery Recyclers (ABR) address a number of reasons why the proposed rule should be withdrawn, including the fact that the contemplated replacement of the Toxic Characteristic level for lead with a much lower Universal Treatment Standard is infeasible and unnecessary to protect human health and the environment.

RESPONSE

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN PH4P043
COMMENTER Lead Industries Association
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 043
COMMENT

In its comments, ABR points out why EPA's earlier determination that the present standard adequately minimizes risks is eminently correct. If anything, ABR's comments understate this point, for the realities are that the present standard is unnecessarily stringent because of shortcomings in the Toxic Characteristic Leaching Procedure (TCLP) and the fact that the dilution attenuation factor (DAF) employed by EPA in developing the present 5 mg/1 level greatly exaggerates the potential migration of lead through soil.
TCLP. There are two reasons why the TCLP is inappropriate for lead. First, on the theory that grinding simulates the effects of weathering and surface pressures on solid waste in landfills, the TCLP testing method requires that test samples be ground before the leaching liquid is applied (55Fed. Reg. 11798, March 29, 1990). EPA acknowledged in the preamble to the final TCLP rule that the grinding requirement may not reflect actual conditions, and the results of tests performed by the University of Arizona Garbage Project (UAGP) in fact indicate that materials below the surface of landfills remain remarkably undisturbed.1
Second, far more so than is true of other metals, lead is extremely sensitive to pH, and especially to attacks by dilute organic acids such as acetic acid. Hence, the combined use of an organic acid extraction solution and pH lowering adjustments in the TCLP test tend to leach lead from whatever material is being tested at an unrealistically high rate. In that connection, an EPA report

has observed that when TCLP is employed "the acetic acid leaching fluid could selectively solubilize toxicants (specifically lead) and incorrectly classify the soil or waste as hazardous when, in fact, no mobilization (leaching) would be expected to occur in the environment."2

l Rathje, et al., "Source Reduction and Landfill Myths" (July 1988).2 EPA, "Performance Testing of Method 1312 QA Support for RCRA Testing," p. iii (June1989).

RESPONSE

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN PH4P056
COMMENTER Westinghouse
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 056
COMMENT

3. For a nonwastewater containing lead to fail the TCLP and be subject to UTS at time of disposal, the leachable lead concentration must be greater than 5.0 mg/l. Prior to land disposal of this nonwastewater, it must be treated to 0.37

mg/l to meet the underlying constituents requirement. One of the purposes of the UTS was to eliminate differences in the concentration limits for the same constituent in order to provide a better assessment of treatability, to reduce confusion and to ease compliance and enforcement. There is a wide margin in the concentration limits between the point at which a material becomes a hazardous waste and must meet UTS and the UTS concentration limit itself. Please clarify that hazardous wastes (i.e. D008) treated to a concentration between 0.37 mg/l and 5.0mg/l would no longer be hazardous, but still could not be land disposed in either a Subtitle C or D unit. If it were treated below 0.37 mg/l, the waste could go to Subtitle D disposal.

RESPONSE

The Agency notes that the commenter is substantively correct. A D008 characteristic waste treated to a concentration between 0.75 mg/l (EPA revised the lead UTS from 0.37 mg/l to 0.75 mg/l in today's final rule) and 5.0 mg/l would no longer be hazardous, but still could not be land disposed in either a Subtitle C or D unit. If it were treated below 0.75 mg/l, the waste could be disposed in a Subtitle D unit, provided the waste also meets all other 40 CFR 268.48 Universal Treatment Standards.

DCN PH4P069
COMMENTER SSPC
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 069
COMMENT

There is also concern that EPA may follow up this rule with a requirement that 0.37mg/l be designated as the defining level for hazardous lead waste. This would result in major increases in costs and cause many specifiers, owners and hazardous waste generators to reconsider the entire planning and undertaking of the work. This could also significantly increase the amount of landfill space used by the industry.

SSPC will be glad to provide additional information regarding the protective coating industry's experiences with the treatment and disposal of heavy metal wastes. The protective coatings industry is interested in cooperating with the EPA to develop rules that protect the environment but do not cause unnecessary economic burden or affect the ability to protect industrial public and private structures from corrosion.

RESPONSE

First, as stated previously, the Agency has revised the lead UTS from 0.37 mg/l to 0.75 mg/l in today's final rule (see the BDAT Background Materials in the RCRA Docket for today's rulemaking for additional information on the revised UTS). Second, EPA has not proposed redefining the regulatory levels of the 40 CFR 261.24 Toxicity Characteristic. The Agency notes that such action may be the subject of a future rulemaking.

DCN PH4P072
COMMENTER Non-Ferrous Founder's Soc
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 072
COMMENT

More Stabilization Technology Performance Data is Necessary to set the UTS for Cadmium and Lead: Comments submitted by the AFS demonstrate the need for data on this important aspect of the LDR IV proposed rule. NFFS firmly believes that UTS levels for TC metals(non-wastewater) can not be established by EPA until such data is reviewed by the agency. In addition, BDAT is dependent on HTMR being demonstrated and commercially available.

RESPONSE

The Agency notes that, in response to the concerns raised by the commenter regarding the lack of stabilization data for TC metal wastes, EPA conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. Foundry wastes were tested as part of this effort. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the UTS, thus allowing for maximum process variability and detection limit difficulties. Since the performance data collected by the Agency came from commercial treatment facilities, the Agency believes that the UTS can be achieved by technologies that are demonstrated and commercially available such as stabilization and HTMR.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the cadmium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR. The Agency, in today’s rulemaking, is promulgating the lead UTS at 0.75 mg/l TCLP as proposed.

DCN PH4P074
COMMENTER DOD
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 074
COMMENT

Oftentimes, lead-based paint in debris and soils is not classified as a hazardous waste, and thus the land-disposal restrictions are not applicable. However, when LDR would apply, lead-based paint should be treated similar to other remediation wastes, and thus distinguished from as-generated waste. DOD thus requests EPA to consider an exemption or variance for this remediation waste. DOD understands that an exemption from LDR for lead-based paint wastes may be consistent with EPA's soon to be released rule on architectural components.

DoD routinely addresses lead-based paint issues. It is unclear from the proposed rule if capacity for lead-based paint wastes was considered in this rule. DoD thus requests EPA to review if adequate capacity (for example, high temperature metal recovery) exists for this waste stream.

RESPONSE

The Agency is promulgating alternative treatment standards for TC metal contaminated soils in today’s rulemaking. EPA recognizes the unique issues associated with remediation waste, including hazardous soil contaminated with TC metals, and therefore, believes that it is appropriate to establish alternative, less-stringent LDR treatment standards for hazardous soil. Thus, in the final Phase IV rule, the Agency is promulgating alternative treatment standards for hazardous soil, which require that the concentrations of constituents subject to treatment be reduced by 90 percent with treatment for any given constituent capped at ten times the UTS. The Agency believes that these less stringent standards can be achieved by existing commercially available treatment technologies. The Agency also compiled treatment performance data for contaminated soils from remediation case studies (see the capacity analysis background document for additional information) that indicate that the alternative treatment standards can be readily achieved by commercially available treatment technologies and adequate treatment capacity is available for these contaminated soils. In addition, the Agency also notes that TC metal contaminated debris is subject to the treatment standards at 40 CFR 268.45.

DCN PH4P078
COMMENTER Battery Council International
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 078
COMMENT

Under Section 3004(m) of RCRA, EPA must promulgate treatment standards for waste subject to the LDRs. These treatment standards must "substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to the human health and the environment are minimized."19/ Courts reviewing EPA's LDR program consistently have recognized that the Agency cannot set treatment limits below which the wastes do not pose a threat to human health and the environment.20/ Moreover, to justify any standard, a factual finding, supported by the record, must be made that the specified treatment level is needed to eliminate the threat.21/

The proposed adoption of the UTS D008 nonwastewater standard ignores these principles. There is nothing in the proposed rule or the supporting record that even suggests that human health and the environment are not adequately protected by the current treatment standard (5.0mg/l) or, conversely, that the proposed treatment standard of .37 mg/l is necessary to achieve the required minimal risk protection. 22/ To the contrary, the Agency concedes in the proposed LDR Phase IV rule that the statutory minimized threat standard is achieved by the 5.0 mg/treatment standard for characteristic metal mixed wastes through stabilization. 23/

This is not surprising. First, there is no basis for the Agency to conclude that there is any environmental risk from current industry handling of D008 nonwastewaters (i.e., from recognition of 5.0 mg/l as the treatment standard). D008 nonwastewater material subject to land disposal principally are hazardous slags, contaminated soils, and air emission control dusts. These wastes already are stabilized and sent to RCRA regulated, double-lined landfills or other approved, equivalent facilities.

Second, EPA already has reached essentially the same conclusion in establishing the treatment method for lead-acid batteries. EPA has specified a treatment method -- reclamation in a secondary lead smelter -- as that standard. 24/ Much of the D008 nonwastewater materials at issue here are generated as a result or this required method or treatment. They should not be subject to further treatment standards. 25/

The Agency's only justification for lowering the treatment standard to the UTS level for D008 wastes is that this approach is "consistent with the promulgated requirements for other characteristic wastes" (D012-D043).26/ However, those other characteristic wastes (i.e.,organic constituents and organic (halogenated) pesticide wastes) are fundamentally different from D008 nonwastewaters (metal wastes).27/ Thus EPA's explanation for lowering the treatment standards does not meet the D.C. Circuit's requirement that a reasoned analysis support any disregarding of the Agency's prior policy. 28/

RESPONSE

The Agency disagrees with the commenter that the D008 nonwastewater UTS ignores the principles of the LDR program under RCRA. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals (and requirements) of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the UTS levels, fulfills the statutory charge of section 3004(m).

The Agency also notes that, after the publication of the May 10, 1996 NODA (61 FR 21419) on the battery slags from secondary smelters, EPA realized that lead slags resulting from the smelting of lead acid batteries were identified as a separate treatability group in the Third Third Rulemaking, and would indeed require further treatment if the slags exceeded the TC for lead (5.0 mg/l) as generated. EPA clarified this issue with the representatives of the Battery Council International, both in person and in a letter dated July 31, 1996. Therefore, lead slag residuals that exhibit a lead toxicity characteristic (i.e., have lead levels exceeding 5.0 mg/l) after RLEAD is employed, would have to be treated again for lead and any other underlying hazardous constituents present in the slag residual. See the BDAT background materials in the RCRA docket for today's rule for additional information on the treatment performance data used in determining the revised lead standard.

DCN PH4P078
COMMENTER Battery Council International
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 078
COMMENT

Requiring Secondary Lead Smelters To Meet The Universal Treatment Standards Could Impair The Viability Of Lead Battery Recycling
The proposed UTS would require D008 nonwastewater materials to be further treated to the extremely low levels of .37 mg/l for lead and .15 mg/l for selenium. EPA asserts that the use of HTMR, specifically the use of Horsehead Resource Development Company, Inc.'s waelz kiln, to process K061 (electric arc furnace dust), and conventional stabilization technologies, will achieve the UTS for all hazardous constituents in characteristic metal wastes.
However, As discussed in Section I above, HTMR is unavailable and EPA's data on treatment levels achieved in treating K061 wastes are not representative of the treatment levels capable of being achieved on D008 nonwastewater wastes. Secondary smelters simply would be unable to achieve the treatment levels for lead and selenium proposed by EPA.
Even if such technologies were available, the secondary smelter industry would either have to spend millions of dollars to acquire/develop them (since the industry is using other stabilization technologies to comply with the current LDR regulations) at an estimated cost of$29 million per facility, or send its D008 wastes to facilities operated by others to be treated. As the amount of newly identified D008 nonwastewaters requiring treatment or stabilization could approach 21,000,000

tons, this would be prohibitively expensive.
The secondary smelter, industry has seen the number of operating secondary smelters decline precipitously over the last several years, as increasingly stringent and expensive regulatory standards have been imposed under RCRA and other environmental statutes. 34 It would be unfair to impose additional costs upon remaining smelters, to achieve little or no benefit. Some likely could not absorb it, and would close. 35 At the very least, this expense would also further exacerbate the disparity of costs faced by procedures of secondary(recycled) lead, rather than virgin lead slag, sludges, etc. from primary lead producers are generally not subject to regulation, RCRA Subtitle C).36 This is completely antithetical to sound public policy.
Furthermore, given that the industry is now operating at full capacity, any decrease in secondary smelter capacity may have a detrimental effect on lead battery recycling. Over 100 million lead batteries were produced in 1994. As EPA is well aware, secondary smelters play an integral role in the recycling of lead acid batteries. In 1994, the most recent year data are available, over 98 percent of the lead available from lead acid batteries was recycled.
This high recycling rate is a direct result of the lead battery industry's efforts to promote battery recycling through product stewardship and legislation, and the ready, convenient and economical availability of reclamation capacity. Forty-two states have adopted legislation that cans the disposal and incineration or lead batteries, requires a deposit in lieu of trade on the sale or a new replacement lead battery unaccompanied by the return of a used battery, and/or mandates their return for recycling through a reverse distribution system. These states account for over 85 percent of the population of the United States. BCI has strongly supported these initiatives. Under this system batteries move from consumers to retailers -- up through the distribution chain -- to manufacturers and ultimately to secondary smelters where they are recycled.
The application of the UTS to D008 wastes will put this recycling process at risk. It will force the secondary smelter industry to incur substantial costs for, at best, a negligible effect on human health and the environment. The additional costs in meeting the treatment standard will impair the viability of the industry and diminish its ability to recycle lead batteries. Over the long-run, this could result in a much greater threat to human health and the environment as the industry's ability to recycle lead batteries is

diminished and they are disposed in landfills and elsewhere.

RESPONSE

The Agency notes that the Horsehead Resource Development Company's HTMR facility is a commercially operated facility and accepts TC metals for the purpose of metal recovery. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. The Agency is promulgating a concentration-based treatment standard rather than requiring a specific technology. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology. The Agency reviewed treatment performance data and calculated treatment standards for both HTMR and stabilization. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties.

Furthermore, based on review of additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997), and is finalizing these standards in today's rulemaking. The Agency believes that the proposed UTS levels are achievable through commercially available stabilization and HTMR technologies. The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P086
COMMENTER American Gas Association
RESPONDER EE/MC
SUBJECT LEAD2
SUBJNUM 086
COMMENT

A.G.A. is very concerned that the proposed treatment standards are inconsistent with the current philosophy and policy directives from Congress for EPA to use risk-based standards. The proposed treatment standards for mercury, chromium, cadmium and lead are based on levels that one could possibly technically treat to. As such, they are too low and cannot practicably be reached using conventional remediation technologies. A.G.A. urges EPA to perform reasonable risk assessments to determine if ratcheting down on treatment standards is environmentally necessary. Until EPA does this, the present standards for these metals and other wastes should be retained. The significant reductions being proposed have not been shown to be necessary from a human health or environmental standpoint.

RESPONSE

The Agency disagrees with the commenter that the treatment standards are inconsistent with the current philosophy and policy directives from Congress. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

It also should be noted that the Agency has been subject to litigation on setting treatment standards. In HWTC III, the Court upheld the Agency's decision to set technology-based treatment standards below the TC level. Though the court held that the statute can be read to allow either technology-based or risk-based standards, it held that technology-based standards are permissible as long as they are not established beyond the point at which there is no threat to human health or the environment. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels at which pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

DCN	PH4P104
COMMENTER	SSINA
RESPONDER	EE
SUBJECT	LEAD2

SUBJNUM 104
COMMENT

II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD SHOULD BE BASED ON STABILIZATION TECHNOLOGIES. BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES

A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Wastes, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium

As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.
B. There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to determine the Appropriate UTS for Cadmium. Chromium. and Lead There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The
Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061 (Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id. More specifically, the Agency has previously found that " [p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC

metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised-in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. The Agency also agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996). A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity among metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP. Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P105
COMMENTER SMA
RESPONDER EE
SUBJECT LEAD2
SUBJNUM 105
COMMENT 11. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, AND LEAD SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR MANY TC METAL WASTES

A. Because Stabilization is the Only Commercially "Available" Technology For Many TC Metal Waste, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, and Chromium As indicated above, HTMR is not commercially available for treatment of many TC metal wastes. However, certain stabilization technologies are commercially available. Stabilization technologies are also the only practical technology for many TC metal wastes, meeting the statutory requirement to "substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, results from commercially available stabilization technologies should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes. B. There is Currently Inadequate Data in the Rulemaking Record on Commercially Available Stabilization Technologies to Determine the Appropriate UTS for Cadmium, Chromium, and Lead There is only limited performance data for stabilization technologies in the rulemaking record. The data in the record is not sufficient to address known interferences with stabilization technologies. The Agency has stated that stabilization has been documented "as a process that is highly matrix-dependent and prone to chemical interference." Final BDAT Background Document (Addendum) For An Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062-Nonwastewaters (July 1992) at 7-22. In order to determine "whether stabilization is likely to achieve the same level of performance on an untested waste as on a previously tested waste," the Agency will focus on five characteristics, including other metals and the metals' concentrations. BDAT Background Document For K061 (Aug. 1988) at 3-19 to 3-20. The Agency has also stated that "when a waste contains a mixture of metals, it may not be possible to chemically stabilize the waste in a manner that optimizes the reduction in leachability for all constituents. The extent to which synergistic effects impact performance will depend on the type and concentration of other metals in the waste." Id More specifically, the Agency has previously found that "[p]ut another way, this means (assuming proper treatment performance) that the performance of the treatment system could achieve concentration levels below the characteristic level for lead but higher than the characteristic level for cadmium." 55 Fed. Reg. 22,520, 22,565 (June 1, 1990). The presence of other heavy metals in a chemically stabilized waste sometimes precludes the stabilization of all the TC metals in the waste to below their respective UTS levels. Therefore, the UTS level for UHCs need to be raised in certain cases to optimize the stabilization treatment technology for other TC metal wastes. The data in the record for the LDR Phase IV proposed rule are not adequate to address the interferences of other metals on the stabilization technology for cadmium, chromium, and lead in nonwastewaters. Additional information is required to evaluate the effectiveness of stabilization technologies on a broad range of TC metal wastes with both high and low concentrations of heavy metals. A larger and more representative range of stabilization treatment results must be developed and analyzed to assess other likely interferences in the stabilization technologies, e.g., pH and the presence of low concentrations of organics. For example, among some chemically stabilized TC metal wastes, changing the pH to minimize chromium leachate can increase the solubility of lead. Therefore, these other characteristics of TC metal wastes can have a significant impact on stabilization technologies and their ability to treat any UHCs in a waste as well as the characteristic metal.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. The Agency also agrees with the commenter that the synergistic effects of different constituents impact the performance of the stabilization process and the performance will largely depend on the type and concentrations of metals in the waste. Further, the Agency acknowledges the concerns raised by the commenter regarding the lack of performance data on stabilization technologies (specifically data that address multiple metal constituents) and notes that data on commercial stabilization performance were not received from the commenters in response to the original Phase IV proposal (60 FR 43654, August 22, 1995), and the first supplemental Phase IV proposal (61 FR 2338, January 25, 1996). A few commenters submitted performance data that were based on composite samples. Since grab samples are required for BDAT determination, the Agency was unable to use this data for determining the UTS. Therefore, to address concerns on performance data adequacy, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes.

The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, as the commenter stated, the Agency used performance data from commercially available stabilization and HTMR technologies for determining the UTS for TC metal wastes. Therefore, the Agency believes that the performance data used to develop the UTS adequately characterizes the diversity among metal-bearing wastes and accounts for interference of other metals in the stabilization of hazardous wastes.

Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed cadmium and chromium standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a “Z-score” outlier test. The Agency corrected this error and re-calculated the cadmium and chromium treatment standard and is promulgating the UTS for cadmium at 0.11 mg/l TCLP and chromium at 0.60 mg/l TCLP.

Although these standards are more stringent than the proposed standards, based on the treatment performance data reviewed, the Agency believes that the new standards are also achievable by commercial treatment technologies such as stabilization and HTMR.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P017
COMMENTER Kodak
RESPONDER AC
SUBJECT METL
SUBJNUM 017
COMMENT

In the spirit of regulatory reform, EPA should not promulgate any technology based LDR treatment standards for silver more stringent than the current D011 levels until EPA has acted on its own determination that silver does not pose a potential for adverse health or environmental effects and therefore does not need to be a TC waste.

RESPONSE

The commenter is referred to the silver section of the Response to Comment document for EPA's response to this issue.

DCN PH4P017
COMMENTER Kodak
RESPONDER AC
SUBJECT METL
SUBJNUM 017
COMMENT

The proposed D011 LDR BDAT technology based treatment standards exceed the point at which there could be a threat to human health or the environment from any of the silver-bearing wastes.

RESPONSE

The commenter is referred to the silver section of the Response to Comment document for EPA's response to this issue.

DCN PH4P017
COMMENTER Kodak
RESPONDER AC
SUBJECT METL
SUBJNUM 017
COMMENT

Listing of Silver as a TC Characteristic Waste is Counterproductive. Previous submissions to EPA's Office of Solid Waste have also documented the high level of recovery that silver-rich wastes already receive due to silver's high economic value. Inclusion of silver on the TC list also discourages the conservation of wash water in photo processing operations, because reducing the washwater volume raises the concentration (but not the amount) of silver discharged. This increase in concentration increases the likelihood that silver will cause the waste to be regulated as a hazardous waste and that the silver concentration will exceed the LDR standard. It can be difficult to justify the necessary capital expenditures for water conservation, if this increase in the discharge concentration of silver causes it to become a hazardous waste, with the resulting expenses.

RESPONSE

The commenter is referred to the silver section of the Response to Comment document for EPA's response to this issue.

DCN PH4P031
COMMENTER Department of Energy
RESPONDER AC
SUBJECT METL
SUBJNUM 031
COMMENT

V. Treatment Standards for Newly Listed and Identified Wastes
V.D. Treatment Standards for Toxic Characteristic Metal Wastes
V.D.1 Rationale for Applying Universal Treatment Standards (UTS) to Toxic Characteristic Metal Wastes (D004-D011)

1. p. 43682, col. 2 -- EPA proposes to change the treatment standard levels for characteristic metal wastes from those established in the Third Third rule at the characteristic levels to previously promulgated UTS levels for metal constituents. Furthermore, EPA indicates that characteristic metal wastes will also be required to meet treatment standards for any UHCs reasonably expected to be present in the wastes at the point of generation.

a. DOE requests that EPA verify that the preamble description of the new treatment standards for characteristic metal wastes is consistent with the proposed regulatory language for the table in 40 CFR 268.40, "Treatment Standards for Hazardous Wastes" (60 FR 43695). It appears that the constituent concentration levels given on this table for waste codes D004 through D011 in the columns labeled "Wastewaters" and"Nonwastewaters" should all be followed by the phrase "and meet §268.48 standards."

RESPONSE

The Agency notes that the preamble description of the new treatment standards for characteristic metal wastes is consistent with the proposed regulatory language for the table in 40 CFR 268.40, "Treatment Standards for Hazardous Wastes" (60 FR 43694). Although the reference to meeting §268.48 standards is not included in the table --"Treatment Standards for Hazardous Waste" -- the regulatory language under "Subpart D-Treatment Standards" (60 FR 43694) clearly states that all underlying hazardous constituents (as defined in §268.2(I)) must meet UTS found in §268.48, Table UTS, prior to land disposal.

DCN	PH4P031
COMMENTER	Department of Energy
RESPONDER	AC
SUBJECT	METL
SUBJNUM	031

COMMENT

b. DOE anticipates that meeting the new LDR treatment standard for characteristic metal wastes may be a problem for certain radioactive waste streams at the Oak Ridge National Laboratory (ORNL). One such waste stream is stabilized supernatant from the ORNL Liquid Low-Level Waste System. This stabilized waste is destined for disposal at the Nevada Test Site. Some of the stabilized waste is currently in storage, but it will continue to be generated beyond the time the LDR Phase IV final rule becomes effective. Conducting analyses on such radioactive wastes has historically been a problem because of the need to use reduced volumes of samples which makes it difficult to meet the required detection limits. Based on past analyses, lead, selenium, cadmium, and/or chromium limits could either be above the laboratory's detection limits or exceeded in the final waste form. Although the proposed two-year national capacity variance for mixed wastes affected by the Phase IV rule and the proposed exception from the LDR Phase IV treatment standards for previously stabilized mixed wastes will provide a temporary exemption for some of these wastes, additional regulatory modifications are requested for addressing this situation.

DOE requests that EPA consider developing an LDR treatment standard of "stabilization" (i.e., establishing a specified technology as the standard) for certain mixed radioactive and characteristic metal wastes, provided adequate technical data is submitted to the Agency in support of such a standard. Since the stabilized waste is radioactive, disposal will be conducted in accordance with Atomic Energy Act (AEA) requirements (directed at providing adequate protection to human health and the environment), and further treatment of certain wastes with very low levels of toxic constituents would not seem warranted.

RESPONSE

characteristic radioactive mixed metal wastes, that have undergone treatment prior to the effective date of the Phase IV final rule will not require re-treatment. In the event that treatment standards for the hazardous constituents can not be achieved, the Agency suggests petitioning for a treatability variance under 268.44.

DCN PH4P031
COMMENTER Department of Energy
RESPONDER AC
SUBJECT METL
SUBJNUM 031
COMMENT

V.D.2. Proposed Revision of UTS for Beryllium

1. p. 43683, col. 2 -- EPA proposes to change the UTS for beryllium to 0.04 mg/l TCLP from 0.014 mg/l TCLP.
DOE supports the proposed change in the treatment standard for beryllium. Based on analytical results from surrogate samples spiked with beryllium, a level of 0.04 mg/l is achievable and appropriate, Utilizing stabilization technologies for waste streams which do not exceed 5000parts per million beryllium, a level of 0.04 mg/l can be consistently met. Conversely, the current treatment standard of 0.014 mg/l cannot be met, given the same beryllium levels and utilizing stabilization technologies.

RESPONSE

The beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. The Agency recognized that proposing to use composite data is not consistent with the BDAT methodology, and therefore, re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually 0.02 mg/l, due to rounding) in the second supplemental proposed rule (62 FR

26045, May 12, 1997). In response to this proposal, several commenters claimed that the data used to determine the beryllium standard is not representative of the most difficult to treat waste. To respond to such comments, the Agency conducted a review of the data set used to calculate the beryllium standard. As a result, the Agency agreed with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes (for additional information on the data reviewed, see the Background Document for Beryllium Wastes in the Docket for this rule). Therefore, the Agency obtained additional performance data and revised the UTS for beryllium to reflect a more difficult-to-treat or high-concentration beryllium waste. As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data. In light of the revised UTS for beryllium and the data submitted by the commenter, the Agency believes that the treatment standard can be met.

DCN PH4P036
COMMENTER American Iron & Steel Ins
RESPONDER AC
SUBJECT METL
SUBJNUM 036
COMMENT

Accordingly, EPA should refrain from imposing RCRA Subtitle C controls on non-hazardous waste surface impoundments managing formerly characteristic wastes.

RESPONSE

The Agency notes that this issues is not addressed in this rulemaking. The Agency is currently conducting a 5-year study to assess the effects of decharacterized wastes placed in surface impoundments, and the issue of RCRA Subtitle C controls to such surface impoundments will be addressed at the completion of this study.

DCN PH4P037
COMMENTER Natural Gas Pipeline Comp
RESPONDER AC
SUBJECT METL
SUBJNUM 037
COMMENT

Natural Gas Pipeline Company of America (Natural) appreciates the opportunity to comment on the referenced proposed rule. Natural is an interstate natural gas pipeline company which operates approximately 13,000 miles of pipeline linking key gulf cost and Southwest gas producing areas with major Midwest markets

There are several points that Natural feels should be considered by the USEPA in the referenced proposal for developing treatment standards under the land disposal restrictions (LDR) program for Toxicity Characteristic (TC) metal wastes. The following comments relate to Natural's specific concerns, however, these issues have implications to the entire gas industry. Natural supports the comments of the American Gas Association relative to this rulemaking.

The comments focus on the lack of a risk/cost benefit analysis for establishing treatment standards for TC metal wastes, the absence of a proposed treatability variance for soils contaminated with metal wastes, and the unacceptableness of the proposed implementation date for the treatment of TC metal wastes.

Natural sees the new treatment standards for metals as unreasonable and ultimately burdensome to the extent that they will increase costs for waste treatment and disposal without a commensurate level of health risk reduction. The new standards do not appear to be based on any assessment of health risk but are strictly established on the availability and capability of treatment technology. Natural recommends that the standards be reevaluated and revised following a complete risk assessment/cost benefit analysis of the standards.

RESPONSE

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

The D.C. Circuit already sustained the Agencies authority to require such treatment, and the issue is not reopened here (and is settled law in any case). The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment, since the Agency remains unable to establish with any certainty nationally-applicable levels at which threats posed by the disposal of these wastes would be minimized. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

For EPA’s response on RIA related issues, see the “Comment Response Document for Issues Related to Mineral Processing Wastes,” in the RCRA docket for today’s rulemaking.

DCN PH4P043
COMMENTER Lead Industries Association
RESPONDER AC
SUBJECT METL
SUBJNUM 043
COMMENT

RCRA Section 3004(m) requires EPA to specify "levels or methods of treatment" which either diminish the toxicity of waste or substantially reduce the likelihood of migration of hazardous constituents "so that short-term and long-term threats to human health and the environment are minimized." The requirement that levels or treatment methods adopted pursuant to Section3004(m) must minimize such threats necessarily subjects EPA to the familiar rule requiring determination that significant risks exist under the current regulatory scheme, and that these risks will be substantially reduced by EPA's proposal. See, e.g., Industrial Union Department, AFL-CIO v. American Petroleum Institute, 448 U.S. 607, 645-646 (1980).

Indeed, the preamble to the proposed regulation seems to recognize this point in its analysis of Chemical Waste Management v. EPA, 976 F.2d 2 (D.C. Cir. 1992), cert. denied, 113 S. Ct. 1961 (1992), most notably in the preamble's statement that the court required EPA either to find "that the risk of . . . emissions . . . is minimal, or . . . [to] require actions to minimize that risk,"976F.2d at 17, quoted at 60 Fed. Reg. 43657. The requirement that such risk findings be made was applied directly to Section 3004(m) in Hazardous Waste Treatment Council v. EPA, 886 F.2d355, 362 (D.C. Cir. 1989) in which the court stated that it would be "unreasonable for EPA to promulgate treatment standards wholly without regard to whether there might be a threat to manor nature."

In its decision establishing the Third Third Rule, EPA for all practical purposes concluded that the current 5.0 mg/l level for lead wastes "achieves the statutory minimized threat standard," 60Fed. Reg. 43683, (August 22, 1995). EPA does not suggest in the preamble to the rule it is now proposing that its prior conclusion is in error, or that any threat to human health or the environment is posed by the present standard, and the evidence is all to the contrary.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore do not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions using the BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

The D.C. Circuit already sustained the Agency's authority to require such treatment, and the issue is not reopened here (and is settled law in any case). The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment, since the Agency remains unable to establish with any certainty nationally-applicable levels at which threats posed by the disposal of these wastes would be minimized. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream (see the risk-based variance for contaminated soils in this rule), EPA believes that BDAT treatment, as reflected in the proposed UTS levels, best fulfills the statutory charge of section 3004(m).

DCN PH4P048
COMMENTER Chemical Waste Management
RESPONDER AC
SUBJECT METL
SUBJNUM 048
COMMENT

Chemical Waste Management, Inc., (CWM) a wholly owned subsidiary of WMX Technologies, Inc. (WMX) submits the following comments on EPA's proposed Phase IV Land Disposal Restrictions. See 60 Fed. Reg. at 43,654 (August 22, 1995). WMX is a leading provider of comprehensive hazardous waste management services at its 22 hazardous waste facilities located in the United States. Its hazardous waste management services, including transportation, incineration, on-site services, treatment, resource recovery and disposal, are furnished principally to commercial and industrial customers, other waste management companies, and governmental entities.

C. Treatment Standards for Toxic Characteristic Metals (60 Fed. Reg. at 43,683)

1. Changing Treatment Standard Levels From Third Third to UTS

> The Agency is proposing to change the treatment standard levels for characteristic metal wastes D004-D011 from those established in the Third Third rule at the characteristic levels to those levels established under UTS in the Phase II rule.

CWM is extremely concerned with this proposal as it presently exists. The Agency's determination that a transfer of UTS inappropriate because historic data on treatment of characteristic wastes simply reflect a design to remove the characteristic and this is not a true measure of the treatability is a concern. CWM believes that this change should not be made simply based on the EPA's perception that stabilization treatment technology performs at greater efficiencies or to simply provide consistency with the UTS levels. The Agency has recognized in past rulemakings that stabilization in many situations may not consistently achieve these lower levels. CWM believes that EPA should reconsider whether this change should be made on the basis of risk versus the capability of industry to treat to lower levels. The characteristic metal BDAT levels were established on June 1,1990 (55 Fed. Reg. at 22,520) in the Third Third final rule. At that time it was determined by the Agency that these levels were achievable and more importantly that they were equally protective of human health and the environment. In many instances the nonwastewater and wastewater levels were established at these levels because it was demonstrated by commenters that these were the levels that could be consistently achieved. For example, when discussing D008 treatment standards the Agency states "After detailed analysis of the available data, EPA concludes that treatment to 5.0 mg/l EP best represents the achievable treatment standard for the entire spectrum of D008 nonwastewaters." (See 55Fed. Reg. at 22,565) Similar discussions for characteristic metal wastes exist elsewhere within the Third Third final rule.

RCRA 3004(m) requires that the Agency promulgate treatment standards that specify levels or methods of treatment that "substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." The establishment of the Third Third treatment levels met this requirement. CWM does not believe that lowering the characteristic metal levels to the UTS levels provides any additional protection to human health and the environment. CWM maintains that the lowering of these treatment standards does not substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of the hazardous constituents as the characteristic levels currently meet this test.

The Agency has estimated that economic impact of this proposal to be small. CWM disagree with this estimate. CWM believes that this proposal will have a significant economic impact on it's stabilization facility operations, and the commercial hazardous waste treatment industry as a whole. To treat these D004-D011 waste streams to the UTS levels will require a significant and costly effort.

Presently CWM's stabilization facilities have approximately 3,440 approved waste streams that require treatment to below the characteristic levels prior to land disposal. To achieve these proposed lower levels will require a significant effort on CWM's part to reevaluate these streams to determine if the present treatment recipes will meet the proposed standards. Initial estimates indicate that approximately 20% to 30% of these waste streams will require development of new treatment recipes at a cost of approximately $1,000 per profile. This will result in estimating additional costs in a range of $688,000 to $1,032,000 simply to develop new treatment receipts. Additional costs of approximately $5-$10 per ton of waste will be incurred for additional reagents needed to treat these wastes. Based upon CWM's current stabilization capacity of 500,000 tons, and the current percent estimate of profiles requiring new receipts, this could potentially add an additional $500,000 to $1,500,000 to the cost of stabilization treatment that will ultimately be passed on to the customer. This brings a total impact on CWM's operations of an estimated$1,188,000 to $2,532,000.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore do not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions using the BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular wastestream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

For EPA's response on RIA related issues, see the "Comment Response Document for Issues Related to Mineral Processing Wastes," in the RCRA docket for today's rulemaking.

DCN PH4P048
COMMENTER CHEM WASTE MGMT
RESPONDER AC
SUBJECT METL
SUBJNUM 048
COMMENT

To support the statements that CWM has made regarding the difficulty in meeting these proposed levels CWM is providing data in Attachment 2 that reflects some current information regarding waste streams that CWM currently treats to meet BDAT for D004-D011 waste streams. This information shows that these waste streams which are currently treated to BDAT, in many cases is still above the treatment standards proposed in this rulemaking. An example of this is a lead (D008) contaminated soil (Profile number BR1166), which prior to treatment contains lead at 23.4 ppm TCLP. After treatment the lead is present at 0.57 ppm TCLP which is higher than the proposed UTS level of 0.37.– This creates a problem because it is not clear that this waste stream will be able to be treated to a level below 0.37 ppm TCLP. CWM urges the EPA to reevaluate the impact of such a change.

RESPONSE

With respect to the commenter's concerns, in the final rule the Agency is promulgating a

UTS for lead nonwastewaters of 0.75 mg/L TCLP. A standard which can be supported by the commenter's data.

DCN PH4P048
COMMENTER Chemical Waste Management
RESPONDER AC
SUBJECT METL
SUBJNUM 048
COMMENT

3. Revision to UTS for Beryllium (60 Fed. Reg. at 43, 683)

The Agency is proposing to change the UTS for beryllium nonwastewaters from 0.014 TCLP to 0.04 TCLP. This proposed change also provides clarification that the metal treatment standards specify grab samples, and that if grab sampling creates inconsistencies in achieving UTS levels for a treatment process the facility should submit that data to EPA in support of their treatment process. This is a position the EPA has maintained since the Third Third rulemaking.

CWM supports the Agency's proposed change for the beryllium nonwastewater UTS from 0.014 TCLP to 0.04 TCLP; however CWM believes that the Agency is not going far enough. In the Phase III proposed rule (60 Fed. Reg. at 11,702, March 2, 1995) CWM presented information regarding Beryllium UTS levels with respect to naturally occurring levels of Beryllium being higher than the UTS levels. CWM will once again present this information with the hope that the Agency will raise the proposed UTS level to a higher level.

Naturally occurring soil concentration of beryllium generally range from 0.1 to 40 ppm with the average around 6 ppm. (Brown, K.W., G.G. Evans, Jr., B.D. Frentrup (eds). Hazardous Waste Land Treatment. Boston, MA: Butterworth Publishers, 1983.) While this information establishes that beryllium is fairly ubiquitous in the environment, a USEPA report on 1,577drinking water samples supports this conclusion. Beryllium was detected in 5.4% of the sample sat concentration ranging from 0.01 to 1.22 mg/l. Dry weight concentrations of beryllium in food sources are as follows:

Polished Rice	0.08 mg/kg
Toasted Bread	0.12 mg/kg
Potatoes	0.17 mg/kg
Tomatoes	0.24 mg/kg

Lettuce 0.33 mg/kg
This is a small sampling of foods which are commonly ingested which contain beryllium concentrations above the leachable concentrations established as the UTS for hazardous waste. (Kopp, JF, Kroner, RC; Fed. Water Pollution Control Administration (1967) as cited in USEPA; Ambient Water Quality Criteria DOC: Beryllium p. C-1 (1980) EPA 440/5-80-024).

RESPONSE

The beryllium treatment standard of 0.04 mg/l TCLP proposed in the Phase IV original proposal (60 FR 43683, August 22, 1995) was based on composite data. The Agency recognized that proposing to use composite data is not consistent with the BDAT methodology, and therefore, re-calculated the treatment standard for beryllium based on available performance data from HTMR, using grab samples, and re-proposed a treatment standard of 0.018 mg/l TCLP (actually 0.02 mg/l, due to rounding) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). In response to this proposal, several commenters claimed that the data used to determine the beryllium standard is not representative of the most difficult to treat waste. To respond to such comments, the Agency conducted a review of the data set used to calculate the beryllium standard. As a result, the Agency agreed with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes (for additional information on the data reviewed, see the Background Document for Beryllium Wastes in the Docket for this rule). Therefore, the Agency obtained additional performance data and revised the UTS for beryllium to reflect a more difficult-to-treat or high-concentration beryllium waste. As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data. While the commenter stated that they supported the higher standard of 0.14 mg/L TCLP that was proposed, there was no discussion as to a higher standard alluded to by the commenter. In the absence of any additional data, the Agency has to believe that the 1.22 mg/L TCLP standard is achievable.

In addition, the Agency notes that the LDR program is based on the premise that regulated constituents are to be treated using the BDAT to minimize threats to human health and the environment. The issue of toxicity is not within the scope of the BDAT determination.

DCN PH4P069
COMMENTER SSPC
RESPONDER AC
SUBJECT METL
SUBJNUM 069

COMMENT

SSPC respectfully submits our comments on 40 CFR Parts 148, 268 and 271, Land Disposal Restrictions-Phase IV: Issues Associated with Clean Water Act Treatment Equivalency, Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes, per the August 22,1995 Federal Register.

Introduction to SSPC

SSPC is a not-for-profit technical/trade association whose mission is to improve the technology and practice of protective coatings and to promote cost-effective, safe and environmentally compliant protective coatings for industrial structures. The SSPC has approximately 8000 individual members and 600 organizational members consisting of the following demographic groups:

Painting and general contractors
Public and private facility owners
Steel fabricators
Material and equipment suppliers
Consulting training and engineering firms
Health, safety and environmental professionals and firms.

SSPC has been actively involved in lead paint removal and related issues for almost 10 years, having organized the first national conference on industrial lead paint removal in 1988 in conjunction with a workshop run for the Federal Highway Administration. SSPC has developed and delivered lead paint removal training to over 2000 individuals in the last 3 years. SSPC has developed and disseminated standards on containment, waste disposal and on qualifying contractors.

In addition, SSPC has published and distributed several books on the subject and consistently presents information on new technology, regulations and practice through the Journal of Protective Coatings and Linings and Pb (Lead Paint Bulletin).

Impact of Revised Standard on SSPC Constituency

- Waste containing heavy metals generated from paint removal operations is routinely tested for TCLP for lead. It is less commonly tested for chromium and cadmium.
- Lead content is often at 5 mg/l or greater, thereby requiring treatment to reduce leachability.
- The great majority of hazardous lead wastes are shipped to TSD facilities for treatment. A small percentage is treated on site under the 90 Day Rule. Also, some abrasive is pre-blended with proprietary additives to render waste non hazardous.
- Commonly used treatments, primarily Portland cement, are expected to reduce leachability to less than 0.37 mg/l, the proposed standard for lead.
- The protective coatings industry has very little experience with the treatment of

cadmium, chromium and other heavy metals.
Protective Coating Industry Concerns

The proposed treatment standard requires that when one metal is found to exceed the TCLP level (e.g., lead) the waste must be treated to the new treatment standards for all the heavy metals covered in the rule. Our industry has no experience or data to determine if this is feasible. Lead is most commonly treated with Portland cement. Data have been acquired (e.g., FHWARD-94-100) that this method is suitable for treating lead-bearing paint wastes to the new standard of 0.37 mg/l. However, some of these waste may also contain chromium or cadmium. We are not aware of any data stating that the treatment with Portland cement will also reduce the chromium and cadmium to the new treatment levels.

Another concern is the confusion of the proposed standards. The protective coatings industry has accepted the 5 mg/l criterion for lead. The new rule does not seem logical. If a waste generated having a TCLP level of (for example) 3 mg/liter is non-hazardous, then why is a waste generated at a higher level (e.g., 20 mg/l) and treated to 3 mg/l not acceptable? Some generators may mistakenly believe that any waste above 0.37 is automatically hazardous and requires additional treatment. This perception could result in unnecessary treatment costs. Our industry has already seen prices increase dramatically as a result of RCRA and other waste regulations. The confusion inherent in the rule may lead some specifiers to require all lead-containing (or other heavy metal-containing) waste to be handled, treated and disposed as if it were hazardous. Again, this would unnecessarily increase the cost of lead paint removal and infrastructure maintenance.

RESPONSE

In response to the concerns raised by the commenters regarding the lack of stabilization data for TC metal wastes, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. These stabilization (using Portland cement) performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

Therefore, the Agency believes that the performance data used to develop the UTS proposed in the second supplemental rule (62 FR 26041, May 12, 1997) adequately characterizes the diversity in metal-bearing wastes including multiple metal containing hazardous wastes. The Agency also would like to note that if a particular waste is unique or possesses properties making it difficult to treat, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on as case-by-case basis.

With respect to the commenters concern regarding a potential confusion of the proposed standards, the Agency notes that the TC levels that determine whether the waste is hazardous or not is not based on the best demonstrated available technology (BDAT). A, under the statutory requirements of the RCRA Sec. 3004(m), is legally obligated to establish treatment standards using the BDAT for RCRA hazardous waste, and therefore, has developed technology based UTS. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

DCN PH4P080
COMMENTER EASTMAN
RESPONDER AC
SUBJECT METL
SUBJNUM 080
COMMENT IV. EPA Cannot Legally Adopt Option 3 In its Chem Waste decision, the court made clear that non-hazardous CWA treatment impoundments can be used to manage untreated characteristic wastes if two criteria are met: (1) the waste is decharacterized and (2) the toxicity of hazardous constituents in the waste has been reduced before exiting the CWA treatment facility. "Thus, we agree with the EPA that, under RCRA, diluted formerly characteristic wastes may be placed in subtitle D surface impoundments which are part of an integrated CWA treatment train. However, in order for true "accommodation" to be accomplished, we find that RCRA treatment requirements cannot be ignored merely because CWA is Implicated; that is, the CWA does not override RCRA. Thus, we hold that, whenever wastes are put in CWA surface impoundments before they have been treated

pursuant to RCRA to reduce the toxicity of all hazardous constituents, these wastes must be so treated before exiting the CWA treatment facilities. In other words, CWA facilities handling characteristic wastes must remove the characteristic and decrease the toxicity of the waste's hazardous constituents to the same degree that treatment outside a CWA system would." (976 F.2d at 37) (emphasis added) EPA's option 3 requires that characteristic hazardous wastes meet UTS for underlying hazardous constituents before entering the impoundment. This option is totally inconsistent with the court's dictate since it would prohibit the management of untreated decharacterized wastes in nonhazardous CWA impoundments. It must therefore be rejected by EPA.

RESPONSE

[The Agency notes that this issues is not addressed in this rulemaking. The Agency is currently conducting a 5-year study to assess the effects of decharacterized wastes placed in surface impoundments, and the issue of RCRA Subtitle C controls to such surface impoundments will be addressed at the completion of this study.

DCN	PH4P094
COMMENTER	General Motors Corp.
RESPONDER	AC
SUBJECT	METL
SUBJNUM	094
COMMENT	

In response to the "Federal Register" notice of August 22, 1995, (60 FR 43654) and request for comment on the proposed rules on "Land Disposal Restrictions-Phase lV: Issues Associated with Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes", the General Motors Corporation (GM 1) wishes to submit the following comments for consideration by EPA.

General Motors has a concern with the lowering of the LDR levels for the TC metals without mention of satisfying statutory requirements for the lower numbers.

Statutory Authority - Judicial Ruling

The General Motors Corporation appreciates the current quandary that the CWM v. EPA I ruling has caused with regard to the judicial interpretation of Land Disposal of Hazardous Waste. The court's ruling focused on 3004(m) which states in part "... the

Administrator shall promulgate regulations establishing such performance standards, applicable to ... as may be necessary to protect human health and the environment". In 1976 Congress intended that EPA act to"reasonably protect human health and the environment"; implying that cost effectiveness and prioritization of goals and efforts should be considered. The House Report II on RCRA 1976stated that:

"... the Administrator is also required to promulgate performance standards applicable to those facilities operated for the treatment, storage or disposal of wastes identified as hazardous. These performance standards must reasonably protect human health and the environment." (emphasis added)

With HSWA it appears that a shift had occurred in that reasonableness should no longer be considered; however, an onus was placed on the agency to "conclude" and demonstrate that land disposal may not be protective of human health and the environment. In the House Report III on the HSWA 1984 it is quoted that:

"The standard for the Administrator's determination of whether to allow one or more methods of land disposal for any hazardous waste is whether it may reasonably be anticipated that the method of land disposal may not be protective of human health and the environment. For this regulatory standard, the Committee intends a presumption that land disposal not be allowed if the Administrator can conclude that land disposal may not be protective of human health and the environment." (emphasis added)

In 1992, with the CWM v. EPA I case the courts have forced EPA to greatly broaden the universe of waste regulated by Subtitle C by increasing those wastes entering RCRA directly (I. e., listed or characteristic waste) to include those wastes entering indirectly (decharacterized waste). In spite of EPA's arguments with regard to corrosivity, dilution, deactivation, aggregation, etc., the court found that wastes that no longer exhibited a characteristic of hazardous could still pose a threat to human health and the environment. It is noteworthy that Congress charged the executive branch of the federal government (e. g., EPA) with the responsibility to determine if human health or the environment is impacted by land disposal activities and then to appropriately regulate such situations. And now with CWM v. EPA the judicial branch of our government has taken on the role of determining if human health or the environment is impacted; without employing sound scientific reasoning.

The focus of the comments that directly follow relates to this

court ruling and what the General Motors believes are contrary to the intent of the statue of 1976 and the amendments of 1984.
The overriding theme to the comments put forth here is General Motors' strong opposition to the introduction into Subtitle C this new hybrid of the "mixture rule". This "proposed extension of the mixture rule concept" causes an entire wastewater system to be termed a decharacterized waste, and subject to 40 CFR Part 268; if any wastewater stream, less any de minimis level established by the Agency, contributing to an industrial wastewater system meets the RCRA definition of a hazardous waste.

RESPONSE

The Agency notes that this issues is not addressed in this rulemaking. The Agency is currently conducting a 5-year study to assess the effects of decharacterized wastes placed in surface impoundments, and the issue of RCRA Subtitle C controls to such surface impoundments will be addressed at the completion of this study.

DCN PH4P094
COMMENTER General Motors Corp.
RESPONDER AC
SUBJECT METL
SUBJNUM 094
COMMENT

Treatment Standards for Toxic Characteristic Metal Wastes (60 FR 43682)
The court in the Hazardous Waste Treatment v. EPA V affirmed EPA's interpretation of Sec.3004(m) justifying the use a BDAT (Best Demonstrated Available Technology) approach to establishing LDR levels. However, Congress did provide some guidance in the HWSA amendments in Sec. 3004(d) (see footnote no. 4) with respect to what factors should be considered in determining land disposal prohibition criteria. This rational that was used in today's proposal for lowering the Land Disposal Restriction levels for characteristic metal wastes is based upon the availability and performance of certain technologies to achieve lower levels. Technology will always advance; it does not mean that treatment levels should be lowered. The agency should consider the factors that Congress described in Sec. 3004(d) to determine what levels are adequate to protect human health and the environment. General Motors does not have data or evidence indicating the proper treatment levels for any TC metals. General Motors does have a concern that treating for treatment's sake will lead (is leading) to higher disposal cost for no apparent environmental

benefit (emphasis added).
Today's climate of budget cuts and prioritization should cause the Agency some pause when considering the need for Subtitle C regulation of units and industries previously unregulated; unless there is a clear and measurable demonstration that human health or the environment is being impacted. General Motors has reviewed the information contained within the docket and does not believe that such regulation is necessary. The agency may wish to reconsider its approach in interpreting and attempting to satisfy the judicial requirements caused by CWM v. EPA I .

RESPONSE

In the absence of reliable data indicating when threats to human health and the environment are minimized, the Agency believes that the technology-based regime adopted here is the most appropriate. In addition, the central thrust of section 3004 (d) is the inherent uncertainty of using predictive methodologies to assess long-term risks posed by land disposal. This reinforces the Agency's decision to adopt standards that provide some objective means of assuring that mobility of metals has been substantially reduced.

In addition, the Agency would like to point out that the commenter misquotes the standard in section 3004 (m), which is to minimize threats posed by land disposal, a stricter standard that 'as necessary to protect human health and the environment'. Furthermore, "protective" land disposal is a term of art, defined in section 3004 (d) (1) and elsewhere to mean a unit capable of meeting the exacting no-migration standard.

DCN PH4P097
COMMENTER Hazardous Waste Management
RESPONDER AC
SUBJECT METL
SUBJNUM 097
COMMENT

Attached are the comments of the Hazardous Waste Management Association on the Agency's proposed rule, "Land Disposal Restrictions - Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes" (60 FR 43654). The Hazardous Waste Management Association (HWMA), a division of the Environmental Industries Association (EIA), is the leading trade association for companies that provide hazardous waste management services in the United States. HWMA's members include hazardous waste treatment, storage and disposal facility owners and operators; hazardous waste transporters, remediation contractors, and emergency spill response contractors. The EIA represents some 2000 member companies in all facets of the waste management industry including both hazardous and nonhazardous waste management and manufactures of waste equipment.

Treatment Standards for Toxic Characteristic Metals (60 FR 43683)

Changing Treatment Standard Levels From Third Third to UTS

The Agency proposes to change the treatment standard levels for characteristic metal wastes D004-D011 from those established in the Third Third rule at the characteristic levels to those treatment levels established under UTS in the Phase II rule. HWMA is concerned with the Agency's determination that a transfer of UTS is appropriate because historic data on treatment of characteristic wastes simply reflect a design to remove the characteristic, and that this is not a true measure of the treatability. This change should not be made based on EPA's perceived ability of the treatment technology of stabilization to perform to greater efficiencies or to simply provide consistency with the UTS levels. The Agency has recognized in past rulemakings that stabilization in many situations may not consistently achieve these lower levels. EPA should reconsider whether this change should be made should be based on risk versus the capability of industry to treat to lower levels.

The characteristic metal BDAT levels were established on June 1, 1990 (55 FR 22520) in the Third Third final rule. At that time, it was determined by the Agency that these levels were achievable and, more importantly, that they were equally protective of human health and the environment. In many instances, the nonwastewater and wastewater levels were established at these levels because it was demonstrated by commenters that these were the levels that could be consistently achieved. For example, when discussing D008 treatment standards the Agency states,"After detailed analysis of the available data, EPA concludes that treatment to 5.0 mg/1 EP best represents the achievable treatment standard for the entire spectrum of D008 nonwastewaters" (55 FR 22565). Similar discussions for characteristic metal wastes exist elsewhere within the Third Third final rule. 1

1 See 55 FR 22,569 for D004; 55 FR 22,561 for D005; 55 FR 22,562 for D006; 55 FR 22.563for D007; 55 FR 22,565for D008.

RCRA §3004(m) requires that the Agency promulgate treatment standards that specify levels or methods of treatment that, substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." The establishment of the Third

Third treatment levels met this requirement. Lowering the characteristic metal levels to the UTS levels does not provide any additional protection to human health and the environment. The lowering of these treatment standards does not substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of the hazardous constituents as the characteristic levels currently meet this test.

The Agency has estimated the economic impact of this proposal to be small. We disagree with this estimate, and believe that this proposal will have a significant economic impact on the hazardous waste treatment industry. To treat these D004-D011 waste streams to the UTS levels will require a significant and costly effort. In consideration of the above, the Agency's statement in the regulatory impact analysis under the Benefit Estimate Results discussion which states, "The Agency has estimated the benefits associated with today's proposed rule to be small" (60 FR 43690) is incorrect. To the contrary, the potential benefits to the environment from these changes are small while the projected costs are clearly not. For these reasons, the Agency should maintain the current D004-D011 BDAT levels.

In lieu of maintaining the current metal characteristic treatment standards, the Agency could consider the establishment of two "High" subcategories for both arsenic and selenium wastewaters and nonwastewaters. Both of these compounds present technical problems in achieving lower levels, and it is not clear that one can meet the proposed levels utilizing existing stabilization technology. The following is recommended:

1) Establish a "High arsenic greater than 200 ppm subcategory" with a treatment level of 5 mg/l for arsenic wastewaters and nonwastewaters, and

2) Establish a "High selenium greater than 200 ppm subcategory" with a treatment levels of 10 mg/l for both wastewaters and nonwastewaters.

These subcategories will help to ensure that §3004(m) requirements are met, and will resolve current problems meeting the present UTS NWW level.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore do not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions using the BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

The D.C. Circuit already sustained the Agencys authority to require such treatment, and the issue is not reopened here (and is settled law in any case). The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment, since the Agency remains unable to establish with any certainty nationally-applicable levels at which threats posed by the disposal of these wastes would be minimized. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream, EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

In the absence of reliable data indicating when threats to human health and the environment are minimized, the Agency believes that the technology-based regime adopted here is the most appropriate. In addition, the central thrust of section 3004 (d) is the inherent uncertainty of using predictive methodologies to assess long-term risks posed by land disposal. This reinforces the Agency's decision to adopt standards that provide some objective means of assuring that mobility of metals has been substantially reduced. The Agency finds, for the purpose of this rule, that none of the treatment standards are established below levels that pose threats to human health and the environment. Unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular wastestream (as for contaminated soil), EPA believes that BDAT treatment, as reflected in the proposed UTS levels, fulfills the statutory charge of section 3004(m).

With respect to the comment on establishing subcategories for arsenic and selenium, the Agency notes that treatment standard for arsenic was not addressed in the current rulemaking and therefore, is not soliciting any comments on this issue. Regarding the comment on high selenium subcategory, EPA reviewed all the treatment data and has determined that, for the most part, waste streams containing selenium exist either in relatively low concentrations (0.1 to 0.13 mg/L TCLP) or in extremely high concentrations (greater than 450 mg/L TCLP). Data on high selenium containing wastes was submitted by Waste Management, Inc. for three waste streams. The Agency is convinced that these three high-level selenium containing waste streams would be unable to treat selenium to 5.7 mg/L TCLP. Therefore, in today's rule, the Agency is requesting comment on a proposal to grant a site-specific treatability variance for Waste Management, Inc. for the treatment of these three D010 wastes containing greater than 450 ppm TCLP of selenium. The commenter is referred to a separate notice contained in the Federal Register for this rule for additional information. The Agency is promulgating the selenium treatment standard for all other wastes, covered by today's rule, at 5.7 mg/L TCLP.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P097
COMMENTER Hazardous Waste Management
RESPONDER AC
SUBJECT METL
SUBJNUM 097
COMMENT

Revision to UTS for Beryllium (60 FR 43683)
The Agency proposes to change the UTS for beryllium nonwastewaters from 0.014 TCLP to 0.04 TCLP. This proposed change also provides clarification that the metal treatment standards specify grab samples and that, if grab sampling creates inconsistencies in achieving UTS levels fora treatment process, the facility should submit that data to EPA in support of their treatment process. This is a position the EPA has maintained since the Third Third rulemaking. HWMA supports the Agency's proposed change for the beryllium nonwastewater UTS from 0.014 TCLP to 0.04 TCLP.

RESPONSE

The Agency appreciates that commenters support. The Agency also notes that, in response to EPA's proposal for revising the beryllium standard, several commenters stated that the data used to determine the beryllium standard is not representative of the most difficult to treat waste. To respond to such comments, the Agency conducted a review of the data set used to calculate the beryllium standard. As a result, the Agency agreed with the commenters that the performance data used to calculate the proposed standard (0.02 mg/l) does not adequately account for the difficulty in treating relatively high concentrations of beryllium wastes (for additional information on the data reviewed, see the Background Document for Beryllium Wastes in the Docket for this rule). Therefore, the Agency obtained additional performance data and revised the UTS for beryllium to reflect a more difficult-to-treat or high-concentration beryllium waste. As such, the Agency is today promulgating a revised UTS for beryllium nonwastewaters of 1.22 mg/l based on this newly acquired data.

MISCELLANEOUS COMMENTS ON THE ORIGINAL PHASE IV PROPOSAL, AUGUST 22, 1995

DCN PH4P008
COMMENTER DEPARTMENT OF ENV. PROTECTION
RESPONDER SS
SUBJECT MISC
SUBJNUM 008
COMMENT

Your proposed Phase IV land disposal restrictions are flawed in that they accomplish very little in the way of preventing releases of hazardous constituents. The releases from decharacterized wastes in non POTW surface impoundments are minuscule in comparison to the releases from listed wastes disposed in NPDES systems, including WWTU tanks and POTW systems. The proposal merely adds another twist to already horribly convoluted regulations. Instead of complaining about court cases setting the regulatory agenda, EPA should try to work with environmental groups to negotiate a settlement that eliminates an equivalent amount of toxic releases in a more straight forward manner. It is no wonder the public is fed up. EPA puts off making politically unpopular decisions by inserting into preambles statements along the lines of: "EPA is considering adopting regulations to..." EPA has been considering modifying the U and P lists to include chemical mixtures since 1980 and has not gotten around to it. If EPA would make a decision on some of these cases, it might get the Environmental Defense Fund to drop some of the stupid stuff.

RESPONSE

EPA is not finalizing the surface impoundment LDRs to which the comment refers. In the August 22, 1995 Phase IV proposal, EPA discussed three options for ensuring that underlying hazardous constituents in decharacterized wastes were not released to the environment via leaks, sludges, and air emissions from surface impoundments in systems regulated by the Clean Water Act or Safe Drinking Water Act (60 FR 43655). On March 16, 1996, the President signed the Land Disposal Program Flexibility Act of 1996, which provides that the wastes in question are no longer prohibited from land disposal once rendered nonhazardous. As a result, on April 8, 1996, EPA withdrew its treatment standards for these wastes (61 FR 15660). Today's Phase IV final rule will not promulgate provisions for managing leaks, sludges, and air emissions from surface impoundments.

DCN PH4P038
COMMENTER Association of Battery Recyclers
RESPONDER SS
SUBJECT MISC
SUBJNUM 038

COMMENT

In addition to being unnecessary under §3004 (m), EPA's proposed application of the UTSs to characteristic metal wastes is premature. The Agency is currently under no legal obligation to revise the applicable treatment standards. Moreover, by proposing to revise the treatment standards at this time, EPA runs the risk of promulgating requirements which are inconsistent with the risk-based "exit levels" for D008 wastes that are likely to be included in the Hazardous Waste Identification Rule ("HWIR"). See, draft proposed rule; Hazardous Waste Management System: Identification and Listing of Hazardous Waste (August, 1995).5

A principal tenet of the Administration's Reinventing Environmental Regulation initiative, is ensuring that the level of regulation of a particular constituent or process corresponds with the potential risk posed by such constituent or process, and with the degree of environmental protection that will be achieved through regulation. In particular, the ABR notes that the"treatment of . . . hazardous constituents to levels below those which the Agency would consider necessary to protect human health and the environment," is specifically included in EPA's list of"Targeted Legislative Changes to RCRA." 60 Fed. Reg. 20,993 (1995).

In proposing to apply the UTSs to characteristic metal wastes, EPA has not adequately explained why concentration levels as low as the UTSs are necessary to protect human health and the environment from the potential risk posed by treated D008 materials. The ABR maintains that the current D008 waste treatment and disposal practices mandated by the 1990 Third Third Rule, adequately ensure that the protective standard established by RCRA §3004 (m) is met. The imposition of the UTSs in this situation is unwarranted, and would result in the significant, potentially permanent, economic disruption of a valuable recycling industry in return for a negligible environmental benefit. This certainly is the type of result that the Administration recognizes can no longer be condoned.

RESPONSE

The Toxicity Characteristic levels are the levels at which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. See 55 FR at 22652 (June 1, 1990); 51 FR at 21648 (June 13, 1986); 55 FR 11798 (March 29, 1990). This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines nationally applicable risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) fulfills the statutory charge. Technology-based standards have been upheld as a permissible means of implementing RCRA 3004(m) (see *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 345 D.C. Cir. 1989, cert. denied 111S. Ct 139 (1990). The approach of setting standards below the characteristic level was upheld in *Chemical Waste Management v. EPA (976 F.2d 2).*

The commenter is concerned that the Phase IV treatment standards might be inconsistent with the HWIR risk-based "exit levels." Because the HWIR effort is technically complex and will not be completed for some time, and because the exit levels will be thoroughly coordinated with the existing treatment standards, there is no inconsistency problem.

DCN PH4P043
COMMENTER Lead Industries Associati
RESPONDER SS
SUBJECT MISC
SUBJNUM 043
COMMENT

LIA supports the positions taken by BCI and ABR, and will focus its comments on what it considers the principal reason why the proposed rule conflicts with the requirements of the Resource Conservation and Recovery Act and should not be adopted -- the fact that no showing has been made that the proposal is necessary to protect human health and the environment.

RESPONSE

The Toxicity Characteristic levels are the levels above which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. See 55 FR at 22652 (June 1, 1990); 51 FR at 21648 (June 13, 1986); 55 FR 11798 (March 29, 1990). EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines nationally applicable risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) fulfills the statutory charge. Technology-based standards have been upheld as a permissible means of implementing RCRA 3004(m) (see *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 345 D.C. Cir. 1989, cert.

denied 111S. Ct 139 (1990). The approach of setting standards below the characteristic level was upheld in *Chemical Waste Management v. EPA (976 F.2d 2).*

DCN PH4P045
COMMENTER BATTERY COUNCIL INTERNATIONAL
RESPONDER SS
SUBJECT MISC
SUBJNUM 045
COMMENT

B. The Universal Treatment Standards Contravene The Administration's Reinventing Environmental Regulation Initiative

EPA's proposed application of the UTS to characteristic metal wastes, and in particular to D008 wastes, contravenes the Clinton Administration's Reinventing Environmental Regulation initiative. 36 Avoidance of treatment of a "waste's hazardous constituents to levels below those which the Agency would consider necessary to protect human health and the environment" is specifically included in EPA's list of targeted changes to the RCRA program. 37

By proposing to apply the UTS to characteristic metal wastes, EPA has violated the letter and spirit of the Reinventing Environmental Regulation Initiative. As discussed in Section II, application of the proposed UTS to characteristic metal wastes is not necessary to protect human health and the environment. The concentrations of hazardous constituents remaining in stabilized D008 wastes generated by the lead (or battery) and lead recycling industries currently do not pose a threat to human health and the environment.

Moreover, also as described above, the imposition of the UTS to characteristic metal wastes will result in a significant economic disruption of the secondary lead smelting and battery recycling industry, in return for a negligible environmental benefit. This is not the type of regulation that is "designed to achieve environmental goals in a manner that minimizes costs to individuals, businesses, and other levels of government" contemplated by the Reinventing Environmental Regulation Initiative. 38

RESPONSE

The Toxicity Characteristic levels are the levels above which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines nationally applicable risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) fulfills the statutory charge. Technology-based standards have been upheld as a permissible means of implementing RCRA 3004(m) (see *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 345 D.C. Cir. 1989, cert. denied 111S. Ct 139 (1990). The approach of setting standards below the characteristic level was upheld in *Chemical Waste Management v. EPA (976 F.2d 2).*

The commenter states that the treatment standard for D008 TC lead waste will cause economic hardship and is at odds with the Administration's reinvention efforts. EPA directs the commenter to the economic analysis for the Phase IV rule, which concludes that the revised treatment standards for TC metals will not result in compliance costs by the regulated industries.

DCN PH4P047
COMMENTER Merck
RESPONDER SS
SUBJECT MISC
SUBJNUM 047
COMMENT

2) The Agency is proposing to allow characteristic metal wastes that have undergone stabilization prior to the effective date of Phase IV of the LDR rule to comply with the LDR metal standards that were in effect at the time of stabilization. We support this proposal and concur with the Agency's statements to require retreatment would present significant risks.
3) We concur with Agency that there are no environmental justice concerns with this proposal because it will reduce risks and therefore benefit all.

RESPONSE

EPA thanks the commenter for the support expressed.

DCN PH4P065
COMMENTER Safety-Kleen Corp.
RESPONDER SS
SUBJECT MISC
COMMENT

Safety-Kleen Corp. appreciates the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) proposed regulation regarding the Land Disposal Restrictions -- Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal, published in the August 22, 1995 FR (60 FR 43654). These comments are being provided in triplicate, as specified in the Federal Register notice. A diskette copy, in ASCII (TEXT) format, is also provided.

Safety-Kleen is the world's largest recycler of solvents and other contaminated fluids, providing environmentally beneficial waste management services to nearly 400,000 customers in the U.S. While Safety-Kleen offers a range of waste recycling and energy recovery services, we specialize in servicing small businesses. Our recycling services provide a valuable option for small businesses to recycle waste rather than dispose of material through land disposal, discharge to sewers or outfalls, or other disposal methods. Recycling is a key vehicle for progress in pollution prevention efforts by reducing demands for virgin materials, preserving natural resources, and eliminating the risks and costs associated with waste disposal or waste discharges.

The majority of the waste materials entering the Safety-Kleen system are recycled into usable products (e.g., parts washer solvent, paint thinners, motor oils) or are recycled into alternative fuels. Safety-Kleen's primary recycling operations fall into three categories: solvent recycling and fuel blending; used oil re-refining; and recycling and management of silver-bearing wastes from imaging activities.

Safety-Kleen has an extensive transportation and collection facility network to support these operations. Customers' waste is generally managed through one of our approximately 180 accumulation/collection facilities and then forwarded to a recycle facility. Larger bulk shipments are transported directly to a recycle facility. Safety-Kleen recycles and reuses the vast majority of the wastes handled. However, as with all recovery processes, some residuals and off-specification materials are generated that must be sent to third party treatment and disposal facilities.

Safety-Kleen does not operate any land disposal facilities, hazardous waste surface impoundments, or underground injection wells. However, because Safety-Kleen handles waste from thousands of generators, we are affected by every change in the Land Disposal Restrictions (LDR). Therefore, we provide the attached comments on the Phase IV LDR regulations. In addition, we refer the Agency back to our May 1, 1995 comments on the Phase III LDR proposed regulation, submitted to Docket F-95-PH3P-FFFFF.

Safety-Kleen appreciates the opportunity to comment on the proposed Phase IV LDR regulation. We understand that EPA is striving to improve the LDR rule, and hope that our comments will assist EPA in developing both the Phase III and Phase IV LDR regulations.

1. Safety-Kleen encourages the Agency to address the Phase III and Phase IV LDR rulemakings concurrently, with a common promulgation and implementation schedule. EPA has acknowledged

that it did not have time to review the comments submitted on the Phase III LDR proposal prior to publication of the Phase IV LDR notice of proposed rulemaking. Safety-Kleen believes that the comments submitted on the Phase III proposal will strongly influence the Agency's actions and decisions on this Phase IV proposal. Safety-Kleen agrees with the Agency's statement that "[d]ecisions on controlling releases will be made after careful consideration of public comments on both proposals (60 FR 43655/2)." Furthermore, Safety-Kleen believes that careful evaluation of the Phase IV comments will enhance the Phase III rulemaking. Clearly, the Phase III and Phase IV rules affect highly similar facilities and are "sister" regulations. However, the currently anticipated promulgation schedules differ by several months, which will result in staggered implementation deadlines. This may cause confusion in the regulated community (e.g., which rule applies at which time), and may result in additional and unnecessary burdens (e.g., the cost and training requirements for changing the content and format of the LDR notification form multiple times within a year). Safety-Kleen encourages the Agency to promulgate the Phase III and Phase IV regulations simultaneously, in order to simplify the implementation process for the state agencies and the regulated community, and to enhance facility compliance.

RESPONSE

Events subsequent to the submission of this comment make the commenter's remarks moot. Both the Phase III and Phase IV rule concerned the issue of equivalent treatment for decharacterized wastes in surface impoundments regulated by the Clean Water Act. The Phase III rule set treatment standards for these wastes. The August 22, 1995 Phase IV proposal discussed options for ensuring that underlying hazardous constituents in decharacterized wastes were not released to the environment via leaks, sludges, and air emissions from surface impoundments. On March 16, 1996, the President signed the Land Disposal Program Flexibility Act of 1996, which provides that the wastes in question are no longer prohibited from land disposal once rendered nonhazardous. As a result, on April 8, 1996, EPA withdrew its treatment standards for these wastes (61 FR 15660). Today's Phase IV final rule will not promulgate provisions for managing leaks, sludges, and air emissions from surface impoundments.

DCN PH4P070
COMMENTER Doe Run Resources Corp.
RESPONDER SS

SUBJECT MISC
SUBJNUM 070
COMMENT

The Doe Run Resources Corporation ("Doe Run") submits the following comments on the proposed rulemaking issued by the United States Environmental Protection Agency ("EPA" or the "Agency") regarding "Land Disposal Restrictions - Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes," Docket No. F-95-PH4P-FFFFF, 60 Fed. Reg. 43654 (August 22, 1995) ("Proposed Rule").

Doe Run is a producer of lead, zinc, and copper concentrates, and produces lead metal from the lead concentrate. The company also operates a secondary lead smelter and produces secondary lead from batteries, lead scrap, crosses and residues, as well as "hazardous waste" containing lead and other contaminants. Doe Run has a Part B permit issued under the Resource Conservation and Recovery Act of 1976, as amended, § § 6901 et seg. ("RCRA"), and the Missouri Hazardous Waste Management Law, for storage and treatment of hazardous waste at its Buick Resource Recycling Facility in Iron County, Missouri. In the near future, Doe Run intends to initiate further storage of contaminated media (soils) for treatment of those soils through a soil washing and leaching procedure utilizing the technology of its business partner, Cognis, Incorporated ("Cognis").

The soil washing and leaching process proposed for Doe Run's Buick Facility will mechanically separate soil fractions. Lead and other metals will be chemically leached from each of the separated fractions, thereby meeting the release standards (i.e., acceptable standards for release of soil for other uses) prescribed in the RCRA Part B permit and other criteria imposed by Missouri regulatory agencies for the appropriate use of the cleaned soil, so that the resultant soil is de-regulated. The "concentrate," which consists of the metals removed from the process, will be processed through Doe Run's secondary smelter located at the same facility.

Introduction

Doe Run is primarily concerned with EPA's proposal under RCRA to replace existing Toxicity Characteristic Leaching Procedure ("TCLP") treatment standards for land disposal of toxic characteristic ("TC") metal wastes, with Universal Treatment Standards ("UTS"). In particular, Doe Run is interested in the Proposed Rule's potential effect on the secondary processing of metals-contaminated media. These activities should be encouraged and, to the maximum extent possible, facilitated by this and other similar rulemakings (e.g., the hazardous Waste Identification Rule relating to contaminated media ("HWIR-Media")).

It is Doe Run's understanding that the HWIR-Media will allow for a concentration-based standard to supersede the TCP standard. If so promulgated, the concerns of Doe Run will be allayed with regard to this particular issue. Consequently, it is Doe Run's recommendation that the final Phase IV LDR requirements and the HWIR-Media be reviewed and promulgated contemporaneously such that the two rules become effective at the same time. Otherwise, it is certainly possible that any interim period between separate promulgation of the individual rules could disrupt the beneficial implementation and operation of Doe Run's soil washing and leaching process. In order to protect itself against the possibility of the Phase IV LDR Rule being promulgated without the HWIR-Media or the HWIR-Media being promulgated but effectively challenged, Doe Run makes the following comments regarding the authority and the scientific and technological justification for the Phase IV LDR standards....

Furthermore, the D.C. Circuit has noted that EPA has "authority to bar land disposal of wastes unless they have been treated to reduce risks beyond [what may be] presented by the characteristics themselves." CWM Decision, 976 F.2d at 14. EPA has not offered any evidence demonstrating that the utilization of UTS as LDR treatment standards, versus use of TCP levels, is necessary to reduce risks to this extent or to protect human health and the environment. EPA has even acknowledged that constituent levels below TCP do not pose a substantial threat or potential hazard to human health and the environment. See 55 Fed. Reg.11798, 11805 (March 29, 1990). Moreover, EPA has noted that the utilization of such regulatory thresholds in the implementation of the characteristic approach avoids"over-inclusiveness," and "reduc[es] the potential of wastes that do not, in fact, present a threat." Id. at 11805-06. The utilization of UTS as LDR treatment standard" for TO metal wastes undermines a primary purpose of the characteristic approach. In essence, it creates precisely the type of over-regulation that EPA originally intended to avoid.
When EPA initially promulgated the TCP levels, EPA designated those levels as the regulatory thresholds at which the Agency considered the waste to be "non-hazardous." EPA determined that waste with constituent levels above TCP should be identified as "hazardous,"because EPA found those wastes to present a

significant risk to human health and the environment. See 40 C.F.R. § 261.20, et seq. (and related regulatory preambles). Thus, in developing these TCP levels, EPA made the intrinsic determination that they adequately protect human health and the environment. See generally 55 Fed. Reg. 11798 (March 29,1990).

EPA should make clear the relationship between the Phase IV LDR requirements and the HWIR - Media

Doe Run considers the Phase IV LDR rulemaking to be especially significant given the forthcoming HWIR-Media, which is expected to be proposed in December 1995. Thus far, EPA has not expressly clarified the relationship between the Phase IV LDR requirements and the HWIR-Media. As Doe Run understands the relationship, the Phase IV LDR requirements will apply to land disposal of "as-generated" manufacturing waste, while the HWIR-Media will govern disposal of remediation waste, such as remediation soils generated and addressed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, §§ 9601 et sec. ("CERCLA). In circumstances in which both the Phase IV LDR requirements and the HWIR-Media may apply to contaminated media, the HWIR-Media will and should take precedence.

A portion of Doe Run's Buick operations involves secondary processing and extraction of metals from CERCLA remediation soils. This type of legitimate recycling and beneficial recovery should be encouraged by EPA. Doe Run is concerned that unless EPA clearly defines the scope of the Phase IV LDR requirements and the HWIR-Media as they may or may not apply to contaminated media, such recovery and recycling processes will be detrimentally affected by over-aggressive and unnecessary application of stringent Phase IV LDR requirements. Thus, Doe Run strongly encourages EPA to clarify the relationship between the Phase IV LDR requirements and the HWIR-Media, and to do so in a manner favorable to continued utilization of beneficial and evolving soil washing techniques and processes.

Also, because this Phase IV LDR rulemaking has been published prior to the proposed HWIR-Media Rule, Doe Run is unable to analyze fully the potential implications that the Phase IV LDR requirements may have on its secondary processing operations. Doe Run, therefore, reserves the right to comment further on the Phase IV LDR requirements as they may relate to the disposal of contaminated media, and will submit such comments with its comments on the forthcoming HWIR-Media Rule.

RESPONSE

The commenter expresses concern that the UTS levels are below what is necessary to prevent risk.

The Toxicity Characteristic levels are the levels above which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. See 55 FR at 22652 (June 1, 1990); 51 FR at 21648 (June 13, 1986); 55 FR 11798 (March 29, 1990). The commenter thus is mistaken as to, and in fact mischaracterises the Agency’s findings regarding the TC. See 55 FR at 22651 (June 1, 1990). EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines nationally applicable risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) fulfills the statutory charge. Technology-based standards have been upheld as a permissible means of implementing RCRA 3004(m) (see *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 345 D.C. Cir. 1989, cert. denied 111S. Ct 139 (1990). The approach of setting standards below the characteristic level was upheld in *Chemical Waste Management v. EPA (976 F.2d 2).*

The commenter urged EPA to promulgate the HWIR-media provisions for contaminated soil and the Phase IV requirements contemporaneously. EPA is doing exactly that in the Phase IV final rule.

DCN PH4P091
COMMENTER FMC
RESPONDER SS
SUBJECT MISC
SUBJNUM 091
COMMENT

FMC Corporation would like to take this opportunity to comment on the proposed rule "Land Disposal Restrictions - Phase IV: Issues Associated with Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Metal Wastes" [EPA #530-Z-95-011, FRL-5280-6] as published in the August 22, 1995 Federal Register (60 FR 43654, et. seq.). FMC is submitting an original and two copies of its comments along with this cover letter. In addition, pursuant to EPA's request, FMC is also submitting one additional copy of the comments on a computer diskette in ASCII (Text) format; the comments are in file PHASEIV.TXT.

FMC Corporation is a multinational company with businesses in agricultural chemicals, chemicals and specialized chemical products, defense products, gold mining, food and specialized machinery and petroleum equipment. FMC Corporation had 1994 sales of approximately $4 billion. FMC operates manufacturing and other facilities in 26 states within the United States. FMC is a major developer, manufacturer, formulator, distributor and dealer of carbarmate chemicals. As proposed, this regulation may directly impact eight FMC owned facilities, along with numerous other privately owned dealers and distributors of FMC agricultural chemicals.
FMC Corporation is a member of the Chemical Manufacturers Association (CMA) and supports and endorses the comments being submitted by that organization on this rulemaking. FMC would be happy to meet with you, at your convenience, to discuss the attached comments.

III. The Agency Should Finalize HWIR Before the LDR phase III, IV and IV Supplemental Rules Become Effective. and Should Promulgate the Phase III and IV Rules with a Common Effective Date.

EPA has proposed, or will soon propose, four separate RCRA Subtitle C hazardous waste regulations that are closely interrelated. Indeed, these four regulations are so closely interrelated that if they are not promulgated in the proper order, significant compliance problems and confusion will result. The four rules are the Phase III and Phase IV LDR rules, already proposed, the upcoming Phase IV Supplemental proposal (mining wastes) and the recently signed but not published HWIR process waste rulemaking.

In Phase III, EPA proposed that the LDR treatment standard for formerly characteristic wastes managed in CWA or CWA-equivalent surface impoundments should be a requirement for satisfaction of the system's NPDES standards at its end-of-pipe compliance point for constituents addressed in the permit, and should meet Universal Treatment Standards (UTS) at the same compliance point for constituents not addressed in the NPDES permit. /15
In Phase IV, EPA is considering whether to impose additional requirements on the same surface impoundments addressed in Phase m, with respect to potential leaks, air emissions, and sludges. /16 In the Phase IV supplemental rule (not yet proposed), EPA will address LDRs for mineral processing wastes. Finally, in the HWIR rule, EPA will establish risk-based concentration levels for many hazardous constituents, below which levels wastes will no longer be subject to regulation as hazardous wastes, including the LDRs.

FMC believes that if these rules are promulgated without regard to interrelationships, the resulting disruption of the regulated community will be severe, and unnecessary. As explained in detail below, the HWIR rule could

make significant changes in the LDR program, nullifying the substantial capital expenditures that will be necessary to comply with Phase m and IV regulations. Similar unnecessary expenditures will result if EPA makes the Phase m rule effective earlier than the Phase IV rule because the choices EPA makes in the final Phase IV rule will often determine the most cost-effective way to comply with the LDR requirements. Thus, EPA should establish a single effective date for the Phase m and Phase IV rules, which should be after the HWIR rule is finalized. The Agency possesses ample authority to take such steps.
/15 60 Fed. Reg. 11702, 3/2/95
/16 60 Fed. Reg. 43654

a. EPA Should Not Set an Effective Date for LDR Phases m. IV or IV Supplemental Until After the HWIR Regulations are Finalized.

FMC strongly believes that EPA should not establish effective dates for any additional LDR regulations until after the HWIR regulation is finalized, especially if EPA chooses Option 2 or Option 3 in Phase IV.

If the final HWIR rules resemble the versions that EPA has been discussing, it will have a significant effect on the LDR program and will render significant Parts of the upcoming LDR rules moot.

EPA has long recognized that the existing Subtitle C regulations are overly broad, covering many wastes that present no significant threat to human health or the environment. The regulated industry has been seeking a correction to this over-inclusiveness for years. /17 The HWIR regulation is the first real attempt by the Agency to address this problem. Since the changes brought about by HWIR may occur in a matter of months, it makes no sense to go forward with complex LDR rules at this time. To the extent EPA's schedule is dictated by court orders, EPA should take steps to have those orders modified. /18 First, it is clear that significant disruptions to regulated industry could result if the Phase III and IV regulations are made effective before the HWIR rule is finalized. The Phase III and IV regulations will cause the expenditure of vast sums to replace or modify existing CWA treatment systems in order to meet the Phase III end-of-pipe treatment standards and potential Phase IV technical requirements for impoundments. Many of these expenditures could be in vain if the HWIR rule sets exit levels above the current UTS levels (particularly if the HWIR levels can be met before placement in surface impoundments). /19 Because the HWIR levels will be risk-based, modifications to CWA systems to achieve more stringent standards will be wasteful by definition, because they will not be necessary to address any environmental risk.

[/17 Indeed, the HWIR regulation is, in part, a response to a petition for rulemaking that was submitted to EPA in 1987. /18 The settlement in ETC that led to this rulemaking would allow EPA to take final action to select Option 1 of Phase IV, while continuing to consider whether further requirements should be imposed at a later date. /19 This analysis assumes that EPA will provide that risk-based HWIR "exit levels" will supersede any lower, technology-based LDR numerical treatment standards.]

Indeed, the "exit" levels chosen under HWIR could determine the most cost-effective method of achieving the LDR treatment standard (which presumably will be, in many cases, the same as the exit level). If the exit level is different from the prior LDR treatment standard, the most effective treatment method could be different as well. If companies have already modified their treatment processes to achieve the lower level, the result is, again, needless expenditures and efforts. It should also be added that the HWIR rule may bring about a significant realignment of CWA systems at many facilities, because of the new possibility that formerly listed wastes could be treated to the exit levels and then managed in CWA surface impoundments, which at present is not possible because of the derived-from rule. This could result in expansion or modification of many CWA systems to manage these formerly hazardous wastes. It would be very inefficient for companies to make several modifications to their CWA systems within a matter of months.

There would be similar disruptions if the Phase IV supplemental LDR rule were to be made effective before the HWIR rule is finalized. Assuming that EPA will decide that wastes exiting the hazardous waste system under HWIR are no longer subject to the LDR, companies may decide, based on the Phase IV supplemental rule, to treat mineral processing wastes to meet LDRs (possibly including capital investment for new or modified treatment systems), only to discover later that under HWIR, some or all of their mineral processing wastes, if treated or managed in a particular manner, are no longer considered hazardous and do not require treatment under the LDR. As with the disruptions discussed above, this could impose substantial needless costs on the mining industry.

In addition to the capital costs described above, if EPA sets effective dates for LDR Phases III, IV and IV supplemental before the HWIR rule is finalized, many companies, including FMC, will be forced to apply for case-by-case capacity variances and extensions in order to comply with the new requirements. The preparation of such applications is costly in both money and time. All of those costs could be wasted if the HWIR significantly changes the universe of wastes subject to LDR requirements, or significantly changes the applicable LDR treatment standards. The money and personnel time that would be so wasted could more effectively be used for waste minimization and pollution control efforts -- efforts that could have a real impact on risks, as opposed to efforts to meet standards that may soon disappear because they are not necessary to address real risks.

Finally, FMC's comments and plans regarding leaks from CWA surface impoundments are predicated on the current UTS levels. Significant changes in these levels will result in a major disruption within the regulated community. FMC believes that EPA should at the least delay Phase IV (if Option 2 is chosen and leak controls are imposed) until after promulgation of HWIR in order to allow time to evaluate the impact level of the revised UTS standards. In addition, FMC believes it would be more prudent of EPA to extend the Phase IV comment period with respect to leak controls until after the HWIR levels are finalized. Alternatively, EPA should consider reproposing Phase IV if the HWIR rule makes significant changes to UTS levels. /20 [/20 As explained in the next section, this may require reopening the Phase III rule as well.]

This problem is even further exacerbated by the expected lag of the adoption of the HWIR rule standards by the delegated state. Because HWIR is not a HWSA rulemaking, the states will need to adopt the revised HWIR levels to supersede the existing UTS levels from the 40 CFR §268.
In sum, HWIR should be finalized before the Phase III and Phase IV rules become effective, especially if EPA imposes leak control measures in Phase IV. Such an approach would reduce the universe of hazardous wastes subject to the Phase III, IV and IV supplemental LDR rules, and avoid forcing companies to treat their decharacterized wastewaters or mineral processing wastes to meet LDR standards that will be superseded or revised only months later.

RESPONSE

EPA agrees with the commenter on the importance of close coordination on the decision-making and scheduling of the LDR rules and the Hazardous Waste Identification Rule (HWIR) for process wastes. Since the comment was submitted to EPA, two events have occurred which prevent the coordination problems the commenter foresaw. First, the sections of the Phase IV original proposal on August 22, 1995 pertaining to equivalent treatment for decharacterized wastewaters in surface impoundments (controls of leaks, sludges, and air emissions) were removed from this rule due to the Land Disposal Flexibility Act of 1996. That Act reinstated the exemption from the dilution prohibition for these wastes and required EPA to conduct a study to determine if regulation is necessary. Second, the timetable on the HWIR rule has been extended well beyond the required promulgation date of the Phase IV final rule, which removes concern about implementation problems. The new treatment standards in the Phase IV final rule will go into effect well before the complex work on the HWIR rule is complete. The HWIR provisions are being developed in conjunction with the Land Disposal Restrictions rules.

DCN PH4P096
COMMENTER INMETCO
RESPONDER AC
SUBJECT NICK
SUBJNUM 096
COMMENT

To further illustrate the problem of measuring compliance with UTS limits on the basis of grab samples, INMETCO collected random grab samples of its slag (every 20th slag tap) during the months of September and October 1995 and analyzed them for TCLP levels of various metals. The analytical results for nickel and selenium are presented in Table 1 below.

Table 1 Random Grab Sample TCLP Results (in mg/L)for INMETCO's Slag: September and October 1995
DATA ARE NOT REPRODUCED HERE

Using EPA's methodology, we calculated the mean and standard deviation of the logtransformed data for the nickel and selenium values shown in Table 1 and applied EPA's BDAT formula to derive the appropriate treatment standard level (i.e., the C99 value below which 99 percent of the TCLP performance results are estimated to fall). For these random grab sample data, the BDAT/UTS treatment standard value for nickel would be 7.1 mg/l, while for selenium it would be 0.20 mg/l. These values are higher than the comparable UTS limits of 5.0 mg/l for nickel and 0.16 mg/l for selenium. The values included in Table 1 above reflect random grab sampling results. INMETCO's experience suggests that slags having the highest total chromium composition tend to exhibit somewhat higher TCLP levels of various metals. Table 2 below shows the nickel and selenium TCLP grab sample results for the four highest chromium composition slags produced during each of the months of September and October 1995. When the data in Table 1 are expanded to include the data from Table 2, the calculated treatment standard levels (i.e., the C99 values below which 99 percent of the TCLP performance results are estimated to fall) are found to be even higher.

Table 2 Grab Sample TCLP Results (in mg/L) for the Four Highest Total Chromium Composition Slags Produced at INMETCO in September and October 1995
DATA ARE NOT REPRODUCED HERE

These data confirm what EPA discovered in the case of beryllium. They show that the BDAT/UTS nonwastewater limits that EPA calculated for metals on the basis of data that included (or, in some cases, consisted solely of) composite samples will not be consistently achievable if compliance is measured on the basis of grab samples. As noted above, a primary EPA objective in establishing the BDAT/UTS limits was to ensure that they are achievable by the major HTMR technologies. In light of the very significant environmental and other benefits that HTMR technologies provide, this is indeed an important objective. In order to ensure that it can be met, compliance with the nonwastewater UTS limits for metals should be determined on the basis of composite samples, not grab samples. Sections 268.40 and 268.48 of the regulations should be revised to reflect this point.

RESPONSE

The Agency proposed revised treatment standards for nickel and selenium, along with other TC metals, in the Phase IV second supplemental proposal (62 FR 26045, May 12, 1997). The Agency collected additional data form commercial stabilization and HTMR facilities (based on grab samples) and re-calculated the BDAT standards for nickel and selenium at 13.6 mg/l and 5.7 mg/l respectively. These standards are less stringent than the standards proposed in the original Phase IV rule (60 FR 43654, August 22, 1995). Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed nickel standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the nickel treatment standard and is promulgating the UTS for nickel at 11.0 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR. Based on the commenter's calculated treatment standard of 7.1 mg/L TCLP for nickel, the data is well within the promulgated standard of 11.0 mg/L TCLP for nickel nonwastewaters.

With respect to the comment on grab vs. composite sampling, the Agency prefers that compliance with LDR standards for nonwastewaters be based on grab samples (a one-time sample taken from any part of the waste), rather than composite samples (a combination of samples collected at various locations for a given waste, or samples collected over time from that waste). The Agency believes that grab samples generally reflect maximum process variability, and thus would reasonably characterize the range of treatment system performance, and also best assure that all of the waste will be treated to minimize threats, not just certain "representative" parts of the waste. (See discussion on this issue at 54 FR 26605, June 23, 1989 and 55 FR 22539, June 1, 1990). The grab sampling thus meets the ultimate objective of the LDR program, that all of the hazardous waste to be land disposed be treated in a way that minimizes the threats that land disposal could pose, not just the average portion of the waste to be so treated (a possible result of composite sampling). In addition, since grab sampling is based on individual sampling events, it facilitates enforcement proceedings for EPA and authorized states.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P027
COMMENTER Rollins Environmental
RESPONDER JL
SUBJECT SELE
SUBJNUM 027
COMMENT

For the most part RES supports the proposed treatment standards for TC metal wastes. The majority of these standards are achievable through utilization of sound operating practices. We are concerned, however, about the proposed treatment standard for nonwastewater Selenium (Se, D010).

EPA is proposing a treatment standard of 0.16 mg/l TCLP for D010 wastes. We feel this standard is not routinely achievable utilizing best operating practices. We recommend the Agency keep the treatment standard for D010 at 1.0 mg/l TCLP.

Selenium has a pH/solubility curve that is significantly different from other characteristic metals.

Selenium's minimum solubility is at a neutral to mildly acidic pH, while it is highly soluble in the basic pH range (pH 8-12). The other characteristic metals have a minimum solubility in the strongly basic pH range (pH 8-12), while their solubility increases in the neutral and acidic pH's. This difference in solubilities creates a problem for treating wastes with a mixture of characteristic metals which includes Se. Since there is a difference in solubilities for the metals depending on the pH of the stabilized waste, if a neutral pH is maintained in treatment Se won't leach but the other metals will, and if a high pH is maintained the Se will leach while the other metals will.

Due to the different pH/solubility curves for Se and the other characteristic metals, the treatment standard for Se should remain at 1.0 mg/l TCLP.

RESPONSE

The Agency recognizes the difficulties in treating mixed metal wastes due to the difference in pH/solubility curves for different metals. The Agency carefully reviewed the data on selenium, and in the supplemental proposed rule (62 FR 26045, May 12, 1997), the Agency amended the proposal to change the UTS for selenium to 5.7 mg/L TCLP and retain the current treatment standard of 5.7 mg/L TCLP for D010 waste. Thus, creating a uniform standard of 5.7 mg/L for nonwastewater forms of selenium. The Agency further believes that a well operated stabilization system can be optimized to account for the differences in metal solubilities and meet the UTS for different metals.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER JL
SUBJECT SELE
SUBJNUM 045
COMMENT

In lieu of the proposed universal treatment standard (UTS) level, BCI believes that the D008 and D010 treatment standards should be maintained at the current levels and measured by the toxicity characteristic leaching procedure (TCLP), as originally established in EPA's 1990 Land Disposal Restrictions Rule for Third Scheduled Wastes, 55 Fed. Reg. 22520 (June 1, 1990).

RESPONSE

In the supplemental proposed rule (62 FR 26045, May 12, 1997), the Agency amended the proposal to change the UTS for selenium to 5.7 mg/L TCLP and retain the current treatment standard of 5.7 mg/L TCLP for D010 waste. Thus, creating a uniform standard of 5.7 mg/L for nonwastewater forms of selenium. In the same supplemental proposed rule, the Agency re-proposed a lead (D008) nonwastewaters UTS of 0.75 mg/l TCLP. The Agency believes that these standards are achievable through commercially available stabilization technologies for a wide variety of waste matrices (see the BDAT Background Document for additional information on the revised standards). The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER PAL
SUBJECT SELE
SUBJNUM 045
COMMENT

EPA has failed to follow its own BDAT principles in setting treatment standards for lead and selenium. Its selection of High Temperature Metals Recovery (HTMR) and stabilization technologies as BDAT for D008 nonwastewaters is without merit.

This is because, first, the HTMR technology used by EPA to determine the BDAT (known as Horsehead Resource Development Company Inc.'s Waelz kiln series process) is not "commercially available" to treat D008 nonwastewaters to the proposed treatment levels for lead and selenium. The Waelz kiln process is a patented and very expensive process that has not been built into any of the lead battery industry's operations.6 Moreover, there is no facility operating a Waelz kiln permitted to accept and store D008 wastes. Thus, the HTMR cannot be considered an available technology under the Agency's BDAT principles.

RESPONSE

The Agency disagrees with the commenter that the selection of stabilization and HTMR technologies as BDAT is without merit. EPA notes that the Horsehead Resource Development Company's HTMR facility is a commercially operated facility and accepts TC metals for the purpose of metal recovery. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. The Agency is promulgating a concentration-based treatment standard rather than requiring a specific technology. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology. The Agency reviewed treatment performance data and calculated treatment standards for both HTMR and stabilization. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties.

Furthermore, based on review of additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency believes that the proposed UTS levels are achievable through commercially available stabilization and HTMR technologies. The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P045
COMMENTER Battery Council International
RESPONDER JL
SUBJECT SELE
SUBJNUM 045
COMMENT

11 Other metals, such as cadmium and selenium, also have unique analytical problems in the high TDS matrices at very low concentrations. In the proposed LDR Phase IV, both cadmium and selenium are proposed at concentrations that are almost an order of magnitude below the current limit. The proposed TCLP

concentrations for these metals thus is likely to fall outside the PQL for analytical methods currently in use.

RESPONSE

The Agency notes that the high Total Dissolved Solids (TDS) may interfere in the determination methods during the analysis of wastewaters because of viscosity and chemical differences between the standard and the sample. However, this interference may be compensated for, by using dilution, matrix matching, and/or the method of standard additions. The Agency believes that the commenter is in error regarding proposed treatment levels and the levels to which cadmium and selenium may be accurately measured in a TCLP extract. The cadmium and selenium standards of 0.11 and 5.7 mg/l TCLP are over 1,000 times the detection limits of available determinative methods employing FLAA, GFAA, or ICPMS.

DCN PH4P077
COMMENTER American Foundryman's Soc
RESPONDER JL
SUBJECT SELE
SUBJNUM 077
COMMENT

II. UTS FOR THE TC METAL WASTES OF CHROMIUM, CADMIUM, LEAD, AND SELENIUM SHOULD BE BASED ON STABILIZATION TECHNOLOGIES BECAUSE STABILIZATION TECHNOLOGIES ARE BDAT FOR FOUNDRY WASTES

A. Because Stabilization is the Only Commercially "Available" Technology For Foundry Wastes, Stabilization Technologies Should Be Used as the Basis For Determining the UTS For Lead, Cadmium, Selenium, and Chromium

As indicated above, HTMR is not commercially available for treatment of FOUNDRY WASTES. However, certain stabilization technologies are commercially available for FOUNDRY WASTES. Although the database of stabilization treatment results for foundry wastes presented in the rulemaking record is not comprehensive, (See Proposed BDAT Background Document for TC Metal Wastes D004-D011 (July 26, 1995), at A-16 to A-27), only stabilization technologies are demonstrated to effectively treat foundry wastes. Stabilization technologies are also the only practical technology for foundry wastes that meet the statutory requirement to"substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are

> minimized."RCRA § 3004(m), 42 U.S.C. § 6924(m). Therefore, the results from commercially-available stabilization technologies applied to foundry wastes should be used to establish the UTS for TC metal wastes. However, the Agency should only use reasonable stabilization technologies that do not require the addition of excessive amounts of stabilizing material in determining treatment standards for TC metal wastes.

RESPONSE

The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

The Agency had inadequate data on foundry sands prior to the second supplemental Phase IV proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative data, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. These stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic), including metal manufacturing and foundry wastes. Many of these wastes were particularly difficult to treat due to high total and leachable levels of metals, pH variations, and the presence of multiple hazardous metal constituents. Treatment of these wastes was conducted using conventional stabilization techniques with appropriate ratios of waste to stabilizing agent. See the information contained in the Second Supplemental docket in support of the proposed metal treatment standards, e.g., (S0022 - Review of Site Visit Report to Rollins Highway 36, Deer Trail, Colorado and Data Submittals. December 19, 1996). Based on the information available to the Agency, excessive amounts of reagent would be needed to meet the treatment standards.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P096
COMMENTER INMETCO
RESPONDER JL
SUBJECT SELE
SUBJNUM 096
COMMENT

To further illustrate the problem of measuring compliance with UTS limits on the basis of grab samples, INMETCO collected random grab samples of its slag (every 20th slag tap) during the months of September and October 1995 and analyzed them for TCLP levels of various metals. The analytical results for nickel and selenium are presented in Table 1 below.

Table 1 - Random Grab Sample TCLP Results (in mg/L)for INMETCO's Slag: September and October 1995
DATA ARE NOT REPRODUCED HERE
For these random grab sample data, the BDAT/UTS treatment standard value for nickel would be 7.1 mg/l, while for selenium it would be 0.20 mg/l. These values are higher than the comparable UTS limits of 5.0 mg/l for nickel and 0.16 mg/l for selenium. The values included in Table 1 above reflect random grab sampling results. INMETCO's experience suggests that slags having the highest total chromium composition tend to exhibit somewhat higher TCLP levels of various metals. Table 2 below shows the nickel and selenium TCLP grab sample results for the four highest chromium composition slags produced during each of the months of September and October 1995. When the data in Table 1 are expanded to include the data from Table 2, the calculated treatment standard levels (i.e., the C99 values below which 99 percent of the TCLP performance results are estimated to fall) are found to be even higher.

Table 2 Grab Sample TCLP Results (in mg/L) for the Four Highest Total Chromium Composition Slags Produced at INMETCO in September and October 1995

DATA ARE NOT REPRODUCED HERE

These data confirm what EPA discovered in the case of beryllium. They show that the BDAT/UTS nonwastewater limits that EPA calculated for metals on the basis of data that included (or, in some cases, consisted solely of) composite samples will not be consistently achievable if compliance is measured on the basis of grab samples. As noted above, a primary EPA objective in establishing the BDAT/UTS limits was to ensure that they are achievable by the major HTMR technologies. In light of the very significant environmental and other benefits that HTMR technologies provide, this is indeed an important objective. In order to ensure that it can be met, compliance with the nonwastewater UTS limits for metals should be determined on the basis of composite samples, not grab samples. Sections 268.40 and 268.48 of the regulations should be revised to reflect this point.

RESPONSE

The Agency proposed revised treatment standards for nickel and selenium, along with other TC metals, in the Phase IV second supplemental proposal (62 FR 26045, May 12, 1997). The Agency collected additional data form commercial stabilization and HTMR facilities (based on grab samples) and re-calculated the BDAT standards for nickel and selenium at 13.6 mg/l and 5.7 mg/l respectively. These standards are less stringent than the standards proposed in the original Phase IV rule (60 FR 43654, August 22, 1995). Furthermore, the Agency has identified a technical error in the BDAT determination of the proposed nickel standard. In applying the BDAT methodology for calculating the treatment standard, EPA failed to perform a "Z-score" outlier test. The Agency corrected this error and re-calculated the nickel treatment standard and is promulgating the UTS for nickel at 11.0 mg/l TCLP. Although this standard is more stringent than the proposed standard, based on the treatment performance data reviewed, the Agency believes that this new standard is also achievable by commercial treatment technologies such as stabilization and HTMR. For selenium, in today's rule, the Agency is promulgating a treatment standard of 5.7 mg/L TCLP as proposed. With regard to selenium, all the data available to the Agency on selenium treatment, with the exception of Waste Management, Inc. which is being discussed in the Second Supplemental comment responses for selenium, show that the standard of 5.7 mg/L TCLP can be achieved for selenium nonwastewaters.

With respect to the comment on grab vs. composite sampling, the Agency prefers that compliance with LDR standards for nonwastewaters be based on grab samples (a one-time sample taken from any part of the waste), rather than composite samples (a combination of samples collected at various locations for a given waste, or samples collected over time from that waste). The Agency believes that grab samples generally reflect maximum process variability, and thus would reasonably characterize the range of treatment system performance. (See discussion on this issue at 54 FR 26605, June 23, 1989 and 55 FR 22539, June 1, 1990). The grab sampling also meets the ultimate objective of the LDR program, that all of the hazardous waste to be land disposed be treated in a way that minimizes the threats that land disposal could pose, not just the average portion of the waste to be so treated (a possible use of composite sampling). In addition, since grab sampling is based on individual sampling events, it facilitates enforcement proceedings for EPA and authorized states.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P078
COMMENTER Battery Council International
RESPONDER AC
SUBJECT SLAG
SUBJNUM 078
COMMENT

On November 20, 1995, the Battery Council International (BCI) submitted comments on the U.S. Environmental Protection Agency's (EPA) Land Disposal Restrictions -- Phase IV proposed rule (LDR Phase IV rule), published in the August 22, 1995, Federal Register. 60 Fed. Reg. 43654. As we understand, due to the temporary federal government shutdown, EPA has announced that the Agency will continue to consider comments submitted on this proposed rule until November 27, 1995. Accordingly, we wish to supplement our November 20th submission with the attached materials and request that they be included in the Resource Conservation and Recovery Act (RCRA) public docket.

The Battery Council International (BCI) is pleased to submit the following comments on the U.S. Environmental Protection Agency's (EPA) Land Disposal Restrictions -- Phase IV proposed rule (LDR Phase IV rule), published in the August 22, 1995, Federal Register. 60 Fed. Reg. 43654.

BCI urges that there is no lawful basis to lower the treatment standards for lead and selenium, and that this issue should not be addressed in the current rulemaking. Treatment standards set below the characteristic levels for lead and selenium in D008 nonwastewaters are (I) unachievable using EPA's demonstrated technology; (ii) not necessary to protect human health and the environment; (iii) inconsistent with previous Agency pronouncements on the application of the LDRs to treatment residues; (iv) contrary to the Administration's goal of "reinventing environmental regulation" and eliminating impediments to recycling; and, consequently, (v) unlawful.

In lieu of the proposed universal treatment standard (UTS) level, BCI believes that the D008 and D010 treatment standards should be maintained at the current levels and measured by the toxicity characteristic leaching procedure (TCLP), as originally established in EPA's 1990 Land Disposal Restrictions Rule for Third Scheduled Wastes, 55 Fed. Reg. 22520 (June 1, 1990). Any further Agency consideration of this issue should be made only after EPA has promulgated the RCRA Hazardous Waste Identification Rule (HWIR).

BACKGROUND

BCI is a non-profit trade association representing commercial entities involved in the manufacture, distribution and sale, and reclamation of lead-acid batteries. BCI is members and associate members include manufacturers and distributors of lead acid storage batteries for automotive, marine, industrial, stationary, specialty, consumer and commercial uses, and secondary smelters that reclaim or recycle the batteries once they are spent. BCI's membership represents more than 99 percent of the nation's domestic lead-acid battery manufacturing capacity and more than 84 percent of the nation's lead battery recycling or secondary smelting capacity.

SPECIFIC COMMENTS

I. THE 0.37 mg/l FOR D008 TREATMENT STANDARD DOES NOT MEET THE BDAT PRINCIPLES ESTABLISHED BY EPA AND UPHELD IN HAZARDOUS WASTE TREATMENT COUNCIL v. PA

A. EPA Has Failed To Follow Its BDAT Principles

A concentration-based treatment standard must be a performance level achievable by application of the Best Demonstrated Available Technology (BDAT). To identify BDAT for treatment of a particular waste, EPA considers three factors: whether the technology is "best demonstrated"; whether it is "available"; and whether it is the "best applicable" technology. A treatment technology is considered to be "demonstrated" when full-scale treatment operations are currently being used to treat that waste. To be considered "available," the technology must not be proprietary or a patented process that cannot be purchased or licensed from the proprietor (i.e., it must be commercially available) and must substantially diminish the toxicity of the waste or reduce the likelihood of migration of hazardous constituents from the waste. To be "applicable," a technology must theoretically be able to treat the waste.

EPA has failed to follow its own BDAT principles in setting treatment standards for lead and selenium. Its selection of High Temperature Metals Recovery (HTMR) and stabilization technologies as BDAT for D008 nonwastewaters is without merit. This is because, first, the HTMR technology used by EPA to determine the BDAT (known as Horsehead Resource Development Company Inc.'s waelz kiln series process) is not"commercially available" to treat D008 nonwastewaters to the proposed treatment levels for lead and selenium. The waelz kiln process is a patented and very expensive process that has not been built into any of the lead
battery industry's operations. Moreover, there is no facility operating a waelz kiln permitted to accept and store D008 wastes. Thus, the HTMR cannot be considered an available technology under the Agency's BDAT principles. Second, D008 nonwastewaters (slags, soils, sludges) cannot be chemically stabilized to the proposed treatment concentrations. As the attached data and letter from Resource Consultants, Inc. (RCI) demonstrates, stabilization treatment of D008 nonwastewaters cannot achieve concentration levels of .37 mg/l for lead or 0.16 mg/l for selenium. Instead, this data shows that based on the 99th percent confidence interval, stabilization treatment of lead and selenium at secondary lead smelters for slag can achieve, at best, concentration levels of 2.97 mg/l for lead and 2.48 for selenium. RCI's data show that stabilization treatment of lead contaminated soil can achieve, at best, a concentration level of 4.69 mg/l level.

RESPONSE

The Agency disagrees with the commenter that the selection of stabilization and HTMR technologies as BDAT is without merit. EPA notes that the Horsehead Resource Development Company's HTMR facility is a commercially operated facility and accepts TC metals for the purpose of metal recovery. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. The Agency is promulgating a concentration-based treatment standard rather than requiring a specific technology. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology. The Agency reviewed treatment performance data and calculated treatment standards for both HTMR and stabilization. The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties.

Furthermore, several commenters submitted performance data in response to the original Phase IV proposal (60 FR 43654), and the Phase IV NODA (61 FR 21418) on lead slags. Based on a through review of these additional treatment performance data, the Agency re-proposed a UTS of 5.7 mg/l TCLP for selenium (D010) and a UTS of 0.75 mg/l TCLP for lead (D008) in the second supplemental proposed rule (62 FR 26045, May 12, 1997). The Agency believes that the revised UTS levels represent the most difficult to treat wastes, and are achievable through commercially available stabilization and HTMR technologies, and therefore, is promulgating these UTS levels in today's rulemaking.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

Phase IV Comment Responses On Silver Policy

Comments on Original Proposed Phase IV Rule, August 22, 1995

PH4P-00014
COMMENTER: Silver Coalition
RESPONDER: SS
SUBJECT: SLVR
COMMENT

The Silver Coalition appreciates the opportunity to provide comments on the Agency's Phase IV Land Disposal Restrictions (LDR) proposed rule.

The Silver Coalition is a national group of trade associations, technical societies and government agencies whose memberships are vitally affected by the environmental regulation of silver. The purpose of the Coalition is to support scientific research on the fate, transport and toxicity of silver in the environment, and to encourage communications and share information between the regulatory and regulated communities, so that our common goals of pollution prevention, recycling and compliance can be achieved in the most cost effective manner.

Over 360,000 facilities currently use silver-containing photographic materials which must be processed to produce an image for subsequent viewing, printing, or storing. The processing of these materials results in silver being present in the effluent. Included in these over 360,000 facilities are small businesses, educational institutions, hospitals and clinics, doctors, dentists, veterinarians, photographers, printers, financial institutions, and microfilmers. Many federal, state and municipal agencies such as the Department of Defense, the Veteran's Administration, the FBI, the EPA, the U.S. Government Printing Office, and numerous police departments also have photographic processing facilities.

The following issues related to EPA's proposed treatment standards for toxicity characteristic (TC) metal wastes are of particular concern to the Silver Coalition:

The current D011 silver TC waste LDR treatment level of 5 mg/l more than adequately minimizes threats to human health and the environment. It does not make sense to lower the LDR standard to match the universal treatment standard (UTS) level of 0.30 mg/l silver (nonwastewaters) and 0.43 mg/l silver (wastewaters).

- EPA should hold any action to make the D011 technology based LDR treatment level for silver more stringent, until the Office of Solid waste has completed its current review of silver's inclusion on the TC list.

The regulation of silver should be consistent with the low level of toxicity from silver wastes.

The Silver Coalition believes that toxicological and environmental fate evidence is adequate for the removal of silver from the Toxicity Characteristic (TC) list. EPA's Office of Solid Waste has also identified the removal of silver from the TC list as one of their projects for regulatory reform. If EPA does not do this at this rule making, then the Universal Treatment Level should be based on risk, using the available data and existing EPA assessments. In the spirit of regulatory reform, EPA should not promulgate any technology based LDR treatment levels for silver more stringent than the current D011 levels until they have reviewed their own determination that silver does not pose a potential for adverse health or environmental effects and therefore does not need to be listed on the TC list.

Removal of Silver from TC list

Silver was included as a D011 Toxicity Characteristic waste solely based on the Maximum Contaminant Level (MCL) for silver under the Safe Drinking Water Act. The agency stated that, "... if EPA determines, within the scope of the Safe Drinking Water Act rulemaking, that silver does not pose a threat to human health and the environment, the Agency will consider proposing the deletion of silver from the list of TC constituents" (55 FR 11812, March 29, 1990.) On January 30, 1991 EPA deleted the silver MCL, because they determined "... the only potential adverse effect from exposure to silver in drinking water is argyria (a discoloration of the eye and skin). EPA considers argyria a cosmetic effect since it does not impair body function." (56 FR 3573). Additionally on December 22, 1992 EPA removed silver from the Human Health Criteria in the Water Quality Criteria Recommendations (57 FR 60910). EPA also determined that silver does not bioaccumulate and is not a hazard to wildlife, so the Office of Water deleted silver from Table 6-B, "Pollutants that are Bioaccumulative Chemicals of Concern" in the Final Water Quality Guidance for the Great Lakes System. More recently, in an August 22, 1995 letter to Senator Christopher Bond, EPA indicated they are seeking information to expedite their decision whether to address the issue of deleting silver from the TC list, and to support possible future rule-making activities.

Based on these EPA conclusions, it certainly *does not* make sense to increase the treatment required before land disposal, at the same time that EPA is reviewing the need to have silver listed as a TC waste.

Risk Based Silver LDR Standard

The current D011 Silver Toxicity Characteristic (TC) waste LDR treatment level of 5 mg/l more than adequately minimizes threat to human health and the environment, so it does not make sense to lower the LDR standard to match the UTS. The proposed D011 LDR treatment standards are technology based. The application of these BDAT standards to silver goes way beyond the point at which there could ever be a threat to human health or the environment from any of the silver bearing wastes, the numerical standards being much lower than that at which the wastes are currently characterized as toxic.

Section 3004(a) of the RCRA statute directs the EPA to establish performance standards that would be applicable to owners and operators of facilities for the treatment, storage, or disposal of hazardous waste identified or listed under Subtitle C, in order to protect human health and the environment. Section 3004(m)(1) of the same statute also directs the EPA to take into consideration the reduction in toxicity of the waste, as well as a reduction in the migration potential of the waste bound for land disposal. Both of those directives speak to a level of risk, with treatment expected to be aimed at a level at which the constituent would no longer pose a significant threat to human health and the environment. In the Agency's own words, its ultimate policy preference is to establish risk-based levels that represent minimized threat levels, thus capping the extent of hazardous waste treatment (55 FR 48095). However, the Agency suggests that such an approach is "formidable and very controversial". The technical issues include "assessing exposure pathways other than migration to ground water, taking environmental risk into account, and developing adequate toxicological information for the hazardous constituents controlled by the hazardous waste program".

Rather than "formidable and very controversial", the establishment of treatment standards for silver based on risk would be simple and non controversial because the Agency already has the necessary data. There have been numerous toxicological studies performed on silver that support the conclusion that chronic exposure to low levels of silver does not pose a hazard to human health. Publications by the ATSDR - the ATSDR Draft Toxicological Profile; the EPA - the U. S. EPA Drinking Water Criteria Document for Silver, and the EPA Drinking Water Health Advisory for Silver; and the NRC - the NRC Drinking Water and Health Document substantiate this fact.

Other LDR Considerations

Research results, previously shared with EPA, have documented the substantial reductions in toxicity of silver in groundwater, surface water and sea water by complexation with natural ligands and adsorption to particulate matter and sediments. The silver complexes that are formed in natural waters have very low toxicity.

Additionally, EPA's own data have documented that silver is not mobile in soils and sediments, and thus does not pose any potential for adverse environmental or health affects. Previous submissions to EPA's Office of Solid Waste have also documented the high level of recovery that silver-rich wastes already receive due to silver's high economic value.

Listing of silver also discourages the conservation of wash water in photo processing operations, because reducing the washwater volume raises the concentration (but not the amount) of silver discharged. This increase in concentration increases the likelihood that silver will cause it to be a hazardous waste and that silver will not meet the LDR restrictions. It is difficult to justify the necessary capital expenditures for water conservation, if it increases the discharge concentration of silver and causes it to become a hazardous waste.

Recommendations

For all these reasons the appropriate agency action would be to delete silver from the TC list. If this is not done, the Silver Coalition strongly recommends that EPA not promulgate any technology based LDR treatment level for silver more stringent than the current D011 level, until they have reviewed their own determination that silver does not cause adverse health or environmental effects and therefore does not need to be listed.

RESPONSE:

EPA has reviewed the studies that the commenter has submitted on the toxicity of silver. EPA is in the process of determining whether silver should remain on the TC list at 40 CFR 261.24 (b) Table 1, or whether the current TC level should be altered. In addition, EPA continues its work on the Hazardous Waste Identification Rule (HWIR) to establish risk-based exit levels for hazardous wastes. The Agency is not yet able to establish a nationally-applicable risk-based level for silver that fulfills the statutory charge of minimizing threats of hazardous waste to human health and the environment.

The process of establishing such a level is technically complex; EPA is currently modeling the ecological and human health effects of exposure to silver through numerous pathways. Several issues remain unresolved concerning human health and environmental risk. The Agency recently acquired studies indicating that silver may be connected to central nervous system and other non-cancer effects in humans. (Rungby, J. and G. Danscher, 1984, Hypoactivity in silver exposed rats, Acta. Pharmacol. Toxicol. 55: 398-401, as cited in ATSDR, 1990; Shavlovski et al, 1995, Embryotoxicity of silver ions is diminished by ceruloplasm--further evidence for its role in the transport of copper, Biometals; Ohbo, Y., H. Fukuzako, K. Takeuchi, and M. Takigawa, 1996, Argyria and convulsive seizures caused by ingestion of silver in a patient with schizophrenia, Psychiatry and Clinical Neurosciences. 50:89-90; and Wetshofen, M., and H. Schafer, 1986, Generalized argyrosis in man: neurotological, ultrastructural, and X-ray microanalytical findings,. Arch. Otorhinolaryngol., 243:260-264.) The draft Reference Dose for these effects have not been finalized by the Agency for use in risk assessments. (A Reference Dose is a benchmark level for chronic toxicity that is protective of human health.) In addition to potential adverse human health effects, uncertainties and concerns also remain for potential adverse environmental effects. Although EPA removed the Maximum Contaminant Level (MCL) for silver in drinking water, the Ambient Water Quality Criteria remain in effect due to potential aquatic toxicity. Further areas of uncertainty are how silver speciates after release (i.e. which valence state of silver would be present). The issue could be important since potential toxic effects differ depending on the species of silver present. In short, EPA's work on understanding risks from disposal of silver-containing hazardous wastes is ongoing, and it would be premature to establish a treatment standard based on risk at this time.

In the absence of such "minimize threat" levels for hazardous constituents, the Agency establishes standards based on Best Demonstrated Available Technology (BDAT). (See full explanation in the preamble of the Phase II Final LDR rule at 59 FR 47986, September 19, 1994.) The fact that the UTS for nonwastewater forms of silver is being lowered (made more stringent) from the existing level of 0.30mg/L to 0.14 mg/L is due to new data on what treatment technology achieves. As explained in the summary of this preamble section (Section III: Revised Land Disposal Restrictions for Metal Constituents in All Hazardous Wastes, Including Toxic Characteristic Metals), technology-based standards are the best assurance that threat is minimized, given the uncertainty as to the level at which threats of hazardous waste disposal are minimized.

EPA expects that the new treatment standard for silver wastes will have little, if any impact on the regulated community. As stated by commenters, high-silver wastes are generally recycled due to their economic value and are covered by the special streamlined standards for recyclable materials utilized for precious metal recovery at 40 CFR Part 266.70 Subpart F. Moreover, the Regulatory Impact Analysis for this rule estimated that the new, more stringent UTS levels for metal constituents, including silver, will not increase compliance costs. This is because the current treatment methods already achieve the new standard of 0.11 in silver *nonwastewaters*. (Achievability of the UTS for TC silver *wastewaters* is not an issue; EPA received no comments nor data on its proposal to apply the existing UTS of 0.43 mg/L.)

Thus, the Agency is promulgating the *wastewater* standard of 0.43 mg/L as proposed and the *nonwastewater* standard of 0.14 mg/L. If EPA changes the status of silver on the TC list, EPA will revisit the treatment standards for silver wastes.

DCN: PH4P017
COMMENTER: Kodak
RESPONDER: SS
SUBJECT: SLVR.SS
SUBJN 017
COMMENT

> Eastman Kodak Company ("Kodak") is the primary U.S. manufacturer of photographic films, papers, chemicals, and other imaging products. Many of our products use silver halide technology. Along with reuse and recycling, treatment and disposal are part of our waste management strategy. Because the proposed Phase IV Land Disposal Restriction LDR regulations and their regulatory approaches may impact the treatment and disposal of our manufacturing waste and waste generated by our customers, we would like to make several recommendations which we feel will fulfill EPA's environmental objectives without creating unnecessary regulatory burdens.
>
> Kodak's key recommendation is that EPA should delay any action to make the D011 technology based LDR treatment standard for silver more stringent, until the Office of Solid waste has completed its current review of silver's inclusion on the Toxicity Characteristic (TC) list. The current D011 silver TC waste LDR treatment standard of 5 mg/l adequately minimizes threats to human health and the environment. There is no scientific justification

for lowering the LDR standard to 0.30 mg/l silver (nonwastewaters) and 0.43 mg/l silver (wastewaters). It is more appropriate to use this as an opportunity to complete this silver TC review and remove silver from the TC list.

SILVER

The LDR Treatment Standard for Silver Should Not Be Lowered Because Silver's Low Toxicity Warrants it's Removal from the TC List.

Kodak believes that toxicological and environmental fate evidence is adequate for the removal of silver from the TC list. EPA's Office of Solid Waste has identified the removal of silver from the TC list as one of their projects for regulatory reform. In the spirit of regulatory reform, EPA should not promulgate any technology based LDR treatment standards for silver more stringent than the current D011 levels until EPA has acted on its own determination that silver does not pose a potential for adverse health or environmental effects and therefore does not need to be a TC waste.

Silver was included as a D011 Toxicity Characteristic waste solely based on the Maximum Contaminant Level (MCL) for silver under the Safe Drinking Water Act. The agency stated that, "... if EPA determines, within the scope of the Safe Drinking Water Act rulemaking, that silver does not pose a threat to human health and the environment, the Agency will consider proposing the deletion of silver from the list of TC constituents" (55 FR 11812, March 29, 1990.) On January 30, 1991 EPA deleted the silver MCL, because EPA determined "... the only potential adverse effect from exposure to silver in drinking water is argyria (a discoloration of the eye and skin). EPA considers argyria a cosmetic effect since it does not impair body function." (56 FR 3573, January 30, 1991). Additionally on December 22, 1992 EPA removed silver from the Human Health Criteria in the Water Quality Criteria Recommendations (57 FR 60910, December 12, 1992). EPA also determined that silver does not bioaccumulate and is not a hazard to wildlife, so the Office of Water deleted silver from Table 6-B of "Pollutants that are Bioaccumulative Chemicals of Concern" in the Final Water Quality Guidance for the Great Lakes System (60 FR 15393, March 23, 1995). More recently, in an August 22, 1995 letter from EPA to Senator Christopher Bond, Michael Shapiro indicated EPA is seeking information to expedite EPA's decision whether to delete silver from the TC list, and to support possible future rule-making activities.

Based on these EPA conclusions, it is contradictory to increase the treatment required before land disposal, at the same time that EPA is considering whether silver should continue to be a TC waste criteria. It is more appropriate to use this as an opportunity to complete this review and remove silver from the TC waste criteria.

The D011 Silver LDR Standard Already Minimizes Risk, So There is No Need to Reduce it Further.

LDR standards are designed to minimize threat. The current D011 silver Toxicity Characteristic (TC) waste LDR treatment standard of 5 mg/l adequately minimizes threat to human health and the environment, so there is no justification to lower the LDR standard to match the Universal Treatment Standards (UTS). The proposed D011 LDR BDAT technology based treatment standards exceed the point at which there could be a threat to human health or the environment from any of the silver-bearing wastes.

Section 3004(a) of the RCRA statute directs the EPA to establish performance standards that would be applicable to owners and operators of facilities for the treatment, storage, or disposal of hazardous waste identified or listed under Subtitle C, in order to protect human health and the environment. Section 3004(m)(1) of the statute also directs the EPA to take into consideration the reduction in toxicity of the waste, as well as a reduction in the migration potential of the waste bound for land disposal. Both of those directives are aimed at a level of risk, with treatment expected to achieve a level at which the constituent would no longer pose a significant threat to human health and the environment. The Agency has stated that its ultimate policy preference is to establish risk-based levels that represent minimized threat levels, thus capping the extent of hazardous waste treatment (55 FR 48095). However, the Agency suggests that such an approach is "formidable and very controversial". The technical issues include "assessing exposure pathways other than migration to ground water, taking environmental risk into account, and developing adequate toxicological information for the hazardous constituents controlled by the hazardous waste program".

Rather than being "formidable and very controversial," the establishment of treatment standards for silver based on risk should be simple and non controversial because the Agency already has the necessary data. There have been numerous toxicological studies performed on silver that support the conclusion that chronic exposure to low levels of silver does not pose a hazard to human health. Publications by the Agency for Toxic Substances and Disease Registry (ATSDR) - the ATSDR Draft Toxicological Profile; the EPA - the U. S. EPA Drinking Water Criteria Document for Silver, and the EPA Drinking Water Health Advisory for Silver; and the National Research Council (NRC) - the NRC Drinking Water and Health Document all substantiate this fact.

Research results, previously shared with EPA, have documented the substantial reductions in toxicity of silver in groundwater, surface water and sea water by complexation with natural ligands and adsorption to particulate matter and sediments. The silver complexes that are formed in natural waters have very low toxicity. Additionally, EPA's own data have documented that silver is not mobile in soils and sediments, and thus does not pose any potential for adverse environmental or health affects.

Toxicity data already exists that verifies that the current LDR treatment standard minimizes threat to human health and the environment.

Listing of Silver as a TC Characteristic Waste is Counterproductive.

Previous submissions to EPA's Office of Solid Waste have also documented the high level of recovery that silver-rich wastes already receive due to silver's high economic value. Inclusion of silver on the TC list also discourages the conservation of wash water in photo processing operations, because reducing the washwater volume raises the concentration (but not the amount) of silver discharged. This increase in concentration increases the likelihood that silver will cause the waste to be regulated as a hazardous waste and that the silver concentration will exceed the LDR standard. It can be difficult to justify the necessary capital expenditures for water conservation, if this increase in the discharge concentration of silver causes it to become a hazardous waste, with the resulting expenses.

Recommendations
For all these reasons the appropriate agency action is to delete silver as TC waste criteria. If this is not done, Kodak strongly recommends that EPA not promulgate any technology based LDR treatment level for silver more stringent than the current D011 level, until acting on their own determination that silver does not cause adverse health or environmental effects and therefore does not need to be a TC waste criteria.

RESPONSE:

The commenter stated that the proposed treatment standard of 0.14 mg/L for silver exceeds the point at which there could be a threat to human health or the environment. The commenter recommends that EPA remove silver from the TC list or at least avoid setting a lower treatment standard than the current TC level.

The Agency points out that the characteristic, or TC levels, are the levels at which constituents are clearly hazardous, not the levels at which threats from the constituents are minimized. See 55 FR at 22652 (June 1, 1990); 51 FR at 21648 (June 13, 1986); 55 FR 11798 (March 29, 1990). EPA finds, for purposes of this rule, that none of the treatment standards are established below levels at which threats to human health and the environment are minimized. This finding stems from the Agency's inability at the present time to establish concentration levels for hazardous constituents which represent levels at which threats to human health and the environment are minimized. Unless the Agency determines national-level, risk-based concentration levels that achieve the "minimized threat" requirement for a particular wastestream, the Agency believes that BDAT treatment (as reflected by the UTS levels) best fulfills the statutory charge. Reliance upon BDAT treatment removes, as much as possible, the inherent uncertainty associated with use of predictive models in ascertaining the effects of land disposal. 55 FR at 6642 (February 26, 1990).

The Agency does not have an adequate basis for removing silver from the TC list, or regulating it at a less stringent level than the proposed treatment standard. EPA is in the process of determining whether silver should remain on the TC list at 40 CFR 261.24 (b) Table 1, or whether the current TC level should be altered. In addition, EPA continues its work on the Hazardous Waste Identification Rule (HWIR) to establish risk-based exit levels for hazardous wastes. The Agency is not yet able to establish a nationally-applicable risk-based level for silver that fulfills the statutory charge of minimizing threats of hazardous waste to human health and the environment.

The process of establishing such a level is technically complex; EPA is currently modeling the ecological and human health effects of exposure to silver through numerous pathways. Several issues remain unresolved concerning human health and environmental risk. The Agency recently acquired studies indicating that silver may be connected to central nervous system and other non-cancer effects in humans. (Rungby, J. and G. Danscher, 1984, Hypoactivity in silver exposed rats, Acta. Pharmacol. Toxicol. 55: 398-401, as cited in ATSDR, 1990; Shavlovski et al, 1995, Embryotoxicity of silver ions is diminished by ceruloplasm--further evidence for its role in the transport of copper, Biometals; Ohbo, Y., H. Fukuzako, K. Takeuchi, and M. Takigawa, 1996, Argyria and convulsive siezures caused by ingestion of silver in a patient with schizophrenia, Psychiatry and Clinical Neurosciences. 50:89-90; and Wetshofen, M., and H. Schafer, 1986, Generalized argyrosis in man: neurotological, ultrastructural, and X-ray microanalytical findings,. Arch. Otorhinolaryngol., 243:260-264.) The draft Reference Dose for these effects have not been finalized by the Agency for use in risk assessments. (A Reference Dose is a benchmark level for chronic toxicity that is protective of human health.) In addition to potential adverse human health effects, uncertainties and concerns also remain for potential adverse environmental effects. Although EPA removed the Maximum Contaminant Level (MCL) for silver in drinking water, the Ambient Water Quality Criteria remain in effect due to potential aquatic toxicity. Further areas of uncertainty are how silver speciates after release (i.e. which valence state of silver would be present). The issue could be important since potential toxic effects differ depending on the species of silver present. In short, EPA's work on understanding risks from disposal of silver-containing hazardous wastes is ongoing, and it would be premature to establish a treatment standard based on risk at this time.

In the absence of such "minimize threat" levels for hazardous constituents, the Agency establishes standards based on Best Demonstrated Available Technology (BDAT). (See full explanation in the preamble of the Phase II Final LDR rule at 59 FR 47986, September 19, 1994.) The fact that the UTS for nonwastewater forms of silver is being lowered (made more stringent) from the existing level of 0.30mg/L to 0.14 mg/L is due to new data on what treatment technology achieves. As explained in the summary of this preamble section (Section III: Revised Land Disposal Restrictions for Metal Constituents in All Hazardous Wastes, Including Toxic Characteristic Metals), technology-based standards are the best assurance that threat is minimized, given the uncertainty as to the level at which threats of hazardous waste disposal are minimized.

EPA expects that the new treatment standard for silver wastes will have little, if any impact on the regulated community. As stated by commenters, high-silver wastes are generally recycled due to their economic value and are covered by the special streamlined standards for recyclable materials utilized for precious metal recovery at 40 CFR Part 266.70 Subpart F. Moreover, the Regulatory Impact Analysis for this rule estimated that the new, more stringent UTS levels for metal constituents, including silver, will not increase compliance costs. This is because the current treatment methods already achieve the new standard of 0.11 in silver *nonwastewaters*. (Achievability of the UTS for TC silver *wastewaters* is not an issue; EPA received no comments nor data on its proposal to apply the existing UTS of 0.43 mg/L.)

DCN PH4P017
COMMENTER Kodak
RESPONDER PV
SUBJECT TC
SUBJNUM 019
COMMENT

EPA's proposal to change the treatment standard levels for TC metal wastes to UTS levels for metal constituents is beyond EPA's RCRA jurisdiction.

As discussed above, EPA's jurisdictional authority under Subtitle C is limited to the regulation of"hazardous wastes," as defined by Section 1004(5) of the Act. 42 U.S.C. § 6903(5). Treatment of characteristic wastes, which are generally below TCLP levels, removes those wastes from the Subtitle C system because the wastes are no longer hazardous. Therefore, imposing additional requirements pertaining to UTS levels is wholly unnecessary, unjustifiable and unauthorized. Even so, in light of EPA's interpretation of the Third Third Opinion, and assuming EPA has authority under RCRA Subtitle C to set LDR treatment standards below TCLP levels, EPA must provide a sound scientific or technical basis for doing so. 1

1 That is, EPA must adequately demonstrate that the TCLP levels for TC metal wastes do not minimize short- and long-term threats, if any, to human health and the environment. In this Proposed Rule, however, EPA has failed to offer any such evidence to justify the arbitrary replacement of TCLP levels with UTS for land disposal of TC metal wastes (wastewater and non-wastewater).

RESPONSE

The Agency disagrees with the commenter’s statement that the proposal to change the treatment standards for TC metal wastes to UTS levels for metal constituents is beyond EPA's RCRA jurisdiction. The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. These results must be achieved taking into account the inherent uncertainties in assessing the long-term threats posed by land disposal. RCRA section 3004 (d) (1) and (g). EPA has stated that EP/TC levels are clearly hazardous, and therefore does not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT. This provides an objective measure that, in this case, posed by toxic metal mobility, are being minimized.

EPA believes, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m).

As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

DCN PH4P019
COMMENTER ASARCO
RESPONDER PV
SUBJECT TC
SUBJNUM 019
COMMENT

ASARCO Incorporated ("Asarco") appreciates the opportunity to comment on the above referenced proposed rule published by the United States Environmental Protection Agency ("EPA" or the "Agency") regarding "Land Disposal Restrictions-Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes," Docket No. F-95-PH4P-FFFFF, 60 Fed. Reg. 43654 (August 22, 1995) ("Proposed Rule"). Any proposed land disposal restrictions ("LDRs") that may be applicable to the primary mineral processing industry are of great interest to Asarco.

Asarco is one of the world's leading producers of primary nonferrous metals, principally copper, lead, zinc, and silver, and operates a number of mines, mills, smelters and refineries. Asarco's mines and mills extract and beneficiate ores containing a number of valuable nonferrous metals, which are generally further processed at its smelters and refineries. Materials produced in one processing unit (such as a primary smelting furnace, converting vessel, or refining kettle) are frequently processed in another unit for further recovery of one or more metals. These include such metal-bearing intermediate materials as matte, blister, or lead bullion and other in-process materials such as speiss and drosses. These materials are further processed to final products, including refined copper, refined lead, silver, and associated co-products such as antimonial lead, gold, selenium, tellurium, bismuth, cadmium, nickel sulfate, and antimony oxide.

Asarco has actively participated in EPA's prior rulemakings relating to the potential

application to Asarco's operations of the federal Resource Conservation and Recovery Act of 1976, as amended, §§ 6901 et seq. ("RCRA") and its implementing regulations. In particular, Asarco is concerned with issues associated with the application of the definitions of solid and hazardous waste to the non-ferrous metals industry, since those definitions identify the universe of mineral processing wastes to which RCRA Subtitle C and LDR rules could potentially apply.
Although EPA expects to propose LDR standards for mineral processing wastes in a supplemental rule in December 1995, Asarco's present interest arises from the precedential impact of this Proposed Rule and others before it. Asarco has conveyed its concerns to EPA through comments on prior LDR rulemakings, including the recent Phase III proposed rule, 60 Fed. Reg. 11702 (March 2, 1995), and the proposed rule concerning newly identified and listed hazardous wastes and contaminated soils, 58 Fed. Reg. 48092 (September 14, 1993). One of
Asarco's concerns has been that the Agency will mechanically apply regulations developed in other contexts to mineral processing wastes. Thus, Asarco has emphatically stressed the need to consider the unique nature of mining and mineral processing wastes in developing LDR regulations that may apply to the primary mineral processing industry. Without being able to evaluate the mineral processing waste-related provisions of the Phase IV LDR, Asarco does not have all the requisite information to consider fully the potential consequences for Asarco related to this Proposed Rule. Asarco, therefore, reserves the right to submit with its comments on the upcoming mineral processing waste supplemental rule, any additional comments concerning the mineral processing waste-related implications of the Phase III and August 22, 1995 Phase IV proposals.

RESPONSE

The Agency thanks the commenter for providing comments on the current proposed rule and the previous LDR rulemakings. The Agency notes that regulations developed for other hazardous wastes will never be applied to mineral processing wastes without considering the unique nature of mineral processing wastes. The Agency has conducted extensive research and characterized the wastes generated by the mineral processing industry. For additional information, the Agency refers the commenter to the EPA document "Identification and Description of Mineral Processing Wastestreams," in the RCRA Docket for this rulemaking.

DCN PH4P025
COMMENTER Magma Copper Co.
RESPONDER PV
SUBJECT TC
SUBJNUM 025
COMMENT

On behalf of Magma Copper Company ("Magma"), Gibson, Dunn & Crutcher submits the following comments on the proposed rulemaking by the

United States Environmental Protection Agency ("EPA" or the "Agency") regarding "Land Disposal Restrictions - Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes," Docket No. F-95-PH4P-FFFFF, 60 Fed. Reg. 43654 (August 22, 1995) ("Proposed Rule"). Magma also supports the comments of the National Mining Association ("NMA Comments") regarding this Proposed Rule. The NMA Comments supplement the comments set forth below, in which Magma expresses concerns more specific to its operations.

Magma's copper operations include mining, concentrating, smelting, refining, leaching, solvent extraction/electrowinning and rod casting. The fully integrated nature of these activities provides Magma with a number of options for recovery of copper from indigenous and non-indigenous materials. As a result, EPA's proposal to control the management of decharacterized wastes, i.e., characteristic hazardous wastes that have been deactivated through dilution, under the federal Resource Conservation and Recovery Act of 1976, as amended, §§ 6901 et. seq. ("RCRA") and its implementing regulations could present some concern to Magma. Also, EPA's proposal to utilize Universal Treatment Standards ("UTS") in place of Toxicity Characteristic Leaching Procedure ("TCLP") standards for land disposal of toxicity characteristic ("TC") metal wastes is unnecessarily stringent.

EPA has stated in this Proposed Rule that it intends to address mineral processing waste-related Land Disposal Restriction ("LDR") provisions in a supplemental rule to be proposed by December 15, 1995. Because EPA's LDR proposals concerning mineral processing wastes are not yet available for public review, Magma cannot submit comments addressing all possible implications of the Proposed Rule at this time. Thus, Magma reserves the right to submit further comments on this Proposed Rule, with its comments on the forthcoming mineral processing waste supplemental rule.

In addition, Magma emphasizes that this Proposed Rule must not address regulation of Bevill-excluded "surface impoundments," such as tailings impoundments, since EPA dos not have RCRA Subtitle C authority to regulate such surface impoundments. This issue has long since been adequately addressed and resolved in prior RCRA rulemakings. Thus, in this rulemaking, EPA must clearly distinguish Bevill-excluded impoundments from the units that it seeks to regulate (e.g., Clean Water Act ("CWA") - regulated wastewater units or RCRA Subtitle D impoundments), assuming the Agency has any legal authority to regulate such units at all under Subtitle C of RCRA.

EPA lacks RCRA authority to promulgate UTS levels as the LDR treatment standard levels for TC metal wastes.

RCRA Subtitle C restricts EPA's authority to the regulation of "hazardous wastes," as defined by section 1004(5). 42 U.S.C. S 6903(5). Characteristic wastes that have been treated to UTS levels, which are below TCLP levels, are not subject to Subtitle C control because those wastes are no longer considered hazardous. However, assuming EPA has accurately interpreted the CWM Decision in this Proposed Rule, EPA's authority to promulgate LDR treatment standards below the TCLP levels is qualified by the requirement that it justify such levels. In setting treatment standards for land disposal of TC metal wastes, EPA must provide a technical basis or rationale to substantiate its "determination" that TCLP levels are insufficient to minimize any short- or long-term threat to human health and the environment. EPA has presented no such evidence in this Proposed Rule.

The fact that the TCLP levels constitute the regulatory threshold at which the waste is deemed"nonhazardous" demonstrates that EPA is attempting to regulate wastes beyond its jurisdiction. EPA has previously reviewed and promulgated the TCLP levels in order to satisfy its mandate to designate as "hazardous" any wastes that pose a significant risk to human health and the environment. See 40 C.F.R. S 261.20, et seg. (and supporting preambles to such rules). Thus, EPA has already made the intrinsic determination that the existing TCLP levels adequately protect human health and the environment. See generally 55 Fed. Reg. 11798 (March 29, 1990).Moreover, the D.C. Circuit implied in the CWM Decision that EPA may only impose LDR treatment standards at levels sufficient "to reduce risks beyond those presented by the characteristics themselves." 976 F.2d at 15. EPA has failed to demonstrate that treatment below TCLP levels is necessary to satisfy this standard of risk reduction and has clearly failed to justify establishing even lower UTS levels. The indiscriminate replacement of TCLP levels with UTS for LDR treatment standards disregards the recognized intent behind the characteristic approach, results in the over-management of wastes that do not pose a threat to human health and the environment, and has not been otherwise justified by EPA.

Magma respectfully requests that EPA will carefully consider the foregoing comments in its review of this proposed rule, as this rule promises to be of significant precedential value for later rulemakings.

RESPONSE

The Agency disagrees with the commenter's notion that EPA lacks RCRA authority to promulgate UTS levels as the LDR treatment standards for TC metal wastes. The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment, and in doing so must account for the inherent uncertainty in using predictive methodologies to assess long-term threats posed by land disposal. EPA, in the Third Third rule (55 FR 22520) has stated that EP/TC levels are clearly hazardous, and therefore does not represent a level at which threats are minimized. The D.C. Circuit also remanded standards for lead and chromium when it was clear that further technology-based reductions were achievable. 976 F.2d at 27, 32. Likewise, in HWTC III, the court found that characteristic levels would not necessarily minimize threats. 886 F 2d 362-365. Thus, in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize the threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

DCN	PH4P026
COMMENTER	The TDJ Group
RESPONDER	PV
SUBJECT	TC
SUBJNUM	026

COMMENT

5) The proposed rulemaking appears to violate RCRA Section 3004 (M), since the proposed standards are not based on technologies that are commercially available. Our analysis of the markets for D006, D007 and D008 waste management from the iron and steel industry and the steel

maintenance industry suggest that 500,000 to 1,000,000tons of solid waste will be covered by these regulations. It appears clear that most of these wastes will not be amenable to HTMR, and it would appear that there is not adequate capacity to provide this form of recovery. This appears to imply that these wastes will require stabilization be fore disposal. It is not clear that existing stabilization technologies will have the ability to meet these standards. The Agency has not used wastes representative of these industries to establish these standards. The Agency has assumed that there is sufficient capacity to receive these wastes for HTMR, but industry data suggests that these wastes are not amenable to these processes. If HTMR capacity is not present and if the Agency has not adequately researched the efficacy of stabilization technologies, then the Agency is establishing a "technology forcing standard" that is a violation of RCRA3004 (M).

We would request that the Agency rescind the proposed rule and gather additional data. We are particularly concerned that these standards, as proposed, will raise future debate on the apparent break between the characteristic limits now in force for TC wastes and the proposed UTS criteria. We fully expect that the Agency will return to this issue in the future and question management practices of wastes that pass the TC standard but fail the UTS, possibly leading to a reduction of the TC standards now in force. Before that is allowed to occur, we strongly urge the Agency to perform a more in-depth review of both complex metals stabilization and HTMR capacity.

RESPONSE

The Agency disagrees with the commenter that the Phase IV rule violates RCRA section 3004(m). The Agency agrees with the commenter that HTMR may not be the best technology for all TC metal wastes. For the same reason, the Agency is establishing a concentration-based standard rather than requiring a specific technology. The generators can select any appropriate treatment technology that will treat the waste to the UTS. EPA recognizes that all waste streams are not the same and that the characteristics of the same waste stream can vary over time. The determination of treatment standards based on the BDAT methodology accounts for such variability by applying (1) accuracy correction factor - to account for any analytical interferences associated with the chemical make-up of the samples; and (2) variability factor - to correct for normal variations in the performance of a particular technology over time.

Furthermore, in establishing the UTS, the Agency reviewed treatment performance data from commercially demonstrated and available stabilization and HTMR technologies. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) that the Agency believes represents the most difficult to treat metal-bearing wastes. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs, and significant concentrations of combination metals including: lead and cadmium, barium and lead, and chromium and antimony.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus allowing for maximum process variability and detection limit difficulties. Thus, the Agency has demonstrated that commercially available stabilization and HTMR technologies can readily achieve the UTS promulgated in today's rule for TC metal wastes. The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.

DCN PH4P027
COMMENTER Rollins Environmental Services, Inc.
RESPONDER PV
SUBJECT TC
SUBJNUM 027
COMMENT

Rollins Environmental Services, Inc. Comments on Land Disposal Restrictions-Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes; 60 Federal Register, pages 43654-43699, 8/22/95; Docket F-95-PH4P-FFFFF This letter constitutes the comments of Rollins Environmental Services, Inc. on the above referenced notice.

Statement of Interest

Rollins Environmental Services, Inc. (RES) and its wholly-owned subsidiary companies is a full service company engaged in the treatment and destruction of hazardous and toxic wastes. Our interests are directly affected by the outcome of this regulatory proposal. In the referenced 8/22/95 proposal the EPA proposed to address issues associated with Clean Water Act treatment equivalency, and proposed treatment standards for wood preserving wastes and toxicity characteristic metal wastes. RES is commenting on limited parts of this proposal. Specifically RES is commenting on the proposed treatment standards for wood preserving wastes and toxicity characteristic (TC) metal wastes, and on proposed improvements to the land disposal restrictions (LDR) program. Following are our comments.

RESPONSE

The Agency thanks the commenter for providing comments on TC metal wastes.

The Agency notes that metal-specific issues raised by the commenter are addressed in the corresponding metal-specific chapters of this comment response document.

DCN PH4P036
COMMENTER American Iron & Steel Industry
RESPONDER PV
SUBJECT TC
SUBJNUM 036
COMMENT

The most fundamental jurisdictional principle underlying Subtitle C of RCRA is that EPA's authority under that portion of the statute is limited to the regulation of "hazardous wastes." See, e.g., American Mining Congress v. EPA, 824 F.2d 1177, 1179 (D.C. Cir. 1987) ("EPA's authority [under Subtitle C] extends only to the regulation of hazardous waste.'"). Of course, one important exception to this principle has been recognized by the courts. See American Iron and Steel Institute v. EPA, 886 F.2d 390 (D.C. Cir. 1989) (noting that the corrective action provision of RCRA "sweeps far more broadly than the rest of Subtitle C, with its focus on hazardous waste."), cert. denied, 110 S. Ct. 3237 (1990). However, given the central role that the principle plays in the Subtitle C regulatory scheme, it should not be overridden without explicit authority.

In the present case, there is nothing in the statute that mentions, much less authorizes EPA to regulate leaks, volatilization, or sludges from non-hazardous waste surface impoundments managing formerly characteristic wastes. Moreover, as EPA acknowledges in the preamble to the Phase IV proposal, the decision of the U.S. Court of Appeals for the District of Columbia Circuit("D.C. Circuit") in Chemical Waste Management, Inc. v. EPA, 976 F.2d 2 (D.C. Cir. 1992) ("Chem Waste II") does not explicitly mention or authorize controls for such leaks, volatilization, or sludges. See 60 Fed. Reg. at 43,656. In the absence of any clear authority to regulate releases from non-hazardous waste impoundments, the general jurisdictional limits of Subtitle C must be respected. See Louisiana Public Service Commission v. F.C.C., 476 U.S. 355, 374 (1986)(holding that "an agency literally has no power to act ... unless and until Congress confers power upon it."); Walter v. Luther, 830 F.2d 1208, 1211 (2nd Cir. 1987) (holding that statutes granting power to administrative agencies are strictly construed to confer only those powers that are expressly granted or necessarily implied). Accordingly, EPA should refrain from imposing RCRA Subtitle C controls on non-hazardous waste surface impoundments managing formerly characteristic wastes.

RESPONSE

The Agency notes that this issues is not addressed in this rulemaking. The Agency is currently conducting a 5-year study to assess the effects of decharacterized wastes placed in surface impoundments, and the issue of RCRA Subtitle C controls to such surface impoundments will be addressed at the completion of this study.

DCN PH4P036
COMMENTER American Iron & Steel Industry
RESPONDER PV
SUBJECT TC
SUBJNUM 036
COMMENT

Even if EPA had the authority to impose regulatory controls on leaks, volatilization, and sludges from non-hazardous waste impoundments managing formerly characteristic wastes, there can be no doubt that the Agency is not required to establish such controls. As noted above, neither the statute nor the Chem Waste II decision explicitly mentions leaks, volatilization, or sludges from CWA surface impoundments. Although the Court decision in some places suggests vaguely that wastes must be treated to minimize risks "before exiting ... CWA treatment facilities," 976 F.2d at 22, the Court clearly was focused on the ultimate end-of-pipe discharge of wastewaters from the treatment facilities. For example, in summarizing its holding, the Court stated that "treatment of solid wastes in a CWA surface impoundment must meet RCRA requirements prior to ultimate discharge into waters of the United States or publicly owned treatment works." 976 F.2d at 20. Similarly, the Court stated that "[t]he dilution of wastes in Clean Water Act facilities is acceptable so long as the toxicity of the waste discharged from the facility is minimized or eliminated consistent with RCRA." Id. at 7.

In short, the Court required only that the ultimate end-of-pipe discharge from a non-hazardous waste surface impoundment receiving formerly characteristic wastes meet the"minimize threat" standard of the RCRA LDR program. EPA itself has acknowledged that "the court's opinion does not explicitly require more." 60 Fed. Reg. 43,659. In light of the limited scope of the Court decision, the Agency should not make more work for itself by developing and implementing new regulations to address leaks, volatilization, and sludges. Doing so would be particularly inappropriate, in this age of limited resources, because the Agency itself has characterized such regulations as "a relatively low priority" that primarily would address "facilities [that] are believed to pose low risks." See Letter from Robert W. Hickmott, Associate Administrator, EPA, to Congressman Ron Wyden (November 3, 1995). Accordingly, EPA should not adopt any leak, volatilization, or sludge controls as part of the Phase IV rule.

RESPONSE

The Agency notes that this issues is not addressed in this rulemaking. The Agency is currently conducting a 5-year study to assess the effects of decharacterized wastes placed in surface impoundments, and the issue of RCRA Subtitle C controls to such surface impoundments will be addressed at the completion of this study.

DCN PH4P038
COMMENTER Association of Battery Recyclers
RESPONDER PV
SUBJECT TC
SUBJNUM 038
COMMENT

A. The Proposed UTSs Are Not Necessary to Ensure the Protection of Human Health and the Environment

Under section 3004(m) of RCRA, EPA is required to:

[S]pecif[y] those levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized.

42 U.S.C. §6924 (m)(1).

In determining in the Third Third Rule that the 5.0 mg/1 treatment standard is the appropriate treatment standard for D008 wastes, EPA obviously concluded that treatment to this concentration level would meet the requirements of §3004 (m) of RCRA.2 There is no suggestion in the proposed Phase IV LDR Rule that EPA has reconsidered this conclusion, or that human health and the environment are compromised by the existing LDR treatment standards. Similarly, no substantiation of a perceived or identified threat is described in the available

background documents for this rulemaking action.3
Current treatment and disposal practices are, in fact, adequately protective of human health and the environment. The use of HTMR to treat wastes containing recoverable amounts of lead assures that no materials with high lead levels are released to the environment. The further treatment of any characteristic slag material by stabilization, and the subsequent disposal of treated material in accordance with regulatory requirements, ensures that materials containing low concentrations of lead pose no threat to human health or the environment. Under the existing system, the standard of protection prescribed by §3004(m) is satisfactorily achieved.4

RESPONSE

[The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore do not represent minimize threat levels. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions using the BDAT.

With respect to the determinations made in the Third Third Rule, the Agency notes that EPA was unable to develop further information at the time, but clearly stated that the characteristic level was not the level at which threats are minimized. 55 FR aat 22655. The D.C. Circuit in fact remanded treatment standards for certain lead wastes, established at the characteristic level, in light of this. 976 F. 2d at 27. EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

The Agency also would like to note that if a particular waste possesses unique properties making it more difficult to treat than the waste on which the standards are based, the affected party may petition the Agency for a treatability variance as per 40 CFR 268.44 on a case-by-case basis.]

DCN PH4P045

COMMENTER Battery Council International
RESPONDER PV
SUBJECT TC
SUBJNUM 045
COMMENT

BCI urges that there is no lawful basis to lower the treatment standards for lead and selenium, and that this issue should not be addressed in the current rulemaking. Treatment standards set below the characteristic levels for lead and selenium in D008 nonwastewaters are (I) unachievable using EPA's demonstrated technology; (ii) not necessary to protect human health and the environment;(iii) inconsistent with previous Agency pronouncements on the application of the LDRs to treatment residues; (iv) contrary to the Administration's goal of "reinventing environmental regulation" and eliminating impediments to recycling; and, consequently, (v) unlawful.

RESPONSE

It is noted that, the Agency proposed revised treatment standards for lead and selenium, along with other TC metals, in the Phase IV second supplemental proposal (62 FR 26045, May 12, 1997). The Agency collected additional data form commercial stabilization and HTMR facilities (based on grab samples) and re-calculated the BDAT standards for lead and selenium at 0.75 mg/l and 5.7 mg/l respectively. These standards are less stringent than the standards proposed in the original Phase IV rule (60 FR 43654, August 22, 1995). The Agency believes that the new data show that the proposed standards are achievable through commercially available stabilization and HTMR technologies.

The Agency also notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore, do not represent minimal threat. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions, using BDAT.

DCN PH4P070
COMMENTER Doe Run Resources Corp.

RESPONDER PV
SUBJECT TC
SUBJNUM 070
COMMENT

Once characteristic wastes are treated to UTS levels, which generally fall below TCLP levels, those wastes are no longer "hazardous" and are beyond the scope of EPA's Subtitle C jurisdiction. However, assuming that EPA has correctly interpreted Chemical Waste Management v. EPA, 976 F. 2d 2 (D.C. Cir. 1992), cert. denied 113 S. Ct. 1961 (1993) ("CWM Decision"), EPA's authority to promulgate LDR treatment standards at levels below TCLP levels must be justified on a technical basis. That is, EPA must present scientific or technical evidence to demonstrate that any short- and long-term threats to human health and the environment are not minimized by the utilization of TCP levels. See 42 U.S.C. § 6924(m).EPA has offered no such rationale or justification in this Proposed Rule, and the promulgation of these standards would be inconsistent with risk management principles being utilized by other branches of the Agency.

RESPONSE

The Agency notes that, as stated in the background section for previous rule-makings, section 3004(m) of RCRA states that the result of complying with treatment standards must substantially diminish a waste's toxicity or mobility. Treatment levels also must minimize short- and long-term threats posed by the land disposal of waste to human health and the environment. EPA has stated that EP/TC levels are clearly hazardous, and therefore do not represent minimal threat. See e.g., 55 FR 22651. Thus in setting the treatment standards for TC metal wastes at the UTS levels, the Agency is seeking to achieve substantial reductions in toxicity and mobility for these wastes, not merely incidental or small reductions using the BDAT.

EPA believes that, in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Final Rule, which set treatment standards for characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level.

DCN PH4P077
COMMENTER American Foundryman's Soc

RESPONDER PV
SUBJECT TC
SUBJNUM 077
COMMENT

I. IN DIRECT VIOLATION OF RCRA SECTION 3004(M), THE PROPOSED LDR PHASE IV RULEMAKING WOULD INAPPROPRIATELY ESTABLISH A "TECHNOLOGY FORCING STANDARD" BECAUSE THE STANDARD IS NOT BASED ON A DEMONSTRATED AND COMMERCIALLY AVAILABLE TECHNOLOGY FOR FOUNDRY WASTES

A. Establishing a "Technology Forcing Standard" Violates RCRA and the Stated Intent of Congress

The Agency's authority to promulgate a treatment standard for hazardous wastes under the LDR program derives from the Resource Conservation and Recovery Act ("RCRA") Section 3004(m). 42 U.S.C. § 6924(m). Section 3004(m) is part of the Hazardous and Solid Waste Amendments ("HSWA") of 1984. Congress indicated in the legislative history accompanying HSWA that the intent of the statute is "to require utilization of available technology" and HSWA does not promote a "process which contemplates technology-forcing standards." Vol. 130 Cong. Rec. S9178 (daily ed., July 25, 1984) (emphasis added). The Agency has previously recognized this limitation on treatment standards under the LDRs, stating that the requisite levels of treatment should be the "best that has [sic] been demonstrated to be available. This does not require a BAT-type process as under the Clean Air or Clean Water Acts which contemplates technology forcing standards. The intent here is to require utilization of available technologies in lieu of continued land disposal without prior treatment."57 Fed. Reg. 37,194, 37,199 (Aug. 18, 1992). Therefore, in the record for LDR Phase IV, the Agency expressly recognizes that the intent of RCRA section 3004(m) is "to base treatment standards on the best technologies commonly in use and thus reasonably available to any generator." Final BDAT Background Document for Quality Assurance/Quality Control Procedures and Methodology (October 23, 1991) at 3-1.

The Agency's approach to identifying the applicable technology for wastes involves a determination of whether systems are "demonstrated" and are "available" commercially. Id. Therefore, for the Agency to determine that a recovery or stabilization technology is BDAT for TC metal wastes, the recovery or stabilization technology must be commercially "available"and "demonstrated" for all the different types of wastes that will be subject to the technology.

RESPONSE

It's noted that the Agency is establishing a concentration-based standard and is not requiring the use of a specific treatment technology. The Agency has demonstrated that commercially available technologies can treat wastes that are at least as difficult to treat as the foundry sands to the UTS, and therefore, has neither violated RCRA requirements nor the intent of Congress. These technologies are not those performing to the outer limits of technical capability. Rather, the Agency has constructed the standards so that they are achievable by a number of available technologies, and consistently utilized a methodology providing for flexibility in availability of treatment alternatives.

The Agency had inadequate data on foundry sands prior to the second supplemental proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

DCN PH4P078
COMMENTER Battery Council International
RESPONDER PV
SUBJECT TC
SUBJNUM 078
COMMENT

B. The USTs Contravene The Administration's Reinventing Environmental Regulation Initiative

EPA's proposed application of the UTS to characteristic metal wastes, and in particular toD008 wastes, contravenes the Clinton Administration's Reinventing Environmental Regulation initiative.37 Avoidance of treatment of a "waste's hazardous constituents to levels below those which the Agency would consider necessary to protect human health and the environment" is specifically included in EPA's list of targeted changes to the RCRA program.38

By proposing to apply the UTS to characteristic metal wastes, EPA has violated the letter and spirit of the Reinventing Environmental Regulation Initiative. As discussed in Section II, application of the proposed UTS to characteristic metal wastes is not necessary to protect human health and the environment. The concentrations of hazardous constituents remaining in stabilized D008 wastes generated by the lead (or battery) and lead recycling industries currently do not pose a threat to human health and the environment.

Moreover, also as described above, the imposition of the UTS to characteristic metal wastes will result in a significant economic disruption of the secondary lead smelting and battery recycling industry, in return for a negligible environmental benefit. This is not the type of regulation that is "designed to achieve environmental goals in a manner that minimizes costs to individuals, businesses, and other levels of government" contemplated by the Reinventing Environmental Regulation Initiative. 39/

RESPONSE

For EPA's response on this issue, see the "Comments and Responses Document for Issues Related to Mineral Processing Wastes," in the RCRA docket for today's rulemaking.

DCN PH4P104
COMMENTER SSINA
RESPONDER PV
SUBJECT TC
SUBJNUM 104
COMMENT

On behalf of the Specialty Steel Industry of North America ("SSINA"), we are submitting the following comments on the U.S. Environmental Protection Agency's ("EPA's" or "the Agency's") proposed Land Disposal Restrictions Phase IV Rule ("LDR Phase IV"). See 60 Fed. Reg. 43,654 (Aug. 22, 1995). SSINA members will be adversely affected by EPA's proposed revisions unless the final rule incorporates the modifications recommended in these comments.

BACKGROUND ON SSINA

SSINA is a national trade association comprised of 21 producers of specialty steel products, including stainless, electric, tool, magnetic, and other alloy steels. SSINA member companies, which represent over 90 percent of the United States specialty steel industry, are geographically dispersed, with 19 located in the United States, one in Canada, and one in Mexico.

During normal specialty steel production, SSINA members generate wastestreams that contain small quantities of heavy metals. Some of these waste streams may occasionally trigger Toxicity Characteristic ("TC") metal waste levels for: cadmium (D006), chromium (D007), and lead (D008). These materials could be unnecessarily subjected to onerous regulations and treatment standards prior to being land disposed unless the final rule incorporates the modifications recommended in these comments.

BACKGROUND ON LDR PHASE IV

In the Third-Third LDR rule, EPA established treatment standards for metal wastes that were characteristically hazardous under the Extraction Procedure ("EP") test. Since promulgation of the TC rule in September 1990, the Toxicity Characteristic Leaching Procedure ("TCLP") is used to determine whether a metal waste is characteristically hazardous. Wastes that are characteristic under the TCLP but not under the EP test are considered "newly identified" wastes and are not currently subject to LDRs. Under LDR Phase IV, all TC metal wastes will be subject to LDRs and will have to be treated to meet Universal Treatment Standards ("UTS") for the TC metal and any underlying hazardous constituents ("UHCs"). LDR Phase IV will impose much more stringent treatment standards for most TC metal wastes than the current treatment standards which are appropriately set at the characteristic level.

The proposed rule will have a specific adverse impact on steelmaking facilities in the following respects: (1) all steelmaking wastes that qualify as TC metal wastes will have to meet much more stringent treatment standards under UTS for TC metals (e.g., cadmium, chromium, and lead) before being land disposed; and (2) steelmaking facilities will have to determine if their wastes have UHCs and then treat these wastes to meet the UTS levels for these UHCs, even if such constituents did not cause the waste to be hazardous.

The proposed treatment standards for nonwastewaters under UTS would dramatically increase the stringency of the existing treatment standards (by roughly an order of magnitude) for cadmium (from 1.0 to 0.19 mg/L), for chromium (from 5.0 to 0.86 mg/L), and for lead (from 5.0 to 0.37 mg/L). The proposed treatment standard for chromium under UTS was derived from chemical stabilization of a limited number of chrome-bearing wastes." The more stringent treatment standards for cadmium and lead were solely derived from the application of High Temperature Metal Recovery ("HTMR") technology to emission control dust/sludge from the primary production of steel in electric arc furnaces ("K061"). It is entirely inappropriate for EPA to assume that the thousands of diverse and varied wastes that exhibit the TC characteristic for cadmium or lead will respond like K061 when subjected to HTMR

1/ The more stringent proposed treatment standard for chromium is derived from the application of a stabilization technology on k061 and TC chromium wastes ("D007"), including stripping liquids, plating and pelletizing operation wastes, and clean-out wastes from plating tanks. 59 Fed. Reg. 47,983, 47,999 (Sept. 19, 1994).

LDR Phase IV also addresses the "clean up" of existing regulations under 40 C.F.R. § 268.9. In the preamble to LDR Phase IV, the Agency states that it will "'clean up' existing regulatory language that is outdated, confusing, or unnecessary." 60 Fed. Reg. at 43,677. Accordingly, the Agency states that paragraphs (a) and (b) under 40 C.F.R. § 268.9 will be revised and clarified to explain "how wastes should be identified when they are both listed and characteristic wastes." Id at 43,678. However, the Agency only proposes revisions to paragraph (a). Paragraph (b) is not revised in LDR Phase IV.

The Agency must revise paragraph (b) in conjunction with paragraph (a) to avoid unintended treatment requirements for some listed hazardous wastes.

SUMMARY OF COMMENTS

Under LDR Phase IV, SSINA member companies would have to achieve UTS levels through either HTMR or stabilization. HTMR is not commercially available for all steelmaking wastes. Therefore, stabilization is the only practical alternative for some of these wastes. Although stabilization is commercially available, stabilization technologies have not been demonstrated to treat all steelmaking wastes to meet the proposed treatment standards in LDR Phase IV. SSINA is concerned that some steelmaking wastes will be unable to meet the HTMR-derived UTS with stabilization technologies, the only technologies commercially available for some of these wastes.

These limitations on stabilization technologies need to be resolved by the Agency before promulgating LDR Phase IV as a final rule. Otherwise, steelmaking facilities generating TC metal wastes could suffer significant economic harm by being forced to develop technologies to treat their wastes to meet inappropriate and overly stringent treatment standards proposed under the Phase IV.

The Agency must assess the effects of stabilization technologies on all steelmaking wastes before promulgating new treatment standards for these wastes. The information in the record is inadequate to make this assessment. Unless and until EPA develops adequate data demonstrating diverse TC metal wastes can meet more stringent standards, the applicable treatment standards under UTS for chromium, cadmium, and lead should remain at the current and appropriate characteristic levels.

COMMENTS

I. IN DIRECT VIOLATION OF RCRA SECTION 3004(M), THE PROPOSED LDR PHASE IV RULEMAKING WOULD INAPPROPRIATELY ESTABLISH A "TECHNOLOGY FORCING STANDARD" BECAUSE THE STANDARD IS NOT BASED ON A DEMONSTRATED AND COMMERCIALLY AVAILABLE TECHNOLOGY FOR ALL TC METAL WASTES

A. Establishing a "Technology Forcing Standard" Violates RCRA and the Stated Intent of Congress

The Agency's authority to promulgate a treatment standard for hazardous wastes under the LDR program derives from the Resource Conservation and

Recovery Act ("RCRA") Section 3004(m). 42 U.S.C. § 6924(m). Section 3004(m) is part of the Hazardous and Solid Waste Amendments ("HSWA") of 1984. Congress indicated in the legislative history accompanying HSWA that the intent of the statute is "to require utilization of available technology" and HSWA does not promote a "process which contemplates technology-forcing standards." Vol. 130 Cong. Rec. S9178 (daily ea., July 25, 1984) (emphasis added). The Agency has previously recognized this limitation on treatment standards under the LDRs, stating that the requisite levels of treatment should be the "best that has [sic] been demonstrated to be available. This does not require a BAT-type process as under the Clean Air or Clean Water Acts which contemplates technology forcing standards. The intent here is to require utilization of available technologies in lieu of continued land disposal without prior treatment." 57 Fed. Reg. 37,194, 37,199 (Aug. 18, 1992). Therefore, in the record for LDR Phase IV, the Agency expressly recognizes that the intent of RCRA section 3004(m) is "to base treatment standards on the best technologies commonly in use and thus reasonably available to any generator." Final BDAT Background Document for Quality Assurance/Quality Control Procedures and Methodology (October 23, 1991) at 3-1.

The Agency's approach to identifying the applicable technology for wastes involves a determination of whether systems are "demonstrated" and are "available" commercially. Id. Therefore, for the Agency to determine that a recovery or stabilization technology is BDAT for TC metal wastes, the recovery or stabilization technology must be commercially "available" and "demonstrated" for all the different types of wastes that will be subject to the technology.

B. HTMR is Not a Commercially "Available" or "Demonstrated" Technology for All TC Metal Wastes

HTMR is only commercially available and demonstrated technology for TC metal wastes with a high metal content. HTMR is not a "demonstrated," "available," or practical technology for commercial treatment of TC metal wastes with low metal content. Even the Agency recognizes that "recovery of metals from all wastes is not practical; at some level of metal concentration, recovery efforts typically cease, and the remaining metals must be incorporated into a leach-resistant matrix for safe disposal." Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-6.

The transfer of HTMR technology for K061 (a hazardous waste with high metal content) to TC metal wastes with low metal content is totally inappropriate. For example, the Agency has previously qualified the transfer of HTMR treatment results for high zinc content K061 to other metal wastes by limiting transfer to circumstances where the "waste material contains high concentrations of metals." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 4-1. In addition, the LDR Phase IV rulemaking record indicates that the Agency only looked at HTMR treatment of TC metal wastes with high heavy metal content (i. e., untreated K061 with 12.9% zinc or higher) when evaluating treated wastes for TCLP results. Many steelmaking wastes have considerably lower metal content than K061.

There is not a single national commercial HTMR facility that will accept large volumes of wastes with these low concentrations of heavy metals. For example, the principal HTMR facility of the Horsehead Resource Development Company ("HRD" or "Horsehead") that recovers zinc from the vast majority of K061 generated in the United States can legally only process waste streams that contain at least 5 percent of zinc. Attached hereto as Exhibit 1 are the parameters established by the State of Pennsylvania for K061 that HRD can legally accept at its principal HTMR facility in Palmerton, Pennsylvania. Steel mills sending K061 to HRD must complete the attached Module 1 Form which specifies that HRD cannot legally accept secondary hazardous materials that contain less than 5 percent zinc. See Exhibit 1. According to HRD executives, HRD also cannot accept most sandy soils contaminated with TC metals because such soils contain significant quantities of silica which has an adverse impact on the HTMR process. Because HTMR is unavailable for TC metal wastes with low concentrations of heavy metals and for waste mixtures containing sand, generators of these waste streams will be forced to use chemical stabilization.

The Agency has explicitly recognized that HTMR residues for most TC metal wastes have leachate values that are much lower than comparable residues from stabilization. Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-5. In addition, the stabilization results presented in the record for this proposed rulemaking indicate that HTMR results are often lower than the stabilization results, especially for wastes that contain low levels of heavy metals. See Table A-4 of Id. at A-18 to A-27. Many of the TC metal wastes treated with stabilization technologies would fail to meet the proposed HTMR-derived UTS levels. Therefore, the Agency must change the UTS levels for lead, cadmium, and chromium so stabilized steelmaking wastes can consistently meet UTS. Otherwise, applying HTMR-derived treatment standards to steelmaking wastes that can only use stabilization technology will result in a "technology forcing standard." Establishing a "technology forcing standard" for some steelmaking TC metal wastes violates RCRA and the clear and

expressed intent of Congress.
Although the Agency asserts that the proposed treatment standards for TC metal wastes are not technology forcing, the Agency fails to provide adequate reasoning for its conclusion. In fact, the data provided in the rulemaking record support the opposite conclusion, that HTMR-derived UTS for TC metal wastes will require technical development of treatment technologies for many TC metal wastes, (i.e. a technology forcing standard). See, id., July 26, 1995, at A-16 to A-27. In addition, many statements in the rulemaking record conflict with the Agency s unsubstantiated conclusion that the proposed rulemaking is not technology forcing relative to TC metal wastes. For example, the Agency states "the current characteristic standards and the proposed LDR standards for nonwastewater TC metals are generally based on stabilization or thermal recovery. Due to the nature of these treatment technologies, adjustments to meet specific concentration levels are usually not possible." Regulatory Impact Analysis of the Phase IV Land Disposal Restrictions (Aug. 18, 1995) at ES- 9 to ES-20. Because adjustments are not currently possible, steelmaking companies will have to conduct extensive research and development ("R&D") on alternative waste treatment technologies to assess whether they will ultimately be able to meet the proposed UTS for some TC metal wastes. Nonetheless, significant investments in R&D would still not guarantee technological improvements to ultimately meet the HTMR-derived treatment standards.

The Agency cavalierly suggests that in those circumstances where HTMR is not feasible because the metal content in the waste is too low, that a generator should simply investigate alternative ways to generate wastes that are amenable to recovery or to substitute materials that are suitable for recovery. Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-6. The Agency's recommendation to investigate alternative processes or substitute production materials would require the steelmaking industry to make fundamental modifications to their complex production processes. This is not realistic or reasonable.

On behalf of SSINA, we appreciate this opportunity to comment on EPA's proposed rule for Phase IV of the Land Disposal Restrictions. We expect the Agency to correct the mistakes in the rulemaking record that we have addressed in these comments and hope that EPA considers our recommendations when promulgating the final rule. Until EPA develops the necessary supporting data on the availability and effectiveness of metal recovery and stabilization technologies, the LDR treatment standards for lead, cadmium, and chromium should remain at the characteristic levels. If we can be of further assistance, please do not hesitate to contact us.

RESPONSE

It's noted that the Agency is establishing a concentration-based standard and is not requiring the use of a specific treatment technology. They Agency has demonstrated that commercially available technologies can treat wastes that are at least as difficult to treat as the foundry sands to the UTS, and therefore, has neither violated RCRA requirements nor the intent of Congress. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology.

The Agency had inadequate data on foundry sands prior to the second supplemental proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, "Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental's Highway 36 Commercial Waste Treatment Facility and GNB's Frisco, Texas Waste Treatment Facility," March 10, 1997.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today's rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

DCN	PH4P105
COMMENTER	SMA
RESPONDER	PV
SUBJECT	TC
SUBJNUM	105

COMMENT

On behalf of the Steel Manufacturers Association ("SMA"), we are submitting the following comments on the U.S. Environmental Protection Agency's ("EPA's" or "the Agency's") proposed Land Disposal Restrictions Phase IV Rule ("LDR Phase IV"). See 60 Fed. Reg. 43,654 (Aug. 22, 1995). SMA members will be adversely affected by EPA's proposed revisions unless the final rule incorporates the modifications recommended in these comments.

BACKGROUND ON SMA

SMA is a national trade organization representing 56 North American steel companies that account for approximately 40 percent of all steel produced in the United States. The SMA companies are geographically dispersed, with 45 located in the United States, eight in Canada, and three in Mexico. Most SMA members are electric arc furnace ("EAF") steel producers engaged in continuous casting of liquid steel which is hot and cold rolled into various steel products.

SMA members are a principal part of North America's largest recycling industry. Each year, SMA members help recycle more than 76 billion pounds of steel scrap (including nine million junk cars which might otherwise be disposed in landfills) from the 90 billion pounds of scrap recycled by the entire U.S. steel industry each year. During normal steelmaking operations, SMA members generate waste streams that contain small quantities of heavy metals. Some of these waste streams may occasionally trigger Toxicity Characteristic ("TC") metal waste levels for: cadmium (D006), chromium (D007), and lead (D008). These materials could be unnecessarily subjected to onerous regulations and treatment standards prior to being land disposed unless the final rule incorporates the modifications recommended in these comments

BACKGROUND ON LDR PHASE IV
In the Third-Third LDR rule, EPA established treatment standards for metal wastes that were characteristically hazardous under the Extraction Procedure ("EP") test. Since promulgation of the TC rule in September 1990, the Toxicity Characteristic Leaching Procedure ("TCLP") is used to determine whether a metal waste is characteristically hazardous. Wastes that are characteristic under the TCLP but not under the EP test are considered "newly identified" wastes and are not currently subject to LDRs. Under LDR Phase IV, all TC metal wastes will be subject to LDRs and will have to be treated to meet Universal Treatment Standards ("UTS") for the TC metal and any underlying hazardous constituents ("UHCs"). LDR Phase IV will impose much more stringent treatment standards for most TC metal wastes than the current treatment standards which are appropriately set at the characteristic level.

The proposed rule will have a specific adverse impact on steelmaking facilities in the following respects: (1) all steelmaking wastes that qualify as TC metal wastes will have to meet much more stringent treatment standards under UTS for TC metals (e.g., cadmium, chromium, and lead) before being land disposed; and (2) steelmaking facilities will have to determine if their wastes have UHCs and then treat these wastes to meet the UTS levels for these UHCs, even if such constituents did not cause the waste to be hazardous.

1/The more stringent proposed treatment standard for chromium is derived from the application of a stabilization technology on K061 and TC chromium wastes ("D007"), including stripping liquids, plating and pelletizing operation wastes, and clean-out wastes from plating tanks. 59 Fed. Reg. 47,983, 47,999 (Sept. 19, 1994).

The proposed treatment standards for nonwastewaters under UTS would dramatically increase the stringency of the existing treatment standards (by roughly an order of magnitude) for cadmium (from 1.0 to 0.19 mg/L), for chromium (from 5.0 to 0.86 mg/L), and for lead (from 5.0 to 0.37 mg/L). The proposed treatment standard for chromium under UTS was derived from chemical stabilization of a limited number of chrome-bearing wastes." The more stringent treatment standards for cadmium and lead were solely derived from the application of High Temperature Metal Recovery ("HTMR") technology to emission control dust/sludge from the primary production of steel in electric arc furnaces ("K061"). It is entirely inappropriate for EPA to assume that the thousands of diverse and varied wastes that exhibit the TC characteristic for cadmium or lead will respond like K061 when subjected to HTMR.

SUMMARY OF COMMENTS

Under LDR Phase IV, SMA member companies would have to achieve UTS levels through either HTMR or stabilization. HTMR is not commercially available for all steelmaking wastes. Therefore, stabilization is the only practical alternative for some of these wastes. Although stabilization is commercially available, stabilization technologies have not been demonstrated to treat all steelmaking wastes to meet the proposed treatment standards in LDR Phase IV. SMA is concerned that some steelmaking wastes will be unable to meet the HTMR-derived UTS with stabilization technologies, the only technologies commercially available for some of these wastes.

These limitations on stabilization technologies need to be resolved by the Agency before promulgating LDR Phase IV as a final rule. Otherwise, steelmaking facilities generating TC metal wastes could suffer significant economic harm by being forced to develop technologies to treat their wastes to meet inappropriate and overly stringent treatment standards proposed under LDR Phase IV.

The Agency must assess the effects of stabilization technologies on all steelmaking wastes before promulgating new treatment standards for these wastes. The information in the record is inadequate to make this assessment. Unless and until EPA develops adequate data demonstrating diverse TC metal wastes can meet more stringent standards, the applicable treatment standards under UTS for chromium, cadmium, and lead should remain at the current and appropriate characteristic levels.

COMMENTS

I. IN DIRECT VIOLATION OF RCRA SECTION 3004(M). THE PROPOSED LDR PHASE IV RULEMAKING WOULD INAPPROPRIATELY ESTABLISH A "TECHNOLOGY FORCING STANDARD" BECAUSE THE STANDARD IS NOT BASED ON A DEMONSTRATED AND COMMERCIALLY AVAILABLE TECHNOLOGY FOR ALL TC METAL WASTES

A. Establishing a "Technology Forcing Standard" Violates RCRA and the Stated Intent of Congress

The Agency's authority to promulgate a treatment standard for hazardous wastes under the LDR program derives from the Resource Conservation and Recovery Act ("RCRA") Section 3004(m). 42 U.S.C. § 6924(m). Section 3004(m) is part of the Hazardous and Solid Waste Amendments ("HSWA") of 1984. Congress indicated in the legislative history accompanying HSWA that the intent of the statute is "to require utilization of available technology" and HSWA does no, promote a "process which contemplates technology-forcing standards." Vol. 130 Cong. Rec. S9178 (daily ea., July 25, 1984) (emphasis added). The Agency has previously recognized this limitation on treatment standards under the LDRs, stating that the requisite levels of treatment should be the "best that has [sic] been demonstrated to be available. This does not require a BAT-type process as under the Clean Air or Clean Water Acts which contemplates technology forcing standards. The intent here is to require utilization of available technologies in lieu of continued land disposal without prior treatment." 57 Fed. Reg. 37,194, 37,199 (Aug. 18, 1992). Therefore, in the record for LDR Phase IV, the Agency expressly recognizes that the intent of RCRA section 3004(m) is "to base treatment standards on the best technologies commonly in use and thus reasonably available to any generator." Final BDAT Background Document for Quality Assurance/Quality Control Procedures and Methodology (October 23, 1991) at 3-1.

The Agency's approach to identifying the applicable technology for wastes involves a determination of whether systems are "demonstrated" and are "available" commercially. Id. Therefore, for the Agency to determine that a recovery or stabilization technology is BDAT for TC metal wastes, the recovery or stabilization technology must be commercially "available" and "demonstrated" for all the different types of wastes that will be subject to the technology.

B. HTMR is Not a Commercially "Available" or "Demonstrated" Technology for All TC Metal Wastes

HTMR is only commercially available and demonstrated technology for TC metal wastes with a high metal content. HTMR is not a "demonstrated," "available," or practical technology for commercial treatment of TC metal wastes with low metal content. Even the Agency recognizes that "recovery of metals from all wastes is not practical; at some level of metal concentration, recovery efforts typically cease, and the remaining metals must be incorporated into a leach-resistant matrix for safe disposal." Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-6.

The transfer of HTMR technology for K061 (a hazardous waste with high metal content) to TC metal wastes with low metal content is totally inappropriate. For example, the Agency has previously qualified the transfer of HTMR treatment results for high zinc content K061 to other metal wastes by limiting transfer to circumstances where the "waste material contains high concentrations of metals." Final BDAT Background Document (Addendum) For All Nonwastewater Forms of K061 and Alternative BDAT Treatment Standards For F006 and K062 Nonwastewaters (July 1992) at 4-1. In addition, the LDR Phase IV rulemaking record indicates that the Agency only looked at HTMR treatment of TC metal wastes with high heavy metal content (i.e., untreated K061 with 12.9% zinc or higher) when evaluating treated wastes for TCLP results. Many steelmaking wastes have considerably lower metal content than K061.

There is not a single national commercial HTMR facility that will accept large volumes of wastes with these low concentrations of heavy metals. For example, the principal HTMR facility of the Horsehead Resource Development Company ("HRD" or "Horsehead") that recovers zinc from the vast majority of K061 generated in the United States can legally only process waste streams that contain at least 5 percent of zinc. Attached hereto as Exhibit I are the parameters established by the State of Pennsylvania for K061 that HRD can legally accept at its principal HTMR facility in Palmerton, Pennsylvania Steel mills sending K061 to HRD must complete the attached Module I Form which specifies that HRD cannot legally accept secondary hazardous materials that contain less than 5 percent zinc. See Exhibit 1. According to HRD executives, HRD also cannot accept most sandy soils contaminated with TC metals because such soils contain significant quantities of silica which has an adverse impact on the HTMR process. Because HTMR is unavailable for TC metal wastes with low concentrations of heavy metals and for waste mixtures containing sand, generators of these waste streams will be forced to use chemical stabilization.

The Agency has explicitly recognized that HTMR residues for most TC metal wastes have leachate values that are much lower than comparable residues from stabilization. Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-5. In addition, the stabilization results presented in the record for this proposed rulemaking indicate that HTMR results are often lower than the stabilization results, especially for wastes that contain low levels of heavy metals. See Table A at A-18 to A-27. Many of the TC metal wastes treated with stabilization technologies would fail to meet the proposed HTMR-derived UTS levels. Therefore, the Agency must change the UTS levels for lead, cadmium, and chromium so stabilized steelmaking wastes can consistently meet UTS. Otherwise, applying HTMR-derived treatment standards to steelmaking wastes that can only use stabilization technology will result in a "technology forcing standard." Establishing a "technology forcing standard" for some steelmaking TC metal wastes violates RCRA and the clear and expressed intent of Congress.

Although the Agency asserts that the proposed treatment standards for TC metal wastes are not technology forcing, the Agency fails to provide adequate reasoning for its conclusion. In fact, the data provided in the rulemaking record support the opposite conclusion, that HTMR-derived UTS for TC metal wastes will require technical development of treatment technologies for many TC metal wastes, (i.e. a technology forcing standard). See, id., July 26, 1995, at A-16 to A-27. In addition, many statements in the rulemaking record conflict with the Agency's unsubstantiated conclusion that the proposed rulemaking is not technology forcing relative to TC metal wastes. For example, the Agency states "the current characteristic standards and the proposed LDR standards for nonwastewater TC metals are generally based on stabilization or thermal recovery. Due to the nature of these treatment technologies, adjustments to meet specific concentration levels are usually not possible." Regulatory Impact Analysis of the Phase IV Land Disposal Restrictions (Aug. 18, 1995) at ES-19 to ES-20. Because adjustments are not currently possible, steelmaking companies will have to conduct extensive research and development ("R&D") on alternative waste treatment technologies to assess whether they will ultimately be able to meet the proposed UTS for some TC metal wastes. Nonetheless, significant investments in R&D would still not guarantee technological improvements to ultimately meet the HTMR-derived treatment standards.

The Agency cavalierly suggests that in those circumstances where HTMR is not feasible because the metal content in the waste is too low, that a generator should simply investigate alternative ways to generate wastes that are amenable to recovery or to substitute materials that are suitable for recovery. Proposed BDAT Background Document for TC Metal Wastes D004-D011, July 26, 1995, at 3-6. The Agency's recommendation to investigate iterative processes or substitute production materials would require the steelmaking industry to make fundamental modifications to their complex production processes. This is not realistic or reasonable.

On behalf of SMA, we appreciate this opportunity to comment on EPA's proposed rule for Phase IV of the Land Disposal Restrictions. We expect the Agency to correct the mistakes in the rulemaking record that we have addressed in these comments and hope that EPA considers our recommendations when promulgating the final rule. Until EPA develops the necessary supporting data on the availability and effectiveness of metal recovery and stabilization technologies, the LDR treatment standards for lead, cadmium, and chromium should remain at the characteristic levels. If we can be of fur her assistance, please do not hesitate to contact us.

RESPONSE

It's noted that the Agency is establishing a concentration-based standard and is not requiring the use of a specific treatment technology. They Agency has demonstrated that commercially available technologies can treat wastes that are at least as difficult to treat as the foundry sands to the UTS, and therefore, has neither violated RCRA requirements nor the intent of Congress. The Agency also recognizes that certain wastes (e.g., wastes with unrecoverable amounts of metals) may not be accepted by HTMR facilities. The Agency notes that the generator is not required to use HTMR to treat the waste. Any appropriate treatment technology can be used to treat the waste to the UTS. For example, if HTMR is not available or best suited for D008 waste, then the generator can treat the waste using stabilization or any other appropriate treatment technology.

The Agency had inadequate data on foundry sands prior to the second supplemental proposal, and the commenters failed to submit BDAT quality performance data in response to EPA's request. Therefore, to base the treatment standards on representative samples, the Agency conducted site visits to commercial hazardous waste treatment facilities and collected additional stabilization treatment performance data that better characterized the diversity of metal wastes. The stabilization performance data (based on grab samples) represented a wide range of metal-bearing wastes (both listed and characteristic) including mineral processing wastes, foundry waste, baghouse dust, battery slag, soils, pot solids, recycling by-products, and sludge. These waste streams contained multiple metals which would be representative of a characteristic waste with UHCs and significant concentrations of combination metals including: lead and cadmium (untreated concentrations 13mg/L TCLP and 4090 mg/L TCLP and 11.7 mg/L TCLP and 338 mg/L TCLP respectively); barium and lead (untreated concentrations 13.5 mg/L TCLP and 50.7 mg/L TCLP and 32mg/L TCLP and 898 mg/L TCLP (4.6%), and chromium and antimony (untreated concentrations 1580 mg/L TCLP and 16.1 mg/L TCLP). Based on this data collection effort, the Agency believes that it has addressed the issue of effective multiple contaminant waste stabilization in two ways: (1) Utilization of treatment data that contains multiple metals; and (2) the utilization of these data to generate treatment standards. The Agency acknowledges that the stabilization "recipe" may need to be adjusted to account for the variability of the waste contaminants, however the Agency can not find any information that would suggest that multiple waste codes cannot be stabilized to the treatment levels, when effective and optimized stabilization processes are used. (The Agency does note an exception for the metal constituent, Selenium which was discussed in detail in the Second Supplemental preamble as well as the response to comments). The Agency also notes that many of the multiple-contaminant waste streams contained significant lead concentrations in addition to other metal constituents and still achieved extremely low treatment levels. See memorandum entitled, “Final Revised Calculation of Treatment Standards Using Data Obtained From Rollins Environmental’s Highway 36 Commercial Waste Treatment Facility and GNB’s Frisco, Texas Waste Treatment Facility,” March 10, 1997.

In addition, the Agency also determined the treatment standards for TC metals based on performance data obtained from a HTMR facility (grab sample data). The Agency compared the treatment standards developed based on stabilization and HTMR and selected the highest (less stringent) standard for each metal to establish the proposed UTS, thus, allowing for maximum process variability and detection limit difficulties. Therefore, the Agency believes that the UTS promulgated in today’s rule for TC metals represent standards achievable through commercially available stabilization and HTMR technologies.

DCN PH4P008
COMMENTER Florida DEP
RESPONDER RC
SUBJECT UHCS
SUBJNUM 008
COMMENT

Revisions to D004-D0ll Treatment Standards: By failing to add the words "and meet §268.48 standards," to these treatment standards EPA appears to be inviting another law suit. There is no point to putting off the inevitable. Metal TC wastes are just as likely to have underlying hazardous constituents as non-metal wastes. There is no environmental justification for omitting treatment standards for these constituents from these rule revisions.

RESPONSE

EPA agrees with the commenter that toxicity characteristic metal wastes should also meet §268.48 standards. The Agency in the regulatory language section of the original Phase IV proposal, 60 FR at 43694 August 22, 1995, amended section 268.40(e) in Subpart D - Treatment Standards for D004 through D011 to include meeting §268.48 standards.

DCN PH4P013
COMMENTER New York DEC
RESPONDER RC
SUBJECT UHCS
SUBJNUM 013
COMMENT

DEC has several concerns, comments, and suggestions on the EPA's proposed standard for Toxicity Characteristic (TC) Metal Wastes (CMW).

DEC believes that the "gap" between characteristic levels and the Universal Treatment Standards (UTS) should be addressed, even if statutory amendments are needed.

RESPONSE

The toxicity characteristic (TC) levels only determine whether a waste is hazardous or non-hazardous, and specifically identifies only wastes which clearly are hazardous. The characteristic level is not the level at which threats to human health and the environment are minimized. See <u>Chemical Waste Management v. EPA</u>, 976 F. 2d at 14. These characteristic levels are not based on the performance of available treatment technologies, and the D.C. Circuit Court remanded them as insufficiently stringent treatment standards capped at the characteristic level. See Chemical Waste Management v. EPA, 976 F. 2d at 26-27. EPA, under the statutory requirements of RCRA section 3004(m), is required to promulgate regulations specifying levels or methods of treatment, and is setting numerical universal treatment standards (UTS) based on the performance of available treatment technologies. EPA believes that in certain cases, further treatment of characteristic metal wastes below the TC level may be required in order to minimize threats to human health and the environment from these wastes within the meaning of 3004(m). As stated previously in the Third Third Rule which set treatment standards for the characteristic wastes at the characteristic levels, the Agency believed that the goals of section 3004(m) may require the application of standards promulgated lower than the characteristic level (55 FR 22542 June 1, 1990), unless the Agency determines risk-based concentration levels that achieve the minimized threat requirement for a particular waste stream. EPA believes that the finalized UTS levels fulfills the statutory requirement of section 3004(m). EPA further believes this issue to have been long-since settled and does not intend to reopen it here. This comment response is included only in the event one is deemed necessary.

DCN PH4P013
COMMENTER New York DEC
RESPONDER RC
SUBJECT UHCS
SUBJNUM 013
COMMENT

If EPA widely solicited health/environmental risk data, new hazardous levels might need to be set for characteristic metal wastes, when alone or in combination with other characteristic metal wastes (D004-D011), to provide proper protection of human health and the environment. On the other hand, under EPA's proposed treatment standards for characteristic metals, metal wastes that are not hazardous at current regulatory levels can be orders of magnitude above the proposed treatment standards for many underlying hazardous constituents (UHC), but can be disposed of at Subtitle D facilities, untreated. This gap that has existed since CMWs became subject to the LDR will not be addressed by the proposed standards. In the case of lead (D008) for example, a waste with 4.9 parts per million (ppm) by the TCLP, is not hazardous, while a waste with 5.1 ppm by the TCLP is hazardous and must be treated to a TCLP level of 0.37 ppm (nonwastewaters).

RESPONSE

The gap mentioned by the commenter is a consequence of the structure of the law, which requires that hazardous wastes be treated until threats posed by their land disposal are minimized. The law does not require such treatment (or any federal control) over wastes that are not hazardous in the first instance.

The Agency has been pursuing several specific efforts to evaluate the hazards of metal-bearing wastes, including the evaluation of damage cases identified in the 1996 Hazardous Waste Characteristics Scoping Study, reexamination of the risk modeling used for the 1995-proposed Hazardous Waste Identification Rule, and evaluation of fate and transport in other environmental media. Upon completion of these efforts, the Agency will be in a better position to decide whether revisiting the TC regulatory limits would be appropriate in a future rulemaking.

DCN PH4P013
COMMENTER New York DEC
RESPONDER RC
SUBJECT UHCS
SUBJNUM 013
COMMENT

EPA should determine if it is appropriate to lower characteristic hazardous levels for some or all of the TC metals. At the same time, a provision should be added whereby decharacterized CMWs could exit the LDR if all UHCs were within an order of magnitude of the UTS value. Two objectives of the LDR could be met. First, the amount of CMWs which are land disposed untreated would be reduced, and secondly, some regulatory relief would be given from the UTS standards for UHCs, which would ensure that all CMWs brought under regulation are not over regulated in comparison to CMWs that did not fail the TC.

These measures will not eliminate the present regulatory gap, but will mitigate it to a substantial degree.

RESPONSE

Toxicity characteristic (TC) wastes, like the ICR characteristic wastes, could contain other hazardous constituents at concentrations of concern. In this regard, EPA again reiterates its finding that in the absence of reliable, national risk-based levels that achieve the minimized threat requirement, the technology-based levels remain the best means of determining with any certainty that the requisite minimization of threats has occurred. Thus, the commenter's suggestion of an order of magnitude increase for UHCs is not appropriate. The decision to extend the UHC requirement to TC wastes is consistent with the Court's opinion on the treatment of ignitable, corrosive, and reactive characteristic wastes in Chemical Waste Management v. EPA, 976 F. 2d at 17 (D.C. Cir. 1992), cert. denied 113 U.S. 1961 (1993). The Court held that all hazardous constituents in characteristic wastes must meet levels satisfying the requirements in RCRA 3004(m) before land disposal, and that treatment standards cannot be achieved by dilution (provided, of course, that treatment standards are not established below the level at which threats to human health and the environment are minimized). (See 59 FR 47987 September 19, 1994).

Furthermore, the gap in coverage between which wastes are identified as hazardous and the levels at which threats are minimized is not the subject of this proceeding, which is establishing treatment standards (per Court ordered deadline) for wastes already identified as hazardous. Thus, the commenter's thoughtful points must be addressed in a later proceeding.

DCN PH4P026
COMMENTER The TDJ Group
RESPONDER RC
SUBJECT UHCS
SUBJNUM 026
COMMENT

> We are not aware of any material amount of work that has looked at the potential impact of the UTS standards on the wastes of either the iron and steel industry or the steel maintenance industry. It is not clear that the Agency has fully considered whether treatment of underlying hazardous constituents to the proposed standard is either feasible or a prudent use of waste management dollars.

RESPONSE

The commenter did not submit any data for the Phase IV rulemaking. For this rulemaking, the data submitted was for toxicity characteristic metal wastes (D004-D011). See memorandum to the RCRA docket from Elaine Eby and Anita Cummings, EPA, dated March 11, 1998. In developing the TC metal treatment standards, the Agency first looked at transferring the metal treatment standards from K061, an iron and steel industry waste, to toxicity characteristic metal wastes. However, in response to comments received from the original proposal, the Agency collected more data to account for the variability in characteristic metal wastes. The Agency looked at stabilization and high temperature metals recovery technologies. The Agency's review of this treatment data on characteristic metal and mineral processing wastes show that UTS are achieveable for the UHCs in waste characteristic for TC metals and mineral processing wastes. The Agency, thus, has determined that characteristic metal wastes should be no more difficult to treat than any other characteristic wastes for UHCs.

DCN PH4P067
COMMENTER Horsehead/Zinc Corp.
RESPONDER RJM
SUBJECT UHCS
SUBJNUM 067
COMMENT

> Second, EPA intends to apply the underlying hazardous constituent ("UHC") treatment requirement to listed wastes that also exhibit the toxicity characteristic ("TC"). Third, EPA's promulgation of treatment standards for TC metal wastes will require treatment of these wastes to achieve the universal treatment standards ("UTS") for all UHCs for the first time. As a result, this requirement will require costly and environmentally unnecessary treatment for at least one UHC, namely sulfide, that currently is used as an effective wastewater treatment reagent.

RESPONSE

The commenter is incorrect in their understanding that the UHC requirements would apply to listed wastes that also displayed the TC. The UHC requirement generally only applies to characteristic wastes. See 40 CFR section 268.9(b). The only time that the UHC requirement would be triggered for a listed waste is if it also exhibited one or more hazardous characteristics that are not specifically addressed in the treatment standard for the listed waste. In these cases (which the Agency believes would occur infrequently), the treatment standard for both the listed waste and for the hazardous characteristic constituent or property--including the UHC requirements--would have to be met.

Finally, two commenters raised issues related to the sulfide treatment standard in the UTS table at 40 CFR 268.48 and its applicability to their process (including mineral processing wastes). The EPA reviewed the basis for the sulfide treatment standard at 268.48 and found that it was only intended to apply to F039 wastes. We are clarifying and correcting 268.48 UTS table to limit sulfide to F039. Therefore, the treatment standard for sulfide is only applicable to F039 and not mineral processing wastes identified by the commenters. These mineral processing wastes will of course be subject to the deactivation standard for reactive sulfide waste streams as set out in 261.23(a)(1) and (a)(5). The Agency will continue to determine if a separate universal treatment standard for sulfide from reactive wastes for the mineral processing and other sectors is needed and if so will propose one in the future.

DCN PH4P067
COMMENTER Horsehead/Zinc Corp.
RESPONDER RJM
SUBJECT UHCS
SUBJNUM 067
COMMENT

EPA should not require treatment of UHCs for listed hazardous wastes that exhibit the toxicity characteristic.

RESPONSE

The commenter is incorrect in their understanding that the UHC requirements would apply to listed wastes that also displayed the TC. The UHC requirement generally only applies to characteristic wastes. See 40 CFR section 268.9(b). The only time that the UHC requirements would be triggered for a listed waste is if it also exhibited one or more hazardous characteristics that are not specifically addressed in the treatment standard for the listed waste. In these cases (which the Agency believes would occur infrequently), the treatment standard for both the listed waste and for the hazardous characteristic constituent or property--including the UHC requirements--would have to be met.

DCN PH4P067
COMMENTER Horsehead/Zinc Corp.
RESPONDER RJM
SUBJECT UHCS
SUBJNUM 067
COMMENT

EPA's Phase III LDR proposed rule (proposed in March 1995) would require treatment of listed hazardous wastes that also exhibit a characteristic of hazardous waste for all UHCs reasonably expected to be present in the listed waste. See 60 Fed. Reg. at 11741 (proposed 40 C.F.R. §268.9(b)) .2/ (The previous version of this regulation required only that the treatment standards for the listed waste include a standard for the constituent that caused the waste to exhibit a characteristic. See 40 C.F.R. § 268.9(b) (1994).) Since the Phase IV Proposal establishes treatment standards for toxicity characteristic ("TC") metal wastes, the Phase III proposed rule and the Phase IV Proposals together would require treatment of listed hazardous wastes that exhibit the TC for all of the UHCs reasonably expected to be present in the waste to the UTS LEVELS. As applied to listed wastes that exhibit the TC, the Phase III proposed requirement to apply the UHC treatment requirement to listed wastes that exhibit a characteristic, together with the treatment standards for metal TC wastes in the Phase IV Proposal, is inappropriate and unlawful for two reasons. First, the Chemical Waste Management decision, upon which EPA relies to establish the revised treatment standards for wastes that exhibit a characteristic, does not apply to TC wastes. Second, EPA's approach is inconsistent with its existing treatment standards for listed wastes. Therefore, EPA should withdraw its proposal to require treatment for the UHCs in listed wastes that exhibit the TC.

B. The Chemical Waste Management Decision Does Not Apply to TC Hazardous Wastes. EPA has not explained why the UHC treatment requirement applies to hazardous wastes that exhibit the TC. The holdings in Chemical Waste Management v. EPA, 976 F.2d 2 (D.C. Cir.1992) apply only to ignitable, corrosive and reactive ("ICR") wastes. Id. at 16, 17, 18. Limiting application of the Chemical Waste Management decision to ICR wastes is appropriate because of EPA's prohibition on dilution for TC wastes. In contrast to that prohibition, EPA had previously allowed dilution for ICR wastes because dilution removed the characteristic. Since the Chemical Waste Management court held that EPA did not show that such dilution also addressed the UHCS IN the ICR wastes, it remanded the ICR waste treatment standard rules to the Agency. The decision did not affect EPA's treatment standards for TC wastes, which already were subject to the dilution prohibition. The Chemical Waste Management decision therefore does not justify EPA's extension of the UHC treatment requirement to TC wastes in general and metal TC wastes in particular, because the concerns expressed by the court (namely, dilution of ICR wastes to remove the characteristic) simply are not present with respect to TC wastes.

C. The UHC Treatment Requirement for Listed Wastes Is Contrary to EPA's Treatment Standard Methodology.

More specifically for the purpose of the Phase IV Proposal, the UHC treatment requirement should not apply to listed hazardous wastes that exhibit the TC. All listed wastes require either treatment by a specified method (e.g., destruction) or treatment for all of the constituents of concern identified by EPA during the treatment standard rulemaking process for each listed waste. Therefore, since existing treatment standards for listed wastes meet and frequently exceed RCRA Section 3004(m)(1)'s "minimize threat" requirement, establishing a UHC requirement for listed wastes is unnecessary and unsupported by the record. With respect to listed wastes, EPA selects constituents for treatment standards based on their presence in the waste: The specific constituents that the Agency selected for regulation in each treatability group were, in general, those found in the untreated wastes at significant (i.e., treatable) concentrations. EPA does not propose to regulate constituents where data show that they would be effectively managed by regulation of other constituents (i.e., treatment of the regulated constituents naturally results in the treatment of other constituents). 53 Fed. Reg. § 11741, 11750 (April 8, 1988). All of the TC constituents are on the list of nearly 200 BDAT list constituents that EPA considers during the treatment standard rulemaking process for listed wastes. Moreover, the BDAT list of constituents is virtually the same as the UHC list(with several exceptions not relevant to this discussion). Therefore, while the Section 268.9(b)proposed UHC treatment requirement may be appropriate for listed wastes that only are ignitable, corrosive, or reactive, it is not appropriate for listed wastes that exhibit the TC, since EPA's treatment standards for listed wastes already address the UHCs. Therefore, EPA should withdraw the proposed requirement in the Phase III Proposal to apply the UHC treatment requirement to listed wastes that exhibit the TC.

RESPONSE

Toxicity characteristic (TC) wastes (D004-D043) cannot be land disposed until the characteristic is removed and any underlying hazardous constituents, as defined in 268.2(i), are treated to meet the UTS. These wastes, like the ICR characteristic wastes, could contain other hazardous constituents at concentrations of concern. In this regard, EPA again reiterates finding that in the absence of reliable, national risk-based levels establishing when threats are minimized, technology-based levels remain the best means of determining with any certainty that the requisite minimization of threats has occurred. The decision to extend the UHC requirement to TC wastes is consistent with the Court's opinion on the treatment of ignitable, corrosive, and reactive characteristic wastes in Chemical Waste Management v. EPA, 976 F. 2d at 17 (D.C. Cir. 1992), cert. denied 113 U.S. 1961 (1993). The Court held that all hazardous constituents in characteristic wastes must meet the levels satisfying the requirements in RCRA 3004(m) before land disposal, and that treatment standards cannot be achieved by dilution (provided, of course, that treatment standards are not established below the level at which threats to human health and the environment are minimized). (See 59 FR 47987 September 19, 1994).

Furthermore, the commenter is incorrect in their understanding that the UHC requirements would apply to listed wastes that also displayed the TC. The UHC requirement generally only applies to characteristic wastes. See 40 CFR section 268.9(b). The only time that the UHC requirements would be triggered for a listed waste is if it also exhibited one or more hazardous characteristics that are not specifically addressed in the treatment standard for the listed waste. In these cases (which the Agency believes would occur infrequently), the treatment standard for both the listed waste and for the hazardous characteristic constituent or property--including the UHC requirements--would have to be met.

DCN PH4P067
COMMENTER Horsehead/Zinc Corp.
RESPONDER RJM
SUBJECT UHCS
SUBJNUM 067
COMMENT

Withdraw the UHC treatment requirement for listed hazardous wastes that exhibit the toxicity characteristic.

RESPONSE

The commenter is incorrect in their understanding that the UHC requirements would apply to listed wastes that also displayed the TC. The UHC requirement generally only applies to characteristic wastes. See 40 CFR section 268.9(b). The only time that the UHC requirements would be triggered for a listed waste is if it also exhibited one or more hazardous characteristics that are not specifically addressed in the treatment standard for the listed waste. In these cases (which the Agency believes would occur infrequently), the treatment standard for both the listed waste and for the hazardous characteristic constituent or property--including the UHC requirements--would have to be met.

DCN PH4P089
COMMENTER ASTSWMO
RESPONDER RC
SUBJECT UHCS
SUBJNUM 089
COMMENT

(1) It is inappropriate to require that decharacterized wastes meet treatment standards for underlying hazardous constituents. If EPA continues to have concerns with the disposal of decharacterized wastes, a more appropriate means of addressing those concerns would be to expand the waste characterization system to address those constituents of concern or concentrations which the current system inadequately addresses. Gaps in the waste

characterization system are more appropriately filled with additional or more up-to-date waste characterization criteria, rather than patched with treatment standard requirements. For example, if there are specific constituents of concern in decharacterized wastes that EPA is using the Land Disposal Restrictions (LDR) to address, it would be more logical and consistent to develop waste characteristics that ensure those particular constituents of concern do not occur in decharacterized waste. The characterization system should address all constituents of concern, rather than relying on LDRs to provide the necessary protection.

An example of the present inconsistency of the applicability of LDR's underlying hazardous constituents (UHC) and toxicity characteristic is that characteristic waste, at the point of generation, requires treatment to Universal Treatment Standards (UTS), while a waste that is not characteristically hazardous, at the point of generation, would not be required to be treated to UTS but may have constituents concentration above the UTS. In the case of lead (D008) for example, a waste with 4.9 parts per million (ppm) by the TCLP is not hazardous, while a waste with a 5.1 ppm by the TCLP is hazardous and must be treated to a TCLP level of 0.37 ppm(nonwastewaters).

Applying the land disposal restrictions and the associated treatment standards to decharacterized wastes poses a number of enforcement and compliance problems. Although decharacterized wastes may be disposed of in facilities outside of the Subtitle C universe, EPA acknowledges these facilities are not prepared to receive the paperwork associated with hazardous waste, such as the LDR notification and certification. For this reason, EPA requires that the LDR notification and certification for decharacterized waste be submitted to EPA or authorized States rather than the non-Subtitle C receiving facility (59 FR 48016). If the receiving facility does not receive the notification statement, which includes a list of the underlying hazardous constituents the treater will monitor, and it does not receive the certification statement which specifies that the decharacterized waste requires further treatment to meet universal treatment standards for the underlying hazardous constituents present, then how is the receiving facility informed that the decharacterized waste it has received cannot be land disposed until it is further treated?

Enforcing agencies will receive the notification and certification statements for decharacterized waste, but how do those agencies

> verify that the LDR requirements are met for decharacterized wastes at non-Subtitle C facilities without a tracking system for such wastes? The serious practical issues associated with applying treatment standards to decharacterized wastes with underlying hazardous constituents place in jeopardy both those willing but unable to comply due to incomplete information, and those who must ensure effective enforcement despite inadequate information. Applying treatment standards to underlying hazardous constituents in decharacterized wastes but not to listed or delisted wastes is an inequitable application of the LDR requirement. The constituents of concern addressed by the treatment standards for the listed wastes were developed in the early days of the LDR program and are not necessarily complete or comprehensive. Knowing this, it is not logical to require that decharacterized waste meet treatment standards for underlying hazardous constituents while listed wastes are not subject to this requirement. Furthermore, according to the proposed changes in the table in section 268.40, the characteristic metals wastes are not subject to the treatment standards for underlying hazardous constituents, although the characteristic organic wastes seem to remain subject to this requirement. This is in conflict with the preamble (60 FR 43682) which states that characteristic metals wastes must meet any underlying hazardous constituents.

RESPONSE

The gap mentioned by the commenter is a consequence of the structure of the law, which requires that hazardous wastes be treated until threats posed by their land disposal are minimized. The law does not require such treatment (or any other federal control) over wastes that are not hazardous in the first instance.

In addition, TC metal wastes (D004-D011), like the ICR characteristic wastes and TC organic wastes, could contain other hazardous constituents at concentrations of concern. In this regard, EPA again reiterates its finding that in the absence of reliable, national risk-based levels that achieve the minimized threat requirement, the technology-based levels remain the best means of determining with any certainty that the requisite minimization of threats has occurred. The decision to extend the UHC requirement to TC wastes is consistent with the Court's opinion on the treatment of ignitable, corrosive, and reactive characteristic wastes in <u>Chemical Waste Management v. EPA</u>, 976 F. 2d at 17 (D.C. Cir. 1992), <u>cert. denied</u> 113 U.S. 1961 (1993). The Court held that all hazardous constituents in characteristic wastes must meet levels satisfying the requirements in RCRA 3004(m) before land disposal, and that treatment standards cannot be achieved by dilution (provided, of course, that treatment standards are not established below the level at which threats to human health and the environment are minimized). (See 59 FR 47987 September 19, 1994).

The reason for the UHC distinction between listed and characteristic wastes is that EPA has studied the listed wastes carefully and established treatment standards already for hazardous constituents present in significant levels. It is impossible to do the same for characteristic hazardous wastes, because this group of wastes is so diverse. Hence, the UHC process duplicates the same process EPA has already undertaken for listed wastes.

Furthermore, a decharacterized waste only may be disposed of in facilities outside of the Subtitle C universe when the UHCs reasonably expected to be present have been treated; then the decharacterized waste is no longer considered to be hazardous and may be disposed of in a Subtitle D facility. Once the waste is no longer hazardous, a one-time notification and certification is submitted to the EPA Region or authorized State. In addition, copies are kept in the generator's/treater's files. Otherwise, the waste is still subject to the record keeping requirements of 40 CFR §268.7.

DCN PH4P048 (Phase IV original proposal)
COMMENTER Chemical Waste Management
RESPONDER RC
SUBJECT UHCS
SUBJNUM 048
COMMENT

2. Applying Underlying Hazardous Constituents to Characteristically Hazardous Metal Wastes

The Agency is proposing to require all D004-D011 wastes to meet treatment standards for any UHCs reasonably expected to be present in those wastes at the point of the waste's generation.

CWM believes that this is the most significant part of the Phase IV proposal because it will cause a significant amount of predominately metal bearing waste streams to be penetrated in combustion units that are currently being successfully treated using stabilization.

The environmental services industry has for years successfully stabilized characteristic metal wastes that contain low levels of unregulated organics or regulated organics that are below characteristic levels. The impact of this proposal upon the commercial hazardous waste industry is extremely difficult if not impossible to quantify. The reason this is the case is because in all cases the generators have not historically been required to identify organic UHCs in D004-D011 wastes. Recent surveys of our facilities indicate up to as much as 30% of the waste stabilization volume may contain organics above UTS. As proposed this rule will not require all D004-D011 wastes streams with organic UHCs above the UTS level to be treated by combustion or an alternative organic treatment process prior to stabilization. Furthermore, chemical oxidation should not be one of these alternative organic treatment options until it can be demonstrated to achieve legitimate organic treatment. CWM has submitted information to the Agency indicating that chemical oxidation in the stabilization process may not constitute proper treatment under LDR (See Attachment III). This data indicates that volatilization of organics accounts for significant reductions in the contaminant levels evaluated when these wastes are treated to characteristic LDR levels.

As a result, if the Agency requires D004-D011 wastes with organic UHCs to meet UTS CWM requests that the Agency state that chemical oxidation of organics is not a viable treatment option for D004-D011 wastes containing organic UHCs.

CWM requests that the Agency reconsider the actual impact of this proposal. The most obvious impact involves the Agency's "Dilution Prohibition and Combustion of Inorganic Metal-Bearing Hazardous Wastes Policy" issued May 23, 1994. The stated goal of this policy is to prohibit inorganic metal-bearing wastes with insignificant levels of organics in combustion units. As the policy exists inorganic metal bearing waste streams must have 1) organics or cyanide above the F039 treatment standards, although the Phase III proposed rule has proposed to change this to levels above UTS; 2) organic debris-like material; or 3) have reasonable heating value above 5,000 BTU at the point of generation to qualify for combustion.

As a result of this policy inorganic metal bearing waste streams that were previously combusted are now being stabilized. This includes inorganic metal bearing waste streams that do have organic levels above F039 but which are not regulated as a listed or characteristic waste because of the organics present, and can be stabilized successfully. The net result of this proposed change is that these wastes that have been moved away from combustion will now be required to be combusted in order to meet the UTS organic levels. This is obviously in conflict with the Agency's policy.

The Agency states on page 4 of the May 23, 1994 policy that "These inorganic metal-bearing hazardous wastes should be and are usually treated by metal recovery or stabilization technologies. These technologies remove hazardous constituents through recovery in products, or immobilize them, and are therefore permissible BDAT treatment methods." This directly contradicts the proposal in this rulemaking.

CWM has been able to find one example of a D004-D011 waste stream with organic UHCs present above UTS which we have data available. (See Attachment 2 Profile Number AE 8017)This profile is normally characteristically hazardous for D005, D006, and D010, however, this data indicates that this stream is only hazardous for D006 under this analysis. The waste stream also contains TC organics under the characteristic levels but above the UTS levels for UHCs. Under this proposal this waste stream that is currently being successfully stabilized will not have to be treated by incineration.

The second consequence of this proposal is it will result in more metal bearing wastes being burned, which in turn increases the concentration of metals in the incinerator ash. This increased concentration, coupled with the proposed lowering of BDAT for D004-D011 wastes, will create real problems for operations stabilizing incinerator ash to meet BDAT for characteristic metals.

A third consequence of this policy is it's obvious conflict with the Agency's Waste Reduction and Combustion Strategy issued May 18, 1993. One of this strategy's stated goals is to investigate innovate waste treatment technologies that provide protection to human health and the environment. Although CWM admits that stabilization may not be an innovate technology it has been and will continue to be an effective way to treat inorganic metal bearing wastes with low levels of organics.

The fourth consequence of this proposal is its effect on petroleum-contaminated media and debris that fail TCLP for D018-D043 and are subject to the corrective action requirements under 40 CFR 280. These waste streams currently are considered solid wastes which are not hazardous wastes. (See 40 CFR 261.4(b)) In many situations these petroleum contaminated media wastes are hazardous for characteristic metals, particularly lead (D008). As proposed, those waste streams that are characteristically hazardous for metals would have to be treated for organic UHCs. For example, a petroleum contaminated soil that is characteristic for lead (D008) and also contains benzene above the UTS level of 10.0 mg/kg TCA for benzene would be required to be treated by combustion because the benzene would be identified as a UHC for D008. This would send this waste stream from a stabilization treatment facility to a combustion facility. The net result will be increased costs for the disposal of these UST corrective action waste

streams.
The fifth consequence of this proposal is the impact on characteristic metal waste streams containing PCBs. CWM currently stabilizes characteristic metal wastes that contain PCBs. Under existing regulatory requirements D004-D011 wastes with PCBs can be stabilized provided the PCBs and other HOCs present in the waste do not exceed 1,000 mg/kg. If these D004-D011 wastes exceed 1,000 mg/kg for PCBs or for PCBs and other HOCs the waste is subject to California List requirements and must be incinerated pursuant to 268.42(a)(2). Under this proposal the PCBs would be regulated as UHCs if they exceed the UTS level of 10 mg/kg. This would then require these waste streams to be incinerated. The net result will be a significant increase in the cost to dispose of many PCB remediation wastes that currently are being stabilized and then landfilled. This will also prevent the proposed PCB self-implementing requirements for PCB remediation wastes from having an impact in situations where the PCB soils also contain characteristic levels. Under the self implementing requirements proposed on December 6, 1994(See 59 Fed. Reg. at 62,788) PCB remediation waste can be disposed in Subtitle D landfills if the waste contains less than 50 ppm PCBs. Applying UHCs to characteristic metals will prevent D004-D011 wastes containing PCBs less than 50 ppm, which are stabilized for D004-D011 to remove the characteristic, from ever meeting this criteria. CWM urges the Agency to reevaluate the impact of this proposal on PCB waste streams.
The final consequence of applying UHCs to characteristic D004-D011 wastes involves the impact of inorganic metal UHCs on these waste streams. In situations involving characteristic D004-D011 metals that have metal UHCs there are potential problems with meeting the UTS levels for the UHCs. This is because in order to meet the lower UTS levels for the characteristic and the UHC metals additional alkaline reagents will have to be added to treat to those levels. This increase in alkalinity can result in the leaching of other UHC metals at greater levels as the increased alkalinity causes some metals to solubilize. A likely result will be that the characteristic wastes may be treated to UTS while the UHCs may now leach at a higher amount. CWM expects this to be true in cases involving D006, D007, and D008, and is including information in Attachment 2 that reflect this situation for several waste streams.
One example (See Attachment 2 Profile number BS0576) that exemplifies this situation involves a D007 contaminated soil. The

chromium is present at 15.6 mg/kg TCLP in the untreated waste, and the soil has selenium present at <0.037 mg/kg TCLP. This dictates that the selenium be identified as a UHC and treated to <0.16 mg/kg TCLP. On the surface these appears to be a little problem with treating the wastestream to UTS level. Unfortunately, this is not the case. After treatment the chromium is treated to 2.03 Mg/Kg TCLP. This meets current regulatory levels, however, the proposed UTS level of the .86 Mg/Kg for chromium is not met. Furthermore, an examination of the selenium indicates that the addition of the reagents to treat the chromium has increased the leachable selenium level from <.37 mg/kg to <.61 mg/kg. This complicates the issue. The likely result of adding additional reagents to treat the chromium will be that the selenium will continue to leach at greater levels. Additional examples of this phenomenon are provided in Attachment 2 along with the CWM profiles for each stream reflected in the data.

Another potential problem with applying metal UHCs to D004-D011 waste streams involves nickel UHCs. It has been CWM's experience that nickel is very hard to stabilize when present with other regulated metals. This experience is based on stabilization receipts developed for listed wastes that contain nickel (e.g., F006, K061, K062, etc.). CWM believes that characteristic D004-D011 wastes with nickel UHCs will be very difficult to treat to UTS levels for both the characteristic and the nickel UHC. However, CWM cannot at this time provide treatment data for D004-D011 wastes to support this belief because final TCLP data for nickel has not been developed for D004-D011 waste streams.

CWM proposes that the Agency consider not applying any UHCs to the D004-D011 characteristic waste streams. This action will then allow the continued successful stabilization of the current D004-D011 wastes that are treated by this technology. To incorporate this change CWM recommends that the Agency consider amending 268.40(e) to include an additional line as follows:

"For wastes that are identified only by one, or more, of the following waste codes D004, D005, D006, D007, D008, D009, D010, and/or D011, the underlying hazardous constituents identified in 268.48 do not apply prior to land disposal."

A second approach that the Agency may wish to consider is to allow D004-D011 wastes with organic UHCs to continue to be stabilized provided the organics are present in levels no greater than an order of magnitude above the UTS levels in 268.48. In conjunction with this CWM believes the Agency should evaluate only requiring treatment of inorganic UHCs to an order of magnitude above the UTS level. This would address the increased leachability of these UHCs when treating characteristic metal wastes to the UTS levels. This action will allow those waste streams with levels just above the 268.48 levels for organics and inorganics to continue to be stabilized successfully for the D004-D011 constituents.

RESPONSE

The commenter is concerned with the following issues: (1) impact of underlying hazardous constituent (UHC) requirements on metal bearing wastes that have organic UHCs that will require combustion and, thus conflict with the Agency's "Dilution Prohibition and Combustion of Inorganic Metal-Bearing Hazardous Wastes Policy" dated May 23, 1994; (2) adoption of the regulations will force the combustion of metal bearing wastes with organic UHCs; (3) conflict with the Agency's Waste Minimization and Combustion Strategy issued May 18, 1993; (4) petroleum-contaminated media and debris characteristically hazardous for metals that have organic UHCs would require treatment by combustion; (5) impact of PCBs as UHCs for characteristic metal soils; and (6) impact of treating multiple metal UHCs in characteristic metal wastes. In addition, the commenter recommends the following two approaches to address their concerns: (1) to withdraw the UHC requirements for characteristic metal wastes (D004-D011); and (2) to allow the stabilization of characteristic metal wastes with organic concentrations that are an order of magnitude above the UTS levels and require treatment of metal UHCs to an order of magnitude above the UTS level.

The commenter's first 3 issues argue that the overall impact of the UHC requirement will force the combustion of metal bearing characteristic waste streams prior to land disposal. First, there is no conflict with the dilution prohibition on the combustion of metal-bearing wastes found in 40 CFR 268.3(c). The combustion of hazardous waste codes listed in 40 CFR 268 Appendix XI is prohibited, unless, at the point of generation the waste contains hazardous organic constituents or cyanide at levels exceeding the constituent-specific UTS treatment standards found in 40 CFR 268.48. See 61 FR 33682 June 28, 1996. Since UHCs are defined in 40 CFR 268.2(i) as any constituent in 40 CFR 268.48 which exceeds the constituent-specific UTS treatment standards at 40 CFR 268.48, application of the UHC requirement to these wastes will not conflict with the dilution prohibition. Second, characteristic metal wastes with organic UHCs will not necessarily have to be combusted. An appropriate treatment train can be designed to first treat the organic UHCs followed by stabilization for the metals. EPA's data, as discussed in the preamble and in background documents and also as discussed in the next paragraph, shows that organics can be successfully pretreated by any of the following technologies: air stripping, steam stripping, chemical extraction, thermal desorption, or any other technologies which remove and subsequently either recover or destroy the organics. Pretreatment for the organics minimizes interferences that may arise in the stabilization process for metals. Stripping, i.e., volatilization of organics, can also occur as part of the metals stabilization process itself so long as harmful organic emissions are captured and destroyed (for example, through compliance with the requirements of the Subpart CC rules to control air emissions from the hazardous waste tanks, containers, and surface impoundments). See Chemical Waste Management, 976 F. 2d at 17.

Third, there is no conflict with the Agency's Waste Minimization and Combustion Strategy's goal to investigate innovative treatment technologies. The Agency is setting UTS levels for metals; thus any technology except impermissible dilution can be used to treat a waste to the UTS levels. The UTS levels provide the regulated community flexibility in the use of various technologies to meet the numerical standards. Furthermore, as discussed in the preamble section and related background documents on achievability of soil treatments standards, a substantial number of non-combustion technologies have been identified that can provide adequate treatment for organics. See especially, the Soil Treatability Analysis Report Appendix C (April 1998, USEPA) in which data are presented showing approximately 1,317 out of 2,143 paired soil data points were treated to below the UTS levels by these non-combustion technologies. The Agency expects that these same technologies can be used to treat organics in non-soil waste streams as well, and thereby avoid the need for combustion. In fact, without the complications introduced by varying soil matrices, it may be that even better performance is achievable for non-soil waste streams than for contaminated soils.

To account for those rare cases where wastes cannot be treated to meet the applicable treatment standards, even if well-designed and well-operated treatment systems appropriate to waste matrix and constituents are used, or if the treatment technologies are inappropriate for a waste, EPA established the variance from the treatment standard at 40 CFR 268.44(a) and (h). The petitioner must demonstrate that the waste is significantly different from the wastes evaluated by EPA in establishing the treatment standard, and the waste cannot be treated to the level or by the method specified by the treatment standard, or that such standard or method is inappropriate for the waste. In the situation posed by the commenter, it would be possible to pursue a treatment variance involving stabilization if, for some reason, the non-combustion technologies were properly shown to be unable to achieve the required level of treatment.

It should be noted that the Agency is not sure that the problem the commenter discusses will even exist in but a handful of cases. EPA has analyzed data from its National Hazardous Waste Constituent Survey to assess the likelihood of organic underlying hazardous constituents being present above UTS levels in TC metal wastes. The results of this analysis demonstrate that it is very unlikely that TC metal wastes will contain organic underlying hazardous constituents in levels sufficient to require combustion. Of 181 waste streams examined, only 3 contained organic constituents above UTS levels. Of those 3, none were present in levels sufficiently high to warrant combustion. Rather, based on the information on non-combustion technologies assembled regarding treatment capabilities with contaminated soils (likely a harder to treat matrix), we would expect that non-combustion technologies would be suitable for treating these 3 waste streams.

The commenter is correct in its fourth issue. Petroleum-contaminated media and debris that fail the TC for waste codes D018 through D043 only and are subject to the corrective action regulations under 40 CFR 280 are solid wastes which are not hazardous wastes. See 40 CFR 261.4(b). However, petroleum-contaminated media and debris which fail the TCLP for D004-D011 are not exempt at 261.4(b) and will have to treat for any organic UHCs reasonably expected to be present in the waste. EPA believes the commenter's concerns are addressed by today's soil-specific treatment standards. The soil-specific standards require treatment for those hazardous constituents found in soil at levels greater than 10 times UTS. These hazardous constituents must be reduced by 90 % or to 10 times UTS, whichever is higher. The Agency believes these standards are achievable for soils. The data supporting the alternative treatment standards for soils containing hazardous wastes are based on non-combustion technologies, namely biological treatment, chemical/solvent extraction, dechlorination technologies, soil vapor extraction, soil washing, stabilization, and vitrification. EPA believes these technologies are feasible alternatives to the direct incineration of soils. See the Soil Treatability Analysis Report (April 1998, USEPA) in this docket. Although the Agency feels these treatment standards can be achieved, there may be situations where the minimized threat level is higher than today's soil-specific standards. Thus, in today's rule the Agency is allowing risk-based variance determinations for only contaminated soil. The risk-based variance determinations is evaluated through the site-specific variance process set out in 40 CFR 268.44(h). In addition, the treatment variance process is still available for soil if the petitioner can show that their soil cannot be treated to meet the treatment standards based on the performance of the technologies the Agency considered in establishing the soil-specific standards or that the application of the soil treatment standards is inappropriate in that, for example, it would present unacceptable risks to on-site workers.

In response to the commenter's fifth issue, soils contaminated with RCRA hazardous wastes that have PCBs as UHCs are eligible for the Agency's soil-specific treatment standards, which is discussed above. The data supporting the treatment standards for PCB soils are based on non-combustion technologies, namely chemical extraction, dechlorination technologies, thermal desorption and soil washing. EPA believes these technologies are feasible alternatives to the direct incineration of PCB soils. For example, at the Moreau Superfund Site in New York, KPEG dechlorination of topsoil contaminated with up to 7,013 ppm of PCBs achieved an overall performance efficiency of 98.25 %. Likewise EPA's data show that thermal desorption is highly effective in decontaminating soil. The treated soil meeting the provision in 268.49 can be land disposed without further treatment. Other residues from these treatment practices may require further treatment prior to disposal. Report identification number 1B. See (1) Final/Proposed BDAT Background Document for Hazardous Soil, August 1993, docket #F-93-CS2P-S0599; (2) Soil Treatability Database for the Proposed Land Disposal Restrictions Rule for Hazardous Soil, docket #F-930CS2P-S0595; (3) Attachment C: Soil Database Treatability Database Output, docket #F-93-CS2P-S0595.C; and (4) Soil Treatability Analysis Report (April 1998, USEPA) in the docket to today's rule.

The Agency believes that these standards are achievable for contaminated soils. However, as previously explained above, a risk-based determination for only contaminated soil can be made through the site-specific variance process that is being adopted as part of the Phase IV final rule.

The commenter's sixth concern is that a characteristic metal waste with metal UHCs will be difficult to treat. In developing the metal treatment standards, the wastes with the most difficult to treat metal constituents were treated by high temperature metals recovery and stabilization technologies. The Agency's review of the treatment data on TC metal and mineral processing wastes shows that UTS are achievable for the UHCs in waste characteristic for TC metals (including mineral processing wastes). Thus, treatment using either HTMR or stabilization is expected to achieve the final metal UTS levels. It should be noted that selenium is not being regarded as a UHC since its treatment standard is above its characteristic level. Thus, a selenium characteristic waste will always be hazardous unless the selenium concentration is below the characteristic level of 1 mg/L TCLP. The commenter's example is a D007 contaminated soil. The specific constituent concentrations reported are in mg/kg TCLP; however the Agency is presuming a typographical error occurred and the measurement unit should be mg/L TCLP. As previously stated, contaminated soils are eligible for today's soil-specific standards, namely 90 % reduction or 10 times UTS, whichever is higher. It appears from the example that chromium meets the soil-specific 10 times UTS level. As for selenium, it is not considered a UHC in characteristic wastes.

The commenter's first and second approach would be inconsistent with the Agency's treatment of characteristic wastes. TC metal wastes, like ICR and organic characteristic wastes, could contain other hazardous constituents at concentrations of concern. In this regard, EPA again reiterates our position that in the absence of reliable, national risk-based levels that achieve the minimized threat requirement of RCRA 3004(m), the technology-based levels remain the best means of determining with any certainty that the requisite minimization of threats has occurred. Thus, the commenter's second approach of an order of magnitude increase is not appropriate. The decision to extend the UHC requirement to TC metal wastes is consistent with the Court's opinion on the treatment of ignitable, corrosive, and reactive characteristic wastes in Chemical Waste Management v. EPA, 976 F. 2d at 17 (D.C. Cir. 1992), cert. denied 113 U.S. 1961 (1993). The Court held that all hazardous constituents in characteristic wastes must meet levels satisfying the requirements in RCRA 3004(m) before land disposal, and that treatment standards cannot be achieved by dilution (provided, of course, that treatment standards are not established below the level at which threats to human health and the environment are minimized). (See 59 FR 47987 September 19, 1994).

Finally, in regards to the stabilization of organic-metal bearing wastes, the LDRs do not specifically prohibit the use of stabilization technologies to treat nonwastewaters containing hazardous organic constituents providing there is no impermissible dilution (including that which may occur through cross-media transfer of hazardous organic constituents). Subject to the relevant applicability sections, the stabilization process must occur in units subject to the Agency's rules in Parts 264 and 265 Subpart CC (establishing air emission standards for control of air emissions from hazardous waste tanks, containers and surface impoundments) which set out the usual measure of control for such air emissions. These rules were in some cases specifically tailored to provide flexibility for stabilization operations where the wastes contained volatile hazardous constituents. See, e.g., 40 CFR 264.1084.

The Agency is also considering whether to issue additional guidance on when stabilization or solidification of organic-bearing waste is appropriate and when it may constitute impermissible dilution. The Agency believes that the commenter's concerns about stabilization of organic-bearing waste (especially those that contain low UHC organic concentrations) has been adequately addressed above, but further guidance may prove to be worthwhile. Again, we note that LDRs do not specifically prohibit the use of stabilization or solidification to treat nonwastewaters containing hazardous organic constituents.

We note also that a treatment variance offers an opportunity to comply with LDRs through development of an alternative standard. If an organic-containing RCRA hazardous waste, treated by stabilization or solidification alone or in combination with another non-combustion technology, cannot meet the existing numeric treatment standards, then a generator or treatment facility may petition for a variance from the treatment standards. See 40 CFR 268.44(a) and 268.44 (h). This would also be addressed in any guidance memorandum that is developed.

DCN PH4P056
COMMENTER Westinghouse
RESPONDER RC
SUBJECT UHCS
SUBJNUM 056
COMMENT

Issue 3: Rationale for Applying UTS to Toxic Characteristic Metal Wastes (D004-D011)Reference: Preamble at Section V.D.1, page 43682
The EPA should clarify what order of treatment is required to comply with LDRs when a metal-bearing characteristic waste also has an organic UHC. The EPA has stated in other rulemaking efforts that organic removal and destruction must occur first, and the stabilization treatment step used to treat the metals must occur last. Is this also true for wastes addressed in this rulemaking? Does the EPA believe that stabilization of TC metal wastes can be used to meet the UHC organic treatment standards?

RESPONSE

EPA has recommended that in any treatment train the immobilization technologies should be the last step in the train. The organics should be first separated from the wastes and then the residuals from this step may be stabilized/solidified. See also 40 CFR section 268.45(a)(3) and (a)(4).

Furthermore, in regards to the stabilization of organic-metal bearing wastes, the LDRs do not specifically prohibit the use of stabilization technologies to treat nonwastewaters containing hazardous organic constituents providing there is no impermissible dilution (including that which may occur through cross-media transfer of hazardous organic constituents). Subject to the relevant applicability sections, the stabilization process must occur in units subject to the Agency's rules in Parts 264 and 265 Subpart CC (establishing air emission standards for control of air emissions from hazardous waste tanks, containers and surface impoundments) which set out the usual measure of control for such air emissions. These rules were in some cases specifically tailored to provide flexibility for stabilization operations where the wastes contained volatile hazardous constituents. See, e.g., 40 CFR 264.1084.

The Agency is also considering whether to issue additional guidance on when stabilization or solidification of organic-bearing waste is appropriate and when it may constitute impermissible dilution. The Agency believes that the commenter's concerns about stabilization of organic-bearing waste (especially those that contain low UHC organic concentrations) has been adequately addressed above, but further guidance may prove to be worthwhile. Again, we note that LDRs do not specifically prohibit the use of stabilization or solidification to treat nonwastewaters containing hazardous organic constituents.

We note also that a treatment variance offers an opportunity to comply with LDRs through development of an alternative standard. If an organic-containing RCRA hazardous waste, treated by stabilization or solidification alone or in combination with another non-combustion technology, cannot meet the existing numeric treatment standards, then a generator or treatment facility may petition for a variance from the treatment standards. See 40 CFR 268.44(a) and 268.44 (h). This would also be addressed in any guidance memorandum that is developed.

2P4P-00078 EnviroSource Treatment and Disposal Services, Inc. (TDS) (Phase IV Second Supplemental Proposal)

One area of concern in the proposed rule is the application of Underlying Hazardous Constituents (UHC) to waste that is both hazardous for toxicity (metals) and regulated for PCBs under part 761 (TSCA). Currently, such wastes can be stabilized to meet the standards applicable to the metal constituents and are subsequently disposed of at a facility permitted under both RCRA and TSCA. EPA's proposal will effectively prohibit this approach by requiring the identification of PCBs as a UHC, therefore establishing a treatment standard for PCBs of 10 ppm (40 CFR 268.48). Similar problems may result with specific UHC organics that are associated with PCBS, e.g. chlorinated benzenes are prevalent in PCB oils.

RCRA / TSCA wastes are predominately large volume (5,000 - 10,000 ton) remediation projects, e.g.. contaminated soil and debris, with typical PCB concentrations from 50 - 600 ppm. EPA has already established environmental data and health studies to support land disposal of PCB wastes in properly permitted facilities, and has in fact specifically decided not to regulate wastes with PCBs less than 50 ppm. By requiring compliance with the Universal Treatment Standard (UTS) for PCBS, EPA is essentially requiring incineration of all RCRA/TSCA wastes, a result that is not consistent with EPA's policy that combustion of large amounts of contaminated media is generally inappropriate. This problem is further compounded by the limited availability of incineration capacity for media contaminated with PCBS.

We recommend that EPA establish an exemption from the UHC requirement for wastes that are regulated under part 761 for PCB and that are hazardous wastes because they fail the toxicity characteristic for metal constituents (D004 -D011). A similar, but more expansive approach was taken by EPA for waste codes D018 - D043 (See 40 CFR 261.8).

RESPONSE

The Agency only exempted from the UHC requirement PCB-containing dielectric fluids that are fully regulated under TSCA and that are hazardous only because they fail the toxicity characteristic for hazardous waste codes D018 through D043 only. The Agency believes that the regulation of these TC organic wastes under TSCA is adequate to protect human health and the environment. However, for other PCB-containing wastes that are listed or exhibit a hazardous characteristic (which includes D004 through D017) are subject to all applicable subtitle C standards. See 55 FR 11841 March 29, 1990. The RCRA regulated constituents in these other PCB-containing wastes may not be adequately addressed by the TSCA regulations.

Soil contaminated with PCBs are eligible for the Agency’s soil-specific treatment standards being finalized in today’s rule. These standards require the reduction of hazardous constituent concentrations by 90 % with treatment for any given constituent capped at 10 times the universal treatment standard (UTS). The data supporting the alternative treatment standards for soils contaminated with PCBs are based on non-combustion technologies, namely chemical extraction, dechlorination technologies, thermal desorption and soil washing. EPA believes these technologies are feasible alternatives to the direct incineration of soils. For example, at the Moreau Superfund Site in New York, KPEG dechlorination of topsoil contaminated with up to 7,013 ppm of PCBs achieved an overall performance efficiency of 98.25 %. Likewise EPA's data show that thermal desorption is highly effective in decontaminating soil. The treated soil meeting the provision in 268.49 can be land disposed without further treatment. Other residues from these treatment practices may require further treatment prior to disposal. Report Identification No. 1B. See (1) Final/Proposed BDAT Background Document for Hazardous Soil, August 1993, docket #F-93-CS2P-S0599; (2) Soil Treatability Database for the Proposed Land Disposal restrictions Rule for Hazardous Soil, docket #F-930CS2P-S0595; (3) Attachment C: Soil Database Treatability Database Output, docket #F-93-CS2P-S0595.C; and (4) Soil Treatability Analysis Report (April 1998, USEPA) in this docket to today's rule.

The Agency believes that these standards are achievable for contaminated soils. Although the Agency believes these standards are achievable, there may be situations where the minimized threat level is higher than today's soil-specific standards. Thus, in today's rule the Agency is allowing risk-based variance determinations for only contaminated soil. The risk-based variance determinations is evaluated through the site-specific variance process set out in 40 CFR 268.44(h). In addition, the treatment variance process is still available for soil if the petitioner can show that their soil cannot be treated to meet the treatment standards based on the performance of the technologies the Agency considered in establishing the soil-specific standards or that the application of the soil treatment standards is inappropriate in that, for example, it would present unacceptable risks to on-site workers.

Finally, in regards to the stabilization of organic-metal bearing wastes, the LDRs do not specifically prohibit the use of stabilization technologies to treat nonwastewaters containing hazardous organic constituents providing there is no impermissible dilution (including that which may occur through cross-media transfer of hazardous organic constituents). Subject to the relevant applicability sections, the stabilization process must occur in units subject to the Agency's rules in Parts 264 and 265 Subpart CC (establishing air emission standards for control of air emissions from hazardous waste tanks, containers and surface impoundments) which set out the usual measure of control for such air emissions. These rules were in some cases specifically tailored to provide flexibility for stabilization operations where the wastes contained volatile hazardous constituents. See, e.g., 40 CFR 264.1084.

The Agency is also considering whether to issue additional guidance on when stabilization or solidification of organic-bearing waste is appropriate and when it may constitute impermissible dilution. The Agency believes that the commenter's concerns about stabilization of organic-bearing waste (especially those that contain low UHC organic concentrations) has been adequately addressed above, but further guidance may prove to be worthwhile. Again, we note that LDRs do not specifically prohibit the use of stabilization or solidification to treat nonwastewaters containing hazardous organic constituents.

We note also that a treatment variance offers an opportunity to comply with LDRs through development of an alternative standard. If an organic-containing RCRA hazardous waste, treated by stabilization or solidification alone or in combination with another non-combustion technology, cannot meet the existing numeric treatment standards, then a generator or treatment facility may petition for a variance from the treatment standards. See 40 CFR 268.44(a) and 268.44 (h). This would also be addressed in any guidance memorandum that is developed.

2P42-L1003 Environmental Technology Council

5. PCBs Should Not Be An Underlying Hazardous Constituent

One area of concern is the application of Underlying Hazardous Constituents (UCHs) to waste that is both hazardous for toxicity (metals) and regulated for PCBs under 40 CFR Part 761 (TSCA). Currently, such wastes can be stabilized to meet the standards applicable to the metal constituents and are subsequently disposed of at a facility permitted under both RCRA and TSCA. EPA's proposal will effectively prohibit this approach by requiring the identification of PCBs as a UHC, therefore establishing a treatment standard for PCBs of 10 ppm (40 CFR 268.48).

RCRA / TSCA wastes are predominately large volume (5,000 - 10,000 ton) remediation projects, e.-g. contaminated soils and debris. EPA has already established environmental data and health studies to support a regulatory exemption for PCBs less than 50 ppm and permit land disposal of PCB wastes in properly approved facilities. We recommend that PCBs not be considered an Underlying Hazardous Constituent for TC metal hazardous wastes, similar to the current approach for D018 - D043 hazardous wastes.

RESPONSE

The Agency only exempted from the UHC requirement PCB-containing dielectric fluids that are fully regulated under TSCA and that are hazardous only because they fail the toxicity characteristic for hazardous waste codes D018 through D043 only. The Agency believes that the regulation of these TC organic wastes under TSCA is adequate to protect human health and the environment. However, for other PCB-containing wastes that are listed or exhibit a hazardous characteristic (which includes D004 through D017) are subject to all applicable subtitle C standards. See 55 FR 11841 March 29, 1990. The RCRA regulated constituents in these other PCB-containing wastes may not be adequately addressed by the TSCA regulations.

Soil contaminated with PCBs are eligible for the Agency's soil-specific treatment standards being finalized in today's rule. These standards require the reduction of hazardous constituent concentrations by 90 % with treatment for any given constituent capped at 10 times the universal treatment standard (UTS). The data supporting the alternative treatment standards for soils contaminated with PCBs are based on non-combustion technologies, namely chemical extraction, dechlorination technologies, thermal desorption and soil washing. EPA believes these technologies are feasible alternatives to the direct incineration of soils. For example, at the Moreau Superfund Site in New York, KPEG dechlorination of topsoil contaminated with up to 7,013 ppm of PCBs achieved an overall performance efficiency of 98.25 %. Likewise EPA's data show that thermal desorption is highly effective in decontaminating soil. The treated soil meeting the provision in 268.49 can be land disposed without further treatment. Other residues from these treatment practices may require further treatment prior to disposal. Report Identification No. 1B. See (1) Final/Proposed BDAT Background Document for Hazardous Soil, August 1993, docket #F-93-CS2P-S0599; (2) Soil Treatability Database for the Proposed Land Disposal restrictions Rule for Hazardous Soil, docket #F-930CS2P-S0595; (3) Attachment C: Soil Database Treatability Database Output, docket #F-93-CS2P-S0595.C; and (4) Soil Treatability Analysis Report (April 1998, USEPA) in this docket to today's rule.

The Agency believes that these standards are achievable for contaminated soils. Although the Agency believes these standards are achievable, there may be situations where the minimized threat level is higher than today's soil-specific standards. Thus, in today's rule the Agency is allowing risk-based variance determinations for only contaminated soil. The risk-based variance determinations is evaluated through the site-specific variance process set out in 40 CFR 268.44(h). In addition, the treatment variance process is still available for soil if the petitioner can show that their soil cannot be treated to meet the treatment standards based on the performance of the technologies the Agency considered in establishing the soil-specific standards or that the application of the soil treatment standards is inappropriate in that, for example, it would present unacceptable risks to on-site workers.

Finally, in regards to the stabilization of organic-metal bearing wastes, the LDRs do not specifically prohibit the use of stabilization technologies to treat nonwastewaters containing hazardous organic constituents providing there is no impermissible dilution (including that which may occur through cross-media transfer of hazardous organic constituents). Subject to the relevant applicability sections, the stabilization process must occur in units subject to the Agency's rules in Parts 264 and 265 Subpart CC (establishing air emission standards for control of air emissions from hazardous waste tanks, containers and surface impoundments) which set out the usual measure of control for such air emissions. These rules were in some cases specifically tailored to provide flexibility for stabilization operations where the wastes contained volatile hazardous constituents. See, e.g., 40 CFR 264.1084.

The Agency is also considering whether to issue additional guidance on when stabilization or solidification of organic-bearing waste is appropriate and when it may constitute impermissible dilution. The Agency believes that the commenter's concerns about stabilization of organic-bearing waste (especially those that contain low UHC organic concentrations) has been adequately addressed above, but further guidance may prove to be worthwhile. Again, we note that LDRs do not specifically prohibit the use of stabilization or solidification to treat nonwastewaters containing hazardous organic constituents.

We note also that a treatment variance offers an opportunity to comply with LDRs through development of an alternative standard. If an organic-containing RCRA hazardous waste, treated by stabilization or solidification alone or in combination with another non-combustion technology, cannot meet the existing numeric treatment standards, then a generator or treatment facility may petition for a variance from the treatment standards. See

40 CFR 268.44(a) and 268.44 (h). This would also be addressed in any guidance memorandum that is developed.

DCN PH4P091
COMMENTER FMC
RESPONDER AC
SUBJECT VAND
SUBJNUM 091
COMMENT VIII. EPA Needs to Clarify that the UTS for TCLP Wastes Do Not Include Vanadium or Zinc Similar to what EPA did in the Phase II regulations /59 for the previous land disposal restricted characteristic wastes, EPA needs to clarify in the final Phase IV regulations and in the table associated with 40 CFR 268.48 that vanadium and zinc are not applicable underlying hazardous constituents to TCLP wastes.

RESPONSE

The Agency agrees with the commenter that vanadium and zinc are not UHCs in characteristic wastes. Currently, vanadium is regulated in two listed wastes -- P119 and P120, and zinc is regulated in K061 wastes. The Agency will clarify this in the Phase IV final rule.

DCN PH4P016
COMMENTER UNIVERSAL FOREST PRODUCTS
RESPONDER JL
SUBJECT WOOD2
SUBJNUM 016
COMMENT

RECLAMATION AND OTHER QUESTIONS ELIMINATED
Under current regulation, a material which is recycled without reclamation is excluded from the definition of solid waste. This is applicable to a huge segment of the wood treating industry. It represents a potential point of disagreement between the Agency and the industry. It may be responsible for some of the confusion which currently surrounds this issue both in the regulatory community and regulated community. Recently, discussions have begun between AWPI and the Agency to attempt to clarify this point. To date, nothing has come of these discussions to give guidance to industry or regulators and it is still a matter of "enforcement discretion."

Another question has arisen concerning the impact of this material on a plant's generator status. A fairly detailed understanding of RCRA is required to realize that this material does not impact a facility's generator status. However, significant segments of both regulators and industry have not understood this point and mistakenly concluded that all wood treaters must be large quantity generators regardless of the amount of waste they generate. Again, AWPI is pursuing this point with the Agency and attempting to clarify the point.

Moving forward with this exclusion will eliminate difficult questions from a wood preserving facility's efforts to comply with RCRA. It will allow both the industry and regulators to focus on meaningful compliance issues rather than terminology/accounting issues with no environmental benefit.

RESPONSE

The commenter's remarks on reclamation and other questions seem to suggest that much of the industry's wastewaters are exempt from RCRA regulation because they are recycled without reclamation. The Agency rejects this argument, as it has in the past, because the wastewaters and spent solutions must be purified or filtered before they can be reused. See 55 FR 5045a-50 (Dec. 6, 1990). Since EPA does not agree that these materials are recycled in a way that takes them outside of RCRA jurisdiction, it does not agree that generators can exclude them from computations of the amount of hazardous waste that they produce. However, any plant qualifying for today's exclusion will likely see a significant reduction in the quantity of hazardous waste that it is required to report.

DCN PH4P016
COMMENTER UNIVERSAL FOREST PRODUCTS
RESPONDER JL
SUBJECT WOOD2
SUBJNUM 016
COMMENT
SUMMARY

The proposed exclusion has only one affect: it clarifies that a material which is beneficially used and not part of the waste disposal problem is not a solid waste. Materials which are solid wastes from wood treating operations are subject to the listings and are properly managed in accordance with existing regulations. The Agency's ability to require subpart W drip pads and take enforcement action if such devises are not used in accordance with the regulations is maintained.

RESPONSE

The commenter seems to suggest that EPA is making a general statement about the regulatory status of <u>all</u> secondary materials that are beneficially used and not part of the waste disposal problem. This is not the case. Today's exclusion is limited to wood preserving wastewaters prior to reclamation that are destined for recycling at waterborne wood preserving plants, provided that they meet certain conditions. The Agency agrees with the commenter that all solid wastes generated by the industry that are RCRA hazardous wastes are subject to regulation and must be managed properly. Compliance with Subpart W drip pad standards is one of the conditions placed upon today's exclusion.

DCN PH4P016
COMMENTER Universal Forest Prod.
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 016
COMMENT

All wood treating plants use water in their process. The majority of the industry utilizes "water-borne" preservative systems in which the treating solution injected into the wood products is 97% to 99% water. Such operations are huge net users of water. Even at minimal production levels, a water-borne treating plant will use more water than would ever be collected on a subpart W drip pad. Every gallon of water collected on the drip pad and returned to the treatment process is one less gallon of fresh water the plant will

draw from city water supply or an on-site well.
Statistics compiled by the American Wood Preservers Institute (AWPI) estimate that water-borne preservatives accounted for 78.4 % of the wood treated in the US in 1994. Using the AWPI production figures, these plants would have consumed on the order of 1 billion gallons of water.
CWA regulations do not allow a water-borne treating plant to discharge wastewater via an NPDES permit or to a POTW. Another way of pointing out how essential it is that a water-borne treating plant be able to use water collected on a drip pad is to consider what would happen if the water could not be reused. In addition to using more fresh water as previously described, this wastewater would need to be disposed of as hazardous waste. This is a cost which even an enclosed treating plant (i.e., no precipitation collected on the drip pad) could not bear. This would also be contrary to the goal shared by both industry and EPA to minimize the amount of waste generated and shipped to offsite disposal facilities.
For those operations which do not use water to make treating solutions, water is still an essential part of their process. Water is used for cooling pumps and surface condensers and may also be used to generate steam directly (i.e. feed water to a boiler) or indirectly (i.e., heated with closed steam coils in a closed vessel). Many of these plants will generate more water than can be used in the process. This is truly a wastewater stream and is appropriately managed within the existing regulations of RCRA and CWA. The proposed exclusion does not affect the characterization or management of this wastewater.

RESPONSE

EPA believes that these data on the economics of recycling wastewaters and spent solutions from drip pads at water-borne preserving plants help demonstrate why the process would not be economically viable if it did not use reclaimed materials. EPA, however, did not evaluate oil-borne plants and is not prepared to take final action on them today. See the response to comment PH4P039.

DCN PH4P016
COMMENTER Universal Forest Prod.
RESPONDER SB
SUBJECT WOOD2

SUBJNUM 016
COMMENT

Subpart W is a comprehensive regulatory framework which ensures that the water under discussion is not part of the waste disposal problem. Examples of problems at wood treating facilities prior to the subpart W regulations or at facilities not in compliance with subpart W regulations are not relevant. By definition, a facility in compliance with subpart W is preventing release of this material. If material is released, it becomes a simple matter of enforcement and is not affected by how the Agency characterizes material which is not released but is conveyed to the wood treating process.

RESPONSE

EPA agrees that compliance with the Subpart W standards along with the other conditions imposed in the final rule provides sufficient assurance that the materials will be handled to minimize loss. (See §260.31(b)(3)). They also help ensure that the wastewaters and spent solutions will not become "part of the waste disposal problem."

DCN PH4P016
COMMENTER Universal Forest Prod.
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 016
COMMENT

Two points are addressed in this section. First, the Agency's authority to require subpart W drip pads is not diminished by clarifying that material conveyed to the wood preserving process is not a solid waste. Second, the Agency's ability to take enforcement action against an individual with a faulty subpart W pad (e.g., a pad which leaks) is not diminished.

From the original conversations between the Agency and the Wood Treating Industry, the agency was concerned that if material on the subpart W drip pad was not deemed a solid waste, they would not be able to require compliance with subpart W. However, it is not necessary to consider the material which is ultimately conveyed to the treating process as solid waste because there is some material which is a solid waste and is not conveyed back to the treating process. Examples of such material are wood dust or chips, dirt, debris, or even stains of preservative. These materials are wastes which are managed on the subpart W drip pad for up to 90 days prior to being drummed or similarly managed as allowed in 40 CFR 262. They do not flow freely back to collection devices; rather they must be periodically washed or removed from the pad. This removal may happen on an hourly, daily, or monthly basis, but for some time they are managed on the pad and most importantly, they are waste materials. They are entirely different from the water being considered for this exclusion.

The Agency's ability to take enforcement action against an individual with a faulty subpart W pad (e.g., a pad which leaks) is not diminished. If water is used in the treating process, it is not a waste. However, if water is discharged (other than a permitted discharge), spilled, or leaked from a drip pad, sump or any other part of the treating process, it is a solid waste. By virtue of the wood preserving listings (F032, F034, F035) it is a hazardous waste. The ability of the Agency to take action based on such an occurrence is not affected by the characterization (i.e., as solid waste or as being excluded from solid waste) of the material which is properly conveyed to the treating process.

RESPONSE

EPA agrees that the presence of “non-wastewater” materials may require compliance with Subpart W standards at some facilities. However, EPA believes that it needs to ensure that Subpart W applies at all facilities. It has promulgated a condition to ensure that Subpart W will continue to apply. EPA has also promulgated a condition to ensure that waters released to the environment continue to be subject to the hazardous waste listings.

DCN PH4P016
COMMENTER Universal Forest Prod.
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 016
COMMENT

While no regulatory language was proposed, discussions with the Agency indicate they would welcome recommended language. One very simple regulatory change which could accomplish the objective described by the Agency is modifying the current exclusion at 40 CFR 261.4 (b)(9) from "have been reclaimed and are reused" to "are reused" so that it reads:

"(I) Spent wood preserving solutions that are reused for their original intended purpose; and(ii) wastewaters from the wood preserving process that are reused to treat wood."
Preamble language should be included to describe that if a material is used without reclamation that it is excluded from the definition of solid waste by 40 CFR 261.2 (e)(1)(ii).

RESPONSE

EPA does not agree that the language offered by the commenter would be sufficiently protective. EPA believes that the conditions included in the final rule are necessary to ensure that the materials are handled to minimize loss and to prevent them from becoming part of the waste disposal problem.

DCN PH4P039
COMMENTER AWPI
RESPONDER SG
SUBJECT WOOD2
SUBJNUM 039
COMMENT

I. INTRODUCTION

The American Wood Preservers Institute ("AWPI" or "Institute") and its member companies are pleased to submit comments in response to the United States Environmental Protection Agency's ("EPA" or "Agency") Proposed Rulemaking and Request for Comment on Land Disposal Restrictions ("LDRs") Phase IV: Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes under Subtitle C of the Resource Conservation and Recovery Act ("RCRA"). AWPI is the national trade association representing the wood-preserving industry. Founded in 1921, the Institute's members include manufacturers of treated-wood products; registrants of wood-preserving pesticides regulated under the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"); suppliers of raw materials and equipment; and providers of allied services (e.g., environmental engineering and consulting firms). Wood preservers who employ pentachlorophenol, creosote, or inorganic arsenical formulations are directly and materially affected by regulations governing the management and disposal of hazardous waste established under RCRA.

II. BACKGROUND

Congress amended RCRA in 1984 to require the EPA to abolish the land disposal of untreated hazardous wastes. The Hazardous and Solid Waste

Amendments ("HSWA") also sought to protect human health and the environment by limiting the land disposal of treated hazardous wastes to certain specially designed waste units. The law requires EPA to prohibit the land disposal of hazardous wastes "unless...it has been demonstrated to the [Agency] Administrator, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous."

In addition, Congress required EPA to establish "levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." Wastes treated to the EPA-promulgated levels or by the Agency-approved technology may be disposed of on the land so long as the disposal facility meets certain minimum technical standards.

To implement the land-disposal restriction program, the Agency has established treatment standards -- known as "best demonstrated available technologies" ("BDAT") -- for listed and characteristic wastes. A technology is "demonstrated" if it is operating at a full-scale facility known to be treating the restricted waste or a similar waste. It is "available" if it is the best technology commercially obtainable on the open market.

EPA has expressed the BDAT as specified treatment technologies or as concentrations of hazardous constituents in the waste extract. When the BDAT for a waste is a numerical standard, any treatment technology may be used to attain the required level; when the BDAT is a specific technology, only that technology may be used. The Agency frequently has declared its preference for numerical performance standards rather than specific treatment methods or technologies in order to provide the maximum degree of flexibility for industry to meet the standards and develop innovative treatment technologies.

Owners or operators of facilities that generate a hazardous waste must determine whether it is subject to the LDR regulations. They must identify all applicable EPA waste codes and treatment standards, determine the regulated hazardous constituents and their concentrations in the untreated waste, and identify the treatment standards or concentration levels. These determinations may be made based upon knowledge of the waste, a total waste analysis, or application of the toxicity characteristic leaching procedure ("TCLP") test to the waste extract.

III. THE WOOD-PRESERVING INDUSTRY

Wood is treated by forcing the preservative into the cells of the wood. Typically, this is accomplished with high pressure in a steel treating cylinder. Untreated wood is placed on tram cars, which are inserted into the cylinder. Each batch of wood is called a "charge." The door to the cylinder is sealed and a vacuum is applied to remove excess air and water from the cylinder and the cells of the wood. The preservatives are then pumped into the cylinder and pressure is applied to force the chemical into the wood. After sufficient pressure is applied for a given time, the pressure is released from the cylinder, the cylinder is drained, and a final vacuum is applied to remove excess preservative. (The amount of pressure applied and the length of treatment time depend upon the size and species of the wood, the use to which the final product is to be put, and other factors. Treating standards are established by the American Wood-Preservers' Association.)

Following treatment, the charge is removed from the cylinder. Excess preservative is collected on a Subpart W drip pad adjacent to the cylinder. The drip pad, an engineered, bermed, free-draining device that is built to EPA specifications, contains and collects preservative drippage, if any, along with wastewaters (wash water, rain water, snow) that may accumulate on the pad.

The spent formulation and wastewaters are returned to the process through a sump and piping. Wood-preserving thus involves the application of restricted-use pesticides followed by the recovery and beneficial reuse of secondary materials that might otherwise become a burden on the environment through the use of traditional off-site waste-disposal methods.

On December 6, 1990, the Agency adopted a final RCRA regulation that listed as hazardous three waste streams generated by the wood-preserving industry. The rule listed wastewaters, process residuals, preservative drippage, and discarded spent formulations from wood-preserving processes at facilities that currently or formerly used chlorophenolic formulations (waste code F032), facilities that currently use creosote formulations (waste code F034), and facilities that currently use inorganic preservatives containing arsenic or chromium (waste code F035). EPA subsequently entered into an agreement that requires the Agency to promulgate a final BDAT regulation for F032, F034, and F035 wastes by March 31, 1994.

There are additional wastes from wood-preserving operations listed as hazardous under RCRA. They are K001 (bottom sediment sludge from the treatment of wastewaters from wood-preserving processes that use creosote or pentachlorophenol); U051 (discarded creosote); and F027 (discarded pentachlorophenol). In addition, wastes containing arsenic (D004) and chromium (D007) may be characteristically hazardous.

The Office of Solid Waste (OSW) has published a technical correction to the December 6, 1990, regulation listing F032, F034, and F035 waste streams as hazardous under RCRA. The OSW notice explains that wood-preserving wastewaters (including cooling tower makeup waters, vacuum pump seal water, and scrubbing water) containing spent preservatives will not be subject to Subtitle C regulations after those waters are reclaimed and reused at the plant. Subtitle C of RCRA excludes from the definition of "solid waste" only those materials that are "recycled" by being used or reused in a manufacturing process without first being reclaimed. Materials that must be "reclaimed" prior to reuse are "solid wastes" until reclamation is complete. When promulgating the final listing rule, EPA maintained that preservative drippage from wood-preserving operations is a solid waste until it can be reclaimed by filtering or other means. EPA has concluded, however, that spent wood preservatives are no longer hazardous wastes after they are returned to the production process.

The exclusion [from Subtitle C] applies after the spent preservative solutions are reclaimed. It was the Agency's intent to also exclude wastewaters containing spent preservatives when they are reclaimed and reused at the plant to treat wood.

EPA also has proposed a rule under the Pollution Prevention Act of 1990 that correctly recognizes that the recovery system need not be entirely enclosed in order to return usable secondary materials to the production process while reducing the amount of hazardous waste generated at a facility. Finally, wood preservatives that drip from a charge of freshly treated wood in the process area and that are collected and beneficially reused in the manufacturing process are never reported as a "release to the environment" under the Emergency Planning and Community Right-to-Know Act of 1986 because they are collected and contained in a RCRA-regulated, EPA-approved conveyance, the drip pad.

IV. EXCLUSION FOR RECYCLED WOOD PRESERVING PROCESS WASTEWATERS

EPA has asked the wood preserving industry to supply information on a potential industry-wide variance for reclaimed wastewaters. The Agency has indicated that it will consider industry-wide action on wood processing production wastewaters, provided the industry provides adequate information that the reclamation operation is an essential part of production, and that the secondary materials being reclaimed are not likely to be a part of the waste disposal problem.

> Most wood preserving materials are not discarded but are beneficially reused in the manufacturing process. As recycling is a key element of the wood preserving process, recoverable wood preservative drippage, rainwater, and washwater do not leave the system until these materials are intended for discard. Therefore, EPA's policy of designating non-waste materials that are maintained within the process as "generated hazardous waste" is particularly onerous and an undue burden on this industry.

RESPONSE

The Agency appreciates the commenter’s remarks concerning the August 22, 1995 Federal Register, in which EPA discussed the possibility of creating the exclusion being finalized today. At that time, the Agency also requested comment from the industry on the extent to which the wood preservers could demonstrate on an industry-wide basis that reclamation of its wastewaters could meet the eight variance criteria under §260.31(b). EPA responded to many of the commenter's remarks in the preamble to the proposed exclusion in the May 12, 1997 Federal Register. EPA agrees with the commenter that it is useful to promote the recycling and reuse of these materials, so long as this does not contribute to waste disposal problems. The conditions imposed on the final rule are intended to ensure that these materials do not become part of the waste disposal problem.

DCN PH4P039
COMMENTER AWPI
RESPONDER SG
SUBJECT WOOD2
SUBJNUM 039
COMMENT EPA can grant requests for a variance from classification as solid waste those materials that are reclaimed and then reused as feedstock within the original primary production process in which the materials were generated. This determination is based on the following criteria: i. How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials; ii. The prevalence of the practice on an industry-wide basis; iii. The extent to which the material is handled before reclamation to minimize loss; iv. The time periods between generating the material and its reclamation and between reclamation and return to the original primary production process; v. The location of the reclamation operation in relation to the production process; vi. Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form; vii. Whether the person who generates the material also reclaims it; viii. Other relevant factors. Accordingly, AWPI submits the following comments in support of the Agency proposal to exclude materials collected on a Subpart W drip pad and conveyed to the wood preserving process from classification as a solid waste: 1. How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials. The recoverable materials used in the wood treating production

process are preservative, drip pad washdown water, and precipitation. All wood preserving plants use water in the treating process. Waterborne plants are large net users of water, consuming approximately one billion gallons of water in 1994. The treating solution is 97 to 99 percent water. Approximately 78.4 percent of the wood treated in the United States is treated in waterborne plants. Oilborne processes use water for cooling pumps, surface condensers and generating steam directly (i.e., feed water to a boiler) or indirectly (i.e., heated with closed steam coils in a closed vessel). These plants can reuse up to 100 percent of the water. Treating plants would be significantly impacted if required to use virgin materials rather than reclaimed materials. The plants would have to purchase the fresh water and preservative, adding substantial cost to the operation. In addition, each plant would have to dispose of their wastewater and recovered preservative. This is where the most dramatic impact of using virgin materials would be felt. For example, in one year, waterborne treating plants in Oregon have used between 8 MM to 16 MM pounds of water collected on the Subpart W drip pad. This water was reported as generated hazardous waste. To have used virgin materials would have created an additional 8 MM to 16 MM pounds of wastewater requiring disposal. This represents a potential cost for "wastewater" disposal of over $375,000 per year to facilities that currently reuse every drop of water collected on the pad. 2. The prevalence of the practice on an industry-wide basis. Reuse of materials is the standard in the industry for the purposes of both waste minimization and economics. With the exception of certain existing oilborne plants, the industry is subject to zero discharge under the Clean Water Act. All waterborne plants and many oilborne plants must employ methods to reuse these materials or be forced to manage them as a hazardous waste. 3. The extent to which the material is handled before reclamation to minimize loss. In the wood treating process, wood preservative and water are captured on a Subpart W drip pad and conveyed from the drip pad sump into a closed-loop piping system for reuse. In a waterborne process, the materials are returned directly to the work tank for immediate reuse. In the oilborne plants, materials flow directly from the drip pad sump to the primary oil-water separator where they are commingled with process waters. At this stage, these materials are indistinguishable from other process waters. The primary oil-water separator recovers approximately 90 percent of the preservative with secondary oil-water separation after polymer addition recovering the remaining 10 percent. Almost all of the reclaimed preservative can be pumped directly back into the work tank for reuse without further reclamation. Production process water is pumped from either the primary oil-water separator or the secondary oil-water separator and reused. The handling from this process is minimal. The losses are nonexistent. EPA refers to releases from a drip pad as being clearly a part of the waste management problem and cites previous damage cases. Examples of problems at wood treating facilities prior to the Subpart W regulations or at facilities not in compliance with Subpart W regulations are not relevant. 4. The time periods between generating the material and its reclamation and between reclamation and return to the original primary production process. In both oilborne and waterborne plants, when the recoverable material is generated, it is immediately captured on a Subpart W drip pad and conveyed from the drip pad sump into a closed-loop reclamation system. In a waterborne plant, the materials are immediately available for reuse. In an oilborne plant, the preservative becomes available for use from the primary oil-water separator within 24 hours. This is 90 percent of the recovered preservative. The other 10 percent becomes available from the secondary oil-water separator within an additional 24 hours. The water is available immediately for reuse after settling in the primary oil-water separator or the secondary oil-water separator. Because this is a dynamic system, both recovered preservative and water are available almost immediately for return to the original production process. 5. The location of the reclamation operation in relation to the production process. In both oilborne and waterborne processes, the reclamation operation is located within, and is an integral component of, the production process area. 6. Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form. In both oilborne and waterborne processes, the reused preservative is returned to the process for the purpose for which it was originally produced: to preserve wood. In both processes, the reused materials are returned to the process in substantially its original form. Waterborne plants reuse the preservative and water directly from the drip pad sump. Oilborne plants use gravity separation to reclaim preservative. At any time during the separation process, the reclaimed preservative and water may be introduced back into the original production process. 7. Whether the person who generates the material also reclaims it. At both waterborne and oilborne plants, the generator reclaims both preservative and water on-site for reuse in the production process. 8. Other relevant factors. Subpart W is a comprehensive regulatory framework which ensures that the materials under discussion are not part of the waste disposal problem. By definition, a facility in compliance with Subpart W is preventing release of this material. If material is released, it becomes a simple matter of enforcement and is not affected by how the Agency characterizes material which is maintained within the wood treating process and not released. In previous dialogue between the EPA and the wood treating industry, the Agency expressed concern that if material on the Subpart W drip pad was not deemed a solid waste, they would lose regulatory authority to require compliance with Subpart W. AWPI disagrees. The Agency's authority to require Subpart W drip pads is not diminished by clarifying that material maintained within the wood preserving process is not a solid waste. If there is any drippage, there will be some materials that are not conveyed to the treating process. These materials are solid wastes (e.g., process residuals such as like wood dust, chips, dirt, and debris) and are appropriately managed as hazardous waste on the Subpart W drip pad. They do not flow freely back to collection devices; rather they must be periodically washed or removed from the pad. Therefore, EPA is fully justified in requiring a Subpart W drip pad to manage these ancillary waste materials. Further, any release of a material meeting the definition of F032, F034, and/or F035 constitutes a release of a hazardous waste. The Agency's ability to initiate enforcement action remains unaffected by a decision to exclude reused materials from the definition of solid waste. By reusing the preservative and waters in the original production process, the wood preserving industry is able to minimize losses, waste, energy consumption, and procurement and disposal costs. The reused materials are an essential part of production and are not a part of the waste disposal problem. It is clear from the above that the wood preserving industry meets the requirements for an industry-wide variance, and thus a conditional exclusion, for the reclamation of process wastewaters.

RESPONSE

EPA agrees with the commenter that the recycling of collected wastewaters is an essential part of the production process at waterborne wood preserving plants and said so tentatively in the May 12, 1997 Federal Register ("the recycling of wastewaters and spent wood preserving solutions is essential to the financial well being of waterborne wood preserving plants." (62 FR 26056)). The commenter states that oilborne plants "can reuse up to 100 percent of [their] water." As we indicated in the preamble to today's final rule, we do make a distinction between the manner in which wastewaters and spent solutions are recycled at waterborne and oilborne facilities. At the time of proposal, EPA intended to create an exclusion only for plants using water borne preservatives. See, for example, the discussion at 63 FR 26057, col. 1. EPA did not evaluate oil borne plants at the time. It is EPA's general understanding that plants which use oil borne preservatives do not recycle wastewaters and spent solutions by using them in the work tank to treat wood. Rather, they reuse these wastewaters in cooling systems, vacuum seals, and other devices. EPA wants to limit today's exclusion to materials that are reused for their original intended purpose--the treatment of wood. EPA has not had time to investigate the jurisdictional and factual issues posed by the use of wastewaters for other, more ancillary, purposes. Consequently, EPA is not expanding the exclusion beyond the proposal. It applies only to waterborne processes.

EPA agrees that the reuse of wastewaters and spent solutions is standard at waterborne plants, and stated this in the May 12, 1997 proposed rule (63 FR 26056). EPA believes that compliance with the Subpart W standards - along with the other conditions imposed on the final rule - provides sufficient assurance that materials will be handled to minimize loss and to prevent them from becoming part of the waste disposal problem. EPA believes that information on releases from pads that did not meet the Subpart W standards shows that Subpart W standards are needed. Again, this exclusion applies only to waterborne plants.

EPA agrees with the commenter that there is very little time between the generation of wood preserving wastewaters and spent solutions and reclamation of those materials. As was stated in the May 12, 1997 proposed rule (63 FR 26057), "EPA believes that the industry also meets §260.31(b)(4) criteria concerning the amount of time between generation and reclamation and reclamation and return to the primary production process." Although it is not material to a discussion of today's exclusion, it is important to point out that we do not agree with the commenter that these materials are "conveyed from the drip pad sump into a closed-loop reclamation system." This type of recycling operation does not meet the definition of closed-loop recycling at 40 CFR 261.4(a)(8)(i). However, the enclosure of portions of this system also helps to assure that the materials are handled to minimize loss. Although oilborne plants may also reclaim their secondary materials without delay, we do not consider the manner in which these plants return these materials to the production process to be consistent with the condition placed upon today's exclusion requiring that wastewaters and spent solutions be reused "in the production process for their original intended purpose."

EPA agrees with the commenter that the reclamation operation at wood preserving plants is located within the production process area. The Agency also agrees that waterborne wood preserving operations return wastewaters and spent solutions to the process in substantially their original form to be reused for their original intended purpose. As was stated above, it is EPA's general understanding that plants which use oilborne preservatives do not recycle wastewaters and spent solutions by using them in the work tank to treat wood. Rather, they reuse these wastewaters in cooling systems, vacuum seals, and other devices. EPA wants to limit today's exclusion to materials that are reused for their original intended purpose--the treatment of wood. EPA has not had time to investigate the jurisdictional and factual issues posed by the use of wastewaters for other, more ancillary, purposes. Consequently, EPA is not expanding the exclusion beyond the proposal. It applies only to waterborne processes. EPA agrees with the commenter that the wastewaters and spent solutions are reclaimed on-site by the generator. In order to qualify for today's exclusion, these materials must reused on-site at water borne plants in the production process for their original intended purpose.

DCN PH4P039
COMMENTER AWPI
RESPONDER SG
SUBJECT WOOD2
SUBJNUM 039
COMMENT ALTERNATIVE POLICY There is a more functional solution which could accomplish the objective described by the Agency. EPA should promulgate a regulation to exempt reused wood preserving process waters and recoverable preservative from designation as a solid waste (and hence a hazardous waste) unless these materials are discarded. This means amending the current exclusion at 40 CFR261.4(a)(9) to read: "(i) Spent wood preserving solutions that are reused for their original intended purpose; and (ii) Wastewaters from the wood preserving process that are reused to treat wood." Preamble language should be included to describe that if a material is used without reclamation that it is excluded from the definition of solid waste by 40 CFR 261.2(d)(1)(ii). When discarded, all of the current regulatory controls would remain to ensure that discarded materials are managed appropriately. The administrative burdens on the industry, the EPA and the states would be eased, and the industry's extensive environmental recycling efforts would be recognized.

RESPONSE

EPA does not agree that the language offered by the commenter would be sufficiently protective. EPA believes that the conditions included in the final rule are necessary to ensure that the materials are handled to minimize loss and to prevent them from becoming part of the waste disposal problem.

DCN PH4P048
COMMENTER Chemical Waste Management
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 048
COMMENT

> The Agency is providing the wood preserving industry an opportunity to provide information that could result in an industry wide solid waste exclusion for wood preserving wastes that are reclaimed and returned to the wood preserving process.
> CWM is concerned with the granting of this industry wide exclusion. CWM believes that the logic followed by the Agency in the Wood Preserving Final Rule (55 Fed. Reg. at 50,450) still applies in this situation. Under the current solid waste identification rules spent materials that must be reclaimed are defined as solid wastes (See 40 CFR 261.2(c)(3)). CWM is also concerned that the current processes used in the wood preserving industry do not meet the terms of the closed-loop exclusion (See 40 CFR 261.4(a)(8)), and that any exclusion should follow the Agency's current variance provisions that would grant a case-by-case variance to individual facilities (40 CFR 260.30 and 260.31).
> The Agency indicates that EPA will consider a conditional exclusion if the wood preserving industry can meet the criteria in 40 CFR 261.31(b).CWM believes that based on specific criteria in 40 CFR 260.31(b) that a conditional exclusion is not warranted without information from all Wood Preserving operations that indicate that each facility meets the criteria in §260.31(b).

RESPONSE

EPA believes that, if the conditions specified in the final rule are met, the spent waters and preservative solutions merit an exclusion from the definition of solid waste even though they must undergo reclamation, and even though the process is not a "closed loop" reclamation process under 40 CFR 261.4(a)(8). EPA believes that the general data it has collected, together with the conditions imposed, provide sufficient assurance that human health and the environment will be protected, the materials will be handled to minimize loss and to not become part of the waste disposal problem. EPA does not believe it is necessary to evaluate every plant individually under 40 CFR 260.30 and 260.31

DCN PH4P058
COMMENTER JH BAXTER
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 058
COMMENT

II. Exclusion for Recycled Wood Preserving Process Wastewaters
In its proposal EPA has asked the wood preserving industry to provide information that could form the basis for an industry-wide variance to the current classification of production wastewaters as solid waste. An industry-wide variance would provide welcome relief to the industry. However, J.H. Baxter believes that a more permanent solution is possible that inconsistent with EPA's mandate for waste minimization.
On December 6, 1990, EPA published regulations for the identification and listing of wood preserving wastes under RCRA and requiring wood preserving facilities to install drip pads.55 Fed. Reg. 50450. Drip pads collect drippage, wash water, and in some cases precipitation as well as solids such as dirt, wood chips or other debris. One design requirement of a RCRA subpart W drip pad is that liquids drain to a collection device. In a wood treating plant the collection device delivers water from the drip pad to process tanks where it is reused in the treating process or to an oil/water separation system. If the water is sent to an oil/water separation system, the oils are sent back to process tanks and the water is reused to formulate other preservatives. Solids are removed from the drip pad and associated collection devices and are managed as hazardous waste in accordance with RCRA.
Regulations are very clear that once water is reclaimed it is not a hazardous waste.
(a) Materials which are not solid waste.* * * *
(9)(I) Spent wood preserving solutions that have been reclaimed and are reused for their original intended-purpose; and
(ii) wastewaters from the wood preserving process that have been reclaimed and are reused to treat wood.

40 C.F.R. 261.4(a). Because this exclusion applies only after reclamation, water on drip pads and water conveyed to a collection

device may be considered generated hazardous waste prior to reclamation. However, if there is no reclamation, this material generated hazardous waste.

(e) Materials that are not solid waste when recycled. (1) Materials are not solid waste when they can be shown to be recycled by being: (I) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed... 40 C.F.R. 261.2(e)(1).

In a treating plant, the liquid which is collected and used in the treating process, does not undergo any processing prior to reuse. In most cases a screen is placed on the suction side of the pump to protect the pump from damage from debris which may be washed into the collection device. The waters generated on the drip pad are not processed or regenerated and consequently are not reclaimed.

A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents. 40 C.F.R. 261.1(c)(4).

The language at 40 C.F.R. 261.4(a) should be amended to read as follows:

(a) Materials which are not solid waste. The following materials are not solid waste for the purposes of this part.* * * * *(9)(I) Spent wood preserving solutions that are being, have been or will be recycled and are reused for their original intended purpose; and(ii) wastewaters from the wood preserving process that have been recycled and are reused to treat wood.

The terms "recycled" replace the terms "reclaimed" used in the regulation currently. This change would not decrease the level of protection in the regulations regarding wood preserving wastes. Only water used in the wood treating process would be exempted from classification as solid waste.

This change also would relieve both industry and EPA of unnecessary regulatory burdens by eliminating the need to request and to review case-by-case variances, as required under current regulations. 40 C.F.R. 260.30. Further, it would correct the erroneous and negative portrayal of waste generation trends in the wood preserving industry by allowing accurate recording of wastes volumes from treating processes. It also would help restore a rational basis to fee assessments by states that are based on generated waste volumes. The fee structures based on current EPA definitions of solid waste result in charges to the wood preserving industry that overstate actual waste volumes by 70 to 100 percent, depending on the type of preservative and production volumes. These fee assessments penalize the efforts and commitment of wood treating facilities to the nationwide priority of waste minimization.

In conclusion, please consider our concerns and suggestions. Take into account the effect that the proposed dioxin regulation will have on the wood preserving industry, the waste disposal industry, the government and tax payers as well. Please work with our industry to promulgate regulations that are cost effective to implement and provide a benefit to human health and the environment.

RESPONSE

EPA thanks the commenter for suggesting a simpler way to achieve the regulatory change that the Agency is finalizing today's rule. Although the commenter's suggestion is indeed simpler than the exclusion we have crafted, we find that would be insufficient to meet all of the 40 CFR 260.31(b) variance criteria. EPA is granting today's exclusion because we are confident that any plant managing its wastewaters and spent solutions in accordance with the conditions set forth in this exclusion will meet each of the variance criteria (under §260.31(b)) upon which this exclusion is based. In the August 22, 1995 Federal Register notice EPA expressed particular interest in the extent to which the industry could show that its reclamation operations meet the §260.31(b)(3) criterion that a material be handled before reclamation to minimize loss. A blanket exclusion with no conditions for spent solutions that "will be recycled" in insufficient to meet this criterion.

The commenter claims that "the waters generated on the drip pad are not processed or regenerated and consequently are not reclaimed." The Agency rejects this argument, as it has in the past because the wastewaters and spent solutions need to undergo filtering or some other purification step before they can be reused. See, e.g., 55 Fed. Reg. 50459-60 (December 6, 1990). EPA is not reopening or reconsidering this issue in this rulemaking. As for the commenter's remarks concerning the fees assessed by states based upon an industry s waste generation totals, EPA reiterates that it believes that the exclusion today is appropriate because the materials are reused without posing an environmental problem.

DCN PH4P062
COMMENTER RETEC
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 062

COMMENT

Remediation Technologies, Inc. (RETEC) is an environmental consulting firm which specializes in providing innovative and cost-effective solutions to environmental challenges for our industrial clients. Since our founding in 1985, we have been providing assistance to the wood treating industry primarily in the area of site investigations and clean-ups. We have completed over 30 site investigations for 15 wood treating clients in 11 states. The following comments on the proposed land disposal restriction (LDR) rule (60 FR 43654) are provided based on our experience with this industry sector throughout the U. S.

Exclusion for Recycled Wood Preserving Process Wastewaters

The wood treating industry utilizes treating solutions to their maximum extent through recycling and reuse practices. These procedures allow the industry to treat wood in a cost effective manner while also minimizing waste production. As part of these practices, wood treaters recycle drippage and wastewaters. These materials are not spent and do not require reclamation prior to reuse. Therefore, these materials are not wastes. Drip pans and wastewater operations function as collection methods to facilitate reuse and recycling of these materials.

The reuse practices for drippage and wastewaters involve very limited handling, with the liquids being hard piped between the processes. Our experience with investigations at woodtreating sites has not identified drip pans or process wastewater reuse operations as contributors to overall site contamination.

In order to allow wood treaters to reuse and recycle drippage and wastewaters at their facilities as feedstock to the treating operations, we propose revising 40 CFR 261.4(a)(9) to read as follows:

(I) Collected wood preserving solutions that are reused for their original intended purpose; and

(ii) wastewaters from the wood preserving process that are reused to treat wood.

RESPONSE

According to the commenter, the wood preserving industry's wastewaters and spent solutions "do not require reclamation prior to reuse [and] therefore, these materials are not wastes." The Agency rejects this argument, as it has in the past because the wastewaters and spent solutions need to undergo filtering or some other step before they can be reused. See 55 Fed. Reg. 50459-60 (December 6, 1990). EPA appreciates the information regarding the low contributions of wastewater reuse to site contamination. Information like this helps EPA justify its conclusion that these materials can be exempted from the definition of solid waste, provided plants meet the conditions imposed by today's final rule. The commenter's assertion that "the liquids [are] hard piped between the processes" suggests that the commenter believes that these materials might be exempt under the so-called "closed loop" exclusion at 40 CFR 261.4(a)(8). The Agency also rejects this argument, as it has in the past because the drip pads are open to the environment and not enclosed, like tanks. See 55 Fed Reg 50459 (December 6, 1990). Although the conveyance of the wastewaters from the drip pad to the makeup tank through a series of sumps and other devices may minimize releases to the environment, it does not meet the very specific requirements set forth by §261.4(a)(8). EPA does not agree that the language offered by the commenter would be sufficiently protective. EPA believes that the conditions included in the final rule are necessary to ensure that the materials are handled to minimize loss and to prevent them from becoming part of the waste disposal problem.

DCN PH4P085
COMMENTER EDF
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 085
COMMENT

I. INTRODUCTION

These comments are submitted to the U.S. Environmental Protection Agency (EPA) in response to the Agency's proposed rules governing the placement of decharacterized wastewaters in surface impoundments and other matters related to the land disposal restrictions (LDR) program under the Resource Conservation and Recovery Act (RCRA). EPA's proposed regulations, sometimes referred to as the Phase IV LDR rules, were published in the Federal Register at 60 FR 43654 (August 22, 1995).

A. Description of the Commenter

These comments are submitted on behalf of the Environmental Defense Fund (EDF). EDF is a national non-profit environmental advocacy organization with more than 250,000 members dedicated to the protection of human health and the environment by inter alia, eliminating unnecessary exposure to hazardous substances, including hazardous wastes. EDF members live, work, and recreate in areas immediately affected by the improper management of hazardous and industrial wastes, including those addressed in this rulemaking. EDF participates extensively in RCRA implementation and oversight, including activities in the regulatory, legislative, and judicial contexts. For example, EDF was a petitioner in Chemical Waste Management v. EPA, 976 F. 2d 2, cert. denied 113 S.Ct. 1961 (1992), in which the Court held the Agency was obligated to address the risks posed by decharacterized wastewaters thereby precipitating many aspects of the instant rulemaking. EDF is also the plaintiff in EDF v. Browner, Civ. No. 89-0598 (D.D.C.), the case governing the timing of this rulemaking.

C. Wood Preserving Wastewaters

In the proposal preamble, EPA provides an opportunity for the wood preserving industry to supply information regarding whether an industry-wide variance should be granted for unspecified onsite recycling practices. Since no specific recycling practice is discussed, no EPA position advanced, and little information regarding the outstanding issues included in the discussion, this portion of the preamble can only be considered akin to an advanced notice of proposed rulemaking.

Based upon the information available to EDF thus far, the case for designing a special regulatory scheme for wood preserving wastewaters has not been made. There is no evidence current regulations provide a disincentive to recycling, and EDF is not aware of any states expressing a compelling need to modify currently applicable Subtitle C regulations for these wastes. Instead, the motivation for the regulatory relief sought by industry in this area appears to be the "accounting" of waste generation quantities and the resulting fees or taxes imposed by certain states. State taxation policy should not compel regulatory changes for any wastes. Perhaps more importantly, if the wood preservative industry is unfairly taxed at the state level, it should address appropriate arguments to the state legislatures where those taxes are imposed.

Significantly, wood preservative wastewaters are not managed in tanks or containers. In this respect, the recycling activity is not a "closed-loop process," and in fact is managed in units closely resembling land disposal units. Moreover, based upon the information available to EDF at this juncture, much of the wastewater generated is the result of the failure of many facilities to control precipitation onto the unit and thus minimize the generation of the bulk of the wastewater in the first instance. In other contexts, federal and state agencies insist on enclosed structures to manage materials, such as sand and salt piles used for road deicing. Such requirements and policies are consistent with pollution prevention/waste minimization goals embodied in federal-law.

Accordingly, it does not appear the industry is handling its wastes to minimize loss if the bulk of the waste generation is the result of not applying simple practices now employed by local governments and other small entities in other contexts. And by allowing precipitation to mix with wood preserving wastes and thus greatly increase the volumes of wastes to be handled, it would not appear the wastes are returned to the original process in substantially their original form.

There is also no evidence that recycling of these wastewaters is prevented or impaired by the current regulatory framework - the industry simply seeks state tax relief. These factors, combined with the national policy expressed in RCRA of encouraging waste minimization wherever feasible, strongly argue against granting a variance from the definition of solid waste pursuant to 40 CFR 260.31(b). If the industry seeks tax relief, practicing waste minimization will accomplish the same objective in an environmentally superior manner.

RESPONSE

EPA agrees with the commenter that the August 22, 1995 discussion of a possible exclusion for wood preserving wastewaters that are recycled was "akin to an advanced notice of proposed rulemaking." The 1995 Federal Register notice was an attempt to get further information from the industry as well as other interested parties as to whether such an exclusion was warranted. Therefore it is not surprising that, as the commenter suggested, EPA had not yet made a case for such a provision. This has since changed. The Agency published a formal proposal in the May 12, 1997 Federal Register that fully explained EPA's rationale for granting such an exclusion. The exclusion we are finalizing today is based upon the fact that any wood preserving plant that meets the conditions placed upon the exclusion would also fully meet the variance criteria set forth at 40 CFR 260.31(b). We have found that regulating wastewaters and spent solutions as solid waste prior to reclamation at such a facility is unnecessary because, with the conditions imposed, the materials will not become part of the waste disposal problem. Although EPA did not consider the industry's tax burden in today's rule, it notes that it could have under the criteria in section 260.31(b). Section 261.31(b)(1) requires the Agency to consider whether the affected operation would be economically viable if it used virgin materials. If the hazardous waste taxes were high enough to make wood preserving facilities consider using virgin materials rather than reusing wastewaters from drip pads, EPA could consider their impact.

EPA agrees that the process used to collect and recycle the wastewaters and spent solutions does not meet the definition of "closed loop" recycling under section 261.4(a)(8), primarily because the drip pads are not enclosed. EPA, however, does not share in the conclusion the commenter suggests: that the process fails to adequately minimize loss or to prevent the materials from becoming part of the waste disposal problem. EPA has already found the Subpart W standards for drip pads--which do not require enclosure--to be adequate to protect human health and the environment from threats posed by listed hazardous wastes. EPA does not believe that additional requirements are needed to meet the "minimize loss" or "not part of the waste disposal" tests.

EPA acknowledges that precipitation lands on open drip pads and mixes with the wastewaters and spent solutions that are captured in the drip pad sumps and then piped back to the preserving process. EPA, however, does not believe that allowing precipitation to fall on the pads means that facilities are failing to "minimize loss" of the waste waters and spent solutions. If the drip pads sumps and pipes are leaking, all of the materials-rainwater as well as waste materials-are captured in the sumps and returned to the process. Any materials that do escape from the drip pads or other units will be outside the scope of the exclusion and remain subject to the hazardous waste listings for spent preservatives. Moreover, the conditions help assure that the materials will be handled to "minimize loss", which is one of the criteria for the case-by-case variance which EPA used as a model for this generic rule. See 40CFR 260.31(b)(3).

The commenter asserts that industry wants this exclusion to avoid state taxes on hazardous waste generation. EPA acknowledges that this rule may have an impact on state taxation. However, EPA has decided to create the exclusion because it is convinced that the materials and practices generally meet the criteria in §260.31(b) and are returned to the process in "substantially their original form", one of the other criteria of the variance in section 260.31(b) that EPA used as a model for this generic rule. It merely increases the volume of water in the wastewater/spent solution mixture. It does not, by itself, make the material any less suitable for reuse in a waterborne preservative process.

DCN PH4P097
COMMENTER Hazardous Waste Management
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 097
COMMENT

Exclusion For Recycled Wood Preserving Process Wastewaters (60 FR 43679)
The Agency is providing the wood preserving industry an

> opportunity to furnish information that could result in an industry-wide solid waste exclusion for wood preserving wastes that are reclaimed and returned to the wood preserving process. HWMA does not support the granting of an industry-wide exclusion for wood preserving wastes that are reclaimed and returned to the wood preserving process for reuse. The logic the Agency expressed in detail in the Wood Preserving Final Rule (55 FR 50450) still applies in this situation. Under the current rules, spent materials that must be reclaimed are defined as solid wastes (40 CFR 261.2(c)(3)). HWMA continues to believe that the current processes used in the wood preserving industry do not meet the terms of the closed-loop exclusion (40 CFR 261.4(a)(8)), and that any exclusion should employ the Agency's current variance provisions that would grant a case-by-case variance to individual facilities (40 CFR 260.30 and 260.31).
> The Agency indicates that it will consider a conditional exclusion if the wood preserving industry can meet the criteria in 40 CFR 261.31(b); however, based on the specific criteria in 40 CFR 261.31 (b) a conditional exclusion is not warranted without a facility-by-facility evaluation.

RESPONSE

EPA believes that, if the conditions specified in the final rule are met, the spent waters and preservative solutions merit an exclusion from the definition of solid waste even though they must undergo reclamation, and even though the process is not a "closed loop" reclamation process under 40 CFR 261.4(a)(8). EPA believes that the general data it has collected, together with the conditions imposed, provide sufficient assurance that human health and the environment will be protected, the materials will be handled to minimize loss and to not become part of the waste disposal problem. EPA does not believe it is necessary to evaluate every plant individually under 40 CFR 260.30 and 260.31. It should be pointed out that upon promulgation, this exclusion will immediately go into effect only for plants in those states and territories that are not currently authorized to implement the RCRA program (i.e., Alaska, Iowa, American Samoa, Northern Mariana Islands, Puerto Rico and Virgin Islands). Plants in these states are subject to the provisions of the federal program. Conversely, any plant located in a RCRA authorized state will be unable to claim the exclusion we are finalizing today until that state amends its regulations to include the exclusion. Because EPA allows state programs to be more stringent than the federal program, it is not necessarily guaranteed that all authorized states will elect to adopt this exclusion.

Finally, the commenter states that the "exclusion is not warranted without a facility-by-facility evaluation." In our view, such a requirement is unnecessary. This exclusion is only granted to facilities that meet all of the specified conditions. Compliance with these conditions is sufficient to ensure that each of the §260.31(b) variance criteria has been met. Therefore, we find it unnecessary to make an individual finding for each facility. However, as is clarified in regulatory language at 40 CFR 261.4(a)(9)(iii), the exclusion applies only so long as a plant meets all of the conditions. If a plant goes out of compliance with any condition, it may apply to the appropriate Regional Administrator or State Director for reinstatement. The Regional Administrator or State Director may reinstate the exclusion upon finding that the plant has returned to compliance with all conditions and that violations are not likely to recur.

DCN PH4P101
COMMENTER Oregon DEQ
RESPONDER SB
SUBJECT WOOD2
SUBJNUM 101
COMMENT

2. Exclusion for Recycled Wood Preservation Process Wastewaters
Pesticide contaminated wastewaters being used as is, without interim management or storage, should be exempted from the definition of solid waste provided (1) the wastewater is not being released into a different medium; and (2) current drip pad requirements are retained. However, this proposal relaxes the regulations in a way that may jeopardize the Subpart W drip pad requirements for small generators.

If wood treaters are not required to count wastewaters, then they may become small quantity generators (SQGs) or even conditionally exempt small quantity generators (CESQGs). The requirements for generators in these categories is unclear. They may not be subject to the 90-day Subpart W requirements and associated regulations. Furthermore, relaxing the generator category could deregulate the hazardous wastewater collection, accumulation and distribution system. In lieu of regulation, such systems could be designed to manage pesticide product. Industry rationale for excluding hazardous wastewater from the definition of solid waste is its use as an ingredient in the manufacturing process; hence, it makes sense to require wastewater to managed as a pesticide. Therefore, before deregulating wastewater, we would want the 90-day Subpart W standards retained for all generator categories and assurances that wastewater would be accumulated, collected and managed as pesticide product in the manufacturing process, and in compliance with the American Wood -Preservers' Association standards. Such enforceable standards would need to be developed if they do not already exist Finally, a class action exemption for the wood treating industry is contrary to the case-by-case variance procedure currently allowed in the hazardous waste regulations for authorized states. Not all facilities are the same; therefore, declassifying wastewater and facilities would still be needed on a case-by-case basis.

RESPONSE

EPA agrees with the commenter that wood preserving wastewaters should be granted an exclusion from the definition of solid waste only if they are not being released and that the Subpart W drip pad standards are maintained. As evidenced by today's final rule, there are a number of other provisions that EPA also considers important. The commenter also suggested that the Agency should require that all wood preserving plants that manage their wastes on drip pads be required to comply with Subpart W drip pad standards, regardless of their generator status. EPA strongly agrees with the commenter and is requiring that any facility claiming this exclusion and managing its wastes on a drip pad to comply with Subpart W standards regardless of generator status. In addition, although we are not specifically requiring that these materials be "managed as pesticide product", we are confident that the conditions placed upon this exclusion are sufficient to assure that they are managed to prevent any release to the environment.

EPA does not agree with the commenter's statement that the exclusion being finalized today is "contrary to the case-by-case variance procedure currently allowed in the hazardous regulations for authorized states." This exclusion is not without precedent. There are a number of exclusions from the definition of solid waste under 40 CFR 261.4 that do not require case-by-case determinations. Moreover, as explained in the response to comment PH4P097 above, any plant that meets the conditions imposed by the final rule will meet the criteria for the case-by-case variance.

DCN PH4P091
COMMENTER FMC
RESPONDER AC
SUBJECT ZINC
SUBJNUM 091
COMMENT VIII. EPA Needs to Clarify that the UTS for TCLP Wastes Do Not Include Vanadium or Zinc Similar to what EPA did in the Phase II regulations /59 for the previous land disposal restricted characteristic wastes, EPA needs to clarify in the final Phase IV regulations and in the table associated with 40 CFR 268.48 that vanadium and zinc are not applicable underlying hazardous constituents to TCLP wastes.

RESPONSE

The Agency agrees with the commenter that vanadium and zinc are not UHCs in characteristic wastes. Currently, vanadium is regulated in two listed wastes -- P119 and P120, and zinc is regulated in K061 wastes. The Agency will clarify this in the Phase IV final rule.