DCN PH4P027
COMMENTER Rollins Environmental
RESPONDER JL
SUBJECT WOOD8
SUBJNUM 027
COMMENT

EPA is proposing treatment standards for the wood preserving wastes F032, 34, & 35. For the purpose of these comments RES is assuming the proposed treatment standards for these wastes are those listed in the preamble of this proposed rule. The treatment standards listed in the regulatory language of this proposal rule do not coincide with the hazardous constituents of the three wastes, nor do they reflect the intent expressed throughout the preamble. Therefore we are assuming the treatment standards in the preamble are the proposed standards for these three wastes streams.

RESPONSE

EPA identified several discrepancies in the list of hazardous constituents and the constituent limits proposed for regulation in several pages of the 60 FR (43680-43682 and 43694-43697). EPA later issued a Correction Notice to clarify what portions of the preamble were incorrect and what portions were correct (see 60 FR (546451), October 25, 1995). Also, several commenters and two technical journals pointed out to these discrepancies. EPA is promulgating pursuant to the Correction Notice unless otherwise noticed in this preamble and in the Final BDAT Background Document for these Newly Listed Wood Preserving Wastes (F032, F034, and F035).

DCN PH4P032
COMMENTER THE PENTA TASK FORCE
RESPONDER JL
SUBJECT WOOD8
SUBJNUM 032
COMMENT

For wastewater forms of F032, EPA has proposed treatment standards for dioxins and furans that are in the parts-per-trillion ("ppt") range. The proposed standards were transferred from the universal treatment standards for dioxins/furans in organic wastewater. The UTSs, in turn, are based on biological treatment of wastewaters that contain very low concentrations of dioxins and furans and the treatment standards were set by multiplying the average effluent concentration after treatment times a variability factor of 2.8 and an accuracy correction factor of 5.0. UTS BDAT Background Document. Vol. A, § 5-6.

The universal treatment standards for the various regulated dioxin and furan homologues, with the exception of PeCDF, were developed by transferring data from the treatment of 9 It should be noted that EPA applied the 2.8 variability factor and 5.0 accuracy correction factor in establishing the dioxin/furan universal treatment standard for wastewaters, but inexplicably failed to do so when establishing the UTS standard for dioxins/furans in nonwastewaters. See id., Vol. B at Table 6-1.

TCDD-containing wastewaters. The concentrations of TCDD in the wastewater streams ranged from 0.00004 ug/L to 0.0118 ug/L. Id., Tables 5-156, 5-155. In contrast, the average concentration of dioxins and furans in the wastewater forms of F032 wastes as reported by EPA are in the range of 0.9 ug/L to 60 ug/L, or roughly 2,000 to 5,000 times more concentrated than in the wastewaters used to develop the universal treatment standards. It is improper for EPA to transfer the UTS standard because there is no assurance that the UTS standard can be met with the higher dioxin/furan concentrations found in the F032 wastewater streams.

B. Wastewater Treatment Technology Cannot Achieve The Proposed BDAT Treatment Standards.

EPA has selected wastewater treatment technologies, such as biological treatment, as BDAT for wastewater forms of F032 wastes. But EPA has incorrectly concluded that such treatment technologies can be used to meet the parts-per-trillion dioxin/furan concentration limits of the proposed rule.

The problem with EPA's analysis is most sharply illustrated by considering the biotreatment performance data used in establishing the universal treatment standards for dioxins and furans in organic wastewaters. The data indicate a removal efficiency of roughly 78 percent. See UTS BDAT Background Document

for Wastewaters, Tables 5-155, 5-156. If the same removal efficiency were achieved for dioxins/furans in the more concentrated F032 wastestreams, it is clear that the proposed treatment limits would not be met. The dioxins/furans in F032 wastewaters are in the range of 0.9 ug/L to 60 ug/L. Seventy eight percent removal would only reduce the dioxins/furans in the effluent to 0.18 ug/L to 12 ug/L. These final concentrations are from 2 to 190 times higher than the proposed F032 wastewater treatment standard of 0.063 ug/L (or 5 to 343 times the proposed F032 wastewater treatment standard of 0.035 ug/L for PeCDF).

Stated another way, if the Agency had evaluated data on the biotreatment of F032 wastewaters, it would have observed dioxin/furan concentrations in the treated effluent in the range of 0.18 ug/L to 12 ug/L (based on an influent dioxin/furan concentration in the range of 0.9 ug/L to 60 ug/L and a 78 percent removal efficiency). Application of the standard variability factor of 2.8 and the accuracy correction factor of 5.0 would have resulted in an adjusted treatment standard in the range of 12.6 ug/L to 168 ug/L (based on 0.9 ug/L x 5 x 2.8 and 12 ug/L x 5 x 2.8), or between 200 to 2666 times higher than the proposed 0.063 ug/L limit (360 to 4800 times higher than the proposed 0.035 ug/L limit for PeCDF). In sum, the BDAT standard in the proposed rule does not reflect the concentration of dioxins/furans that would result from biotreatment and, as such, must be adjusted upward.

RESPONSE

EPA agrees with the commenter that the concentrations of PCDD and PCDF in wastewater forms of F032, as generated, will be, normally, much higher than those found in EPA's data base describing influent wastewaters to bioreactors. EPA is not persuaded, however, by comments emphasizing that the treatment limits are not achievable.

The practice of feeding diluted concentrations of PCDD and PCDF to bioreactors is an expected result in any biological wastewater treatment process because PCDD and PCDF can be highly toxic to microorganisms. One way to overcome such difficulty is to acclimate micro-organisms to some threshold tolerance levels of PCDD and PCDF coming into the reactor. Another way to enable the treatment of PCDD and PCDF in bioreactors is to reduce the loadings of PCP oils, PCDD, PCDF, and toxic metals. The loadings of such pollutants can be reduced with the use of appropriate chemical/physical separation processes (e.g. oil/water separators, distillation, flocculation, or dissolved air flotation), routing the pretreated wastewaters to holding tanks, adjust their pH, or diluted these wastewaters with other wastewaters. In addition, the use of activated carbon adsorption for reducing the levels of nonpolar constituents such as PCDD and PCDF from bioreactor effluent wastewaters can also enable facilities to meet the promulgated limits for PCDD and PCDF. EPA has determined that such practices, including the use of activated carbon adsorption systems, are also common in the wood preserving industry and can be optimized, generally, to meet the treatment limits promulgated today. In fact, activated carbon adsorption is among the most prescribed treatment method for groundwater or surface waters abatement in Records of Decisions where wood preserving facilities reported PCP, PCDD, and

PCDF as groundwater/surface water pollutants. (See Appendix K in the Final BDAT Background for Wood Preserving Wastes (F032, F034, and F035), April 15, 1997.) EPA is thus promulgating treatment standards for PCDD and PCDF in wastewater forms of F032 as proposed.

DCN PH4P039
COMMENTER AWPI
RESPONDER JL
SUBJECT WOOD8
SUBJNUM 039
COMMENT TREATMENT STANDARDS FOR DIOXIN AND FURAN CONGENERS DO NOT REFLECT RISK The Agency ignores the differences in the risks associated with each of the dioxin and furan congener constituents. EPA proposes the same concentration treatment standard for all dioxin and furan non-wastewaters of 1 ppb while wastewater treatment standards are set at 0.000063 mg/L. Having identified 2,3,7,8-tetrachloro-dibenzo-p-dioxin as the most toxic of the polychlorinated dibenzo dioxin/furan congeners, EPA adopted toxicity equivalency factors (TEFs) which permits the conversion of any PCDD or PCDF congener into an equivalent concentration of 2,3,7,8-TCDD or Toxicity Equivalents (TEQs) Of the six congeners identified in the proposed rule, five are significantly less toxic than 2,3,7,8-TCDD. Pentachlorodibenzo-p-dioxins (2,3,7,8-PeCDDs) and pentachlorodibenzo-p-furans (2,3,4, 7,8-PeCDFs) each have a TEF of 0.5. Hexachlorodibenzo-p-dioxins (2,3,7,8-HxCDDs), tetrachlorodibenzo-p-furans (2,3,7,8-TCDFs), and hexachlorodibenzo-p-furans (2,3,7,8-HxCDFs) each have a TEF of 0.1. COMMENT: EPA should set treatment standards that are reflective of the actual risks posed by the individual PCDD or PCDF congeners by using TEFs. Further, EPA should address the risks posed by the constituents of concern when disposed in a secure Subtitle C landfill, not the residential risk model that the Agency has utilized.

RESPONSE

The commenter has asked EPA to reexamine the constituents selected for regulation such that EPA only regulates those that represent the “highest risk”. The commenter suggests that EPA regulates D/F constituents in F032 based on total equivalency factors which allow the conversion of any polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzo-p-furans (PCDF) into an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin. The commenter feels such an approach may be more appropriate for F032.

Section 3004 (m) gives EPA regulatory discretion to set either technology or risk based limits that would set the maximum concentrations of D/F in F032 that can be land disposed. EPA's selection of regulated constituent was based on the concentration of untreated constituent measured in the untreated waste and the likelihood that these constituents can regulate other D/F constituents isomers and homologues present in F032. EPA believes that this approach is also permissible under the land disposal restrictions since the selected constituents are present at concentrations above UTS limits and these constituents are also hazardous

constituents of concern that drove EPA's decision making for listing F032 as a hazardous waste under Subtitle C of RCRA. Certainly, there is no suggestion that the 1 ppb level is a level at which threats to the human health and the environment are minimized. Although there remains considerable uncertainty as to what the ultimate minimum threat level should be, it is clear that potent carcinogens like D/F constituents are not regulated past such point. (See, for example, 61 FR 18780, April 29, 1996.) EPA also points out that although the hepta- dioxin and hepta-furans were constituents of listing concern, EPA chose not to regulate all their homologues and isomers since EPA determined that regulation of the tetra-, penta-, and hexa- will regulate them too. Likewise, EPA identified octa-congeners and isomers of dioxin and furan constituents and they were not regulated since they can also be regulated by the selected constituents.

The commenter is correct to point out that based on toxicity equivalents (TEQs) --the toxicity of several isomers and congeners of PCDD and PCDF regulated in F032 may be less, generally, than the one associated with 2,3,7,8- TCDD. However, EPA notes that the tools to measure the precise toxicty and other health effects posed by PCDD and PCDF in wastes, oils, and other matrices is currently being scrutinized by EPA as part of the ongoing debate on EPA's dioxin health risk assessment. No one has suggested or convinced EPA that the regulated PCDD and PCDF constituents are not toxic. Although EPA believes that technology, risk, or health based treatment standards can satisfy, generally, the provisions of 3004 (m), EPA does not routinely rely on health or risk based quantifiers or factors to adjust upward or downward treatment standards promulgated, under the 40 CFR Part 268, or for the selection of UTS/BDAT constituents regulated by EPA. [1] For example, like PCDD/PCDF, PNA's are other toxic hazardous constituents found in F032 that are also relatively insoluble in water and thus, presumably less likely to migrate from a Subtitle C hazardous landfill. And EPA have selected specific constituents within the PNA's for regulation without relying on toxicity ranking factors for arriving to such list of regulated constituents or to adjust their treatment limits upward. (See Final BDAT Background Document for Wood Preserving Wastes). However, under the land disposal restrictions, treatment levels are based on technologies that substantially reduce the loadings or concentrations of such constituents prior to disposal. Further, no one is suggesting that EPA is setting, today, treatment standards that will force the treatment of PCDD and PCDF below levels were the concentrations of these constituents cease to be hazardous. To the contrary, EPA believes that the treatment standards promulgated today are within a range of treatment levels that will reduce, generally, short- and long-term threats to the human health and the environment. EPA is thus promulgating as proposed.

Because EPA is setting treatment standards that are based on the performance of treatment technologies, EPA does rely, generally, on statistical tools to calculate variability factors that can be used in setting the final treatment standards. EPA relies on variability factors to account for fluctuations arising from sampling techniques or for fluctutations arising from the normal operation of treatment processes. EPA has determined, however, that the treatment standards for PCDD and PCDF do not need adjustments because EPA believes that well operated and designed combustion devices can treat, generally, PCDD and PCDF below the 1 ppb limits

[1] Nor is EPA precluded from doing so, if EPA determines that a treatment standard promulgated today is inappropriate for a contaminated media pursuant to a treatability variance granted under the 40 CFR Part 268.44 (h).

promulgated today for nonwastewater forms of F032. EPA has settled this issue in the promulagtion of the Solvent and Dioxin Rule, the Third Third (F024), and the development of UTS limits for PCDD and PCDF in Phase 2. (See, 51 FR 40615, November 7, 1986; 55 FR 22580-1, June 1, 1990; 59 FR 47982, September 19, 1994). In addition, EPA believes that by promulgating, today, a compliance treatment standard alternative of combustion, the issue of potential adjustments for PCDD and PCDF in nonwaste-water forms of F032 becomes mute. This is because under the combustion treatment standard compliance alternative, combustion residues arising from Part 264 , incinerators, or from Part 266, industrial boiler and furnaces, can be land disposed without the monitoring of PCDD and PCDF constituents in F032 derived from residues.

DCN PH4P113
COMMENTER Chemical Manufacturers Association
RESPONDER JLABIOSA
SUBJECT WOOD8
SUBJNUM 113
COMMENT

B. EPA should allow concentration-based as well as technology-based criteria to satisfy BDAT for metals in nonwastewater forms of F032, F034, and F035.

In the preamble, EPA indicates that for metal in nonwastewater forms of F032, F034, and F030, stabilization is BDAT for chromium (total), and that vitrification is BDAT for arsenic. Use of the word "is" and not the phrase standards "... are based on" implies that the Agency intends to allow only the use of these specific technologies to treat these constituents to levels below which these wastes may be land disposed. However, the regulatory language in the table at 268.40 indicates that the nonwastewater standards for arsenic and chromium are numerical standards CMA has commented in the past that it generally favors concentration-based treatment standards for BDAT and that it supports the allowance of technology-based standards as an alternative to, and not as a replacement for, concentration-based standards. We maintain this position. Although the Agency and CMA may not currently be aware of technologies other than stabilization and vitrification that could be used to treat for chromium and arsenic in the wastes described above, we favor the flexibility afforded by a concentration-based standard which would allow any technology that can meet these levels as an alternative. CMA requests that the preamble language be modified to clarify that any technology that can meet the levels indicated in the table may be used.

In addition, EPA is proposing F032 wastewater and nonwastewater standards that would require meeting a concentration that does not exceed 1 ppb (or 1 ug/kg) for all the PCDD and PCDF homologue and isomer constituents proposed for regulation for F032 wastes. Even if a 1 ug/kg level is achievable for PCDD and for PCDF, analytical limitations may preclude UTS levels this low.

Normally when EPA sets treatment standards for a waste constituent, a procedure is followed in which both an "accuracy correction factor" and a "variability factor" are applied to the concentration of the constituent observed in the treatment data that supports the standard. See, Final Best Demonstrated Available Technology (BDAT) Background Document for Universal Treatment Standards Volume A: Universal Treatment Standards for Wastewater Forms of Wastes, 52 (July 1994). The accuracy correction factor is

used to account for analytical limitations in the available treatment performance data, and the variability factor is used to correct for variations in waste treatment, sampling, analytical techniques and procedures, and other factors that affect treatment performance.
However, we are not sure if EPA accounted for variability and accuracy in setting the universal treatment standards for nonwastewater forms of these organic wastes We urge EPA to do so.
As CMA has previously written in its July 9, 1993 comments on the May 24,1993 Interim final rule on land disposal restrictions for ignitable and corrosive characteristic wastes whose treatments standards were vacated, organic wastestreams are not easily analyzed for constituents at very low concentrations. CMA reiterates its previous recommendation that EPA explicitly states that, given approved test methods, nondeductible levels of constituents are equivalent to zero concentration and should also be applied this the setting of UTS levels.

RESPONSE

The commenter raised four issues and EPA's responses to such comments follow below:

1. Clarification that EPA is setting numerical limits for the regulation of Arsenic and Chromium (total) in wastewater and nonwastewater forms of F032.

EPA is clarifying in today's final rule that EPA is promulgating UTS limits for the regulation of Arsenic and Chromium (total) in F032, F034, and F035. Since EPA is establishing UTS limits that are expressed as maximum concentrations of these metals allowed for land disposal, the use of any treatment technologies capable of meeting the UTS limits is not prohibited except for those that may constitute impermissible dilution.

2. "Analytical Difficulties" may preclude the establishment of UTS limits for F032.

EPA's lacks data from the commenter to assess what kind of technical difficulties will be encountered during the analysis of F032 wastes.

After reviewing the characterization data of the Penta Group, the reported analytical difficulties, and F032 Characterization studies; EPA has concluded that the reported "difficulties" appear to represent more the unfamiliarity of chemists performing the chemical analyses with D/F recommended test methods rather than real flaws in the test method. EPA believes further that the alleged "difficulties" can easily be overcome by routine laboratory clean-up procedures and the use of appropriate solvents and other laboratory calibration techniques. EPA has enhanced, therefore, the discussion of these recommended procedures and calibration techniques in the

BDAT Background Document. (See also the Administrative Record supporting today's Phase 4 final rule for the technical document titled: Background Paper Addressing Technical Issues Related to Analysis of F032 Wood Preserving Wastes for Dioxins and Furans, dated June 19, 1996.)

3. EPA should correct the D/F limits for accuracy and variability.

Several commenters were correct in pointing it out that EPA did not correct the proposed UTS limits for D/F in F032 with accuracy and variability factors, as typically done in the calculation of treatment standards of other hazardous constituents prohibited from land disposal. EPA did not adjust the proposed UTS limits for D/F constituents, nor is EPA doing so in today's final rule, as explained below.

The UTS treatment limits are based on combustion technologies that EPA believes will meet the proposed UTS limits for D/F in F032 as long as the combustion of F032 is conducted in a device that is well designed and well operated. EPA concluded in the Solvents and Dioxins rule that a six-nines Destruction and Removal Efficiency (DRE) combustion device can routinely achieve the promulgated limit (see January 18, 1986, 51 **FR** (1733-1735)). Based on the performance of a four-nines DRE rotary kiln incinerator burning F024, EPA believes that a four-nines DRE unit that is well designed and operated can also meet the promulgated UTS limits for D/F (see June 1, 1990, 55 **FR** (22580-22581). Although none of the submitted comments or data appear to support the revisions to D/F limits proposed by the commenters, EPA may revisit this issue in a separate rulemaking if new data become available.

However, EPA points out to the commenter that EPA generally allows deviations from the promulgated treatment limits to concentration of up to one order of magnitude above the applicable treatment standard (i.e. the numerical UTS limit) prescribed in the 40 CFR 268.40, for the ashes arising from combustion devices if the matrix from CMBST cannot be analyzed to the treatment level using the proper analytic procedures. EPA refers to such treatment limits allowances as the analytical detection limit (compliance) alternative. Facilities seeking the disposal of such combustion ashes must satisfy the provisions in the 40 CFR 268.40 (d) (1) through (3) and 268.7 (b) (5) (iii). (Also, see June 1, 1990, 55 **FR** (22541-22542).)

In addition, EPA has set an alternative compliance treatment standard that sets combustion "CMBST" as a treatment standard for D/F for nonwastewater forms of F032. To qualify for a "CMBST" treatment standard, the combustion device should be operated under a 40 CFR 264 Subpart O or under a 266 operating permit and the Permit writer will use his/her Omnibus power authorities to determine if a combustion device seeking to treat F032 can be deemed well operated and well designed combustion devices. If deemed a well operated and designed combustion device, the facility will not have to monitor the concentrations of D/F constituents in wastewater and nonwastewater forms arising from the combustion of F032. EPA feels therefore that such alternative compliance treatment standard fully addresses the concerns raised by the commenters.

4. Proposal that “nondetection limits” are equivalent to zero detection.

EPA believes the commenter is concern that a detection limit in a treated waste above a UTS numerical limit may fail to meet the applicable treatment standard even if the targeted analyte is below the detection limit. EPA believes that a “nondetection limit” is not feasible way to address this concern. EPA believes that a constituent shown below a particular targeted detection limit means that the constituent is either destroyed by the employed technology, mask in the waste residue due to matrix interferences, or it could be measured in concentrations below the targeted detection limit. As a result, it could be possible that the constituent of LDR concern is still above the applicable UTS limit should the targeted selection limit be above the UTS promulgated limit. Therefore, EPA believes that a facility could still be deemed in violation of the applicable limit if EPA detects such constituent above its UTS limit.

However, EPA points out to the commenter that EPA generally allows deviations from the promulgated treatment limits to concentration of up to one order of magnitude above the applicable treatment standard (i.e. the numerical UTS limit) prescribed in the 40 CFR 268.40, for the ashes arising from combustion devices. EPA refers to such treatment limits allowances as the analytical detection limit (compliance) alternative. Facilities seeking the disposal of such combustion ashes must satisfy the provisions in the 40 CFR 268.40 (d) (1) through (3) and 268.7 (b) (5) (iii). (Also, see June 1, 1990, 55 **FR** (22541-22542).) Another option available to the commenter is to verify if the waste of concern is different from the one supporting the UTS limit and seek from EPA a treatability variance pursuant to provisions in the 40 CFR 268.44.