DCN PH4P023
COMMENTER Beazer East, Inc.
RESPONDER JL
SUBJECT WOOD6
COMMENT 2. The analytical method for detecting dioxin/furan is problematic. Since the inception of EPA's efforts to regulate dioxin, serious questions have been raised by the regulated community regarding its detection and analysis. Beazer believes the inclusion of dioxin/furan as a parameter for the F032 LDR, particularly at the low levels specified in the Proposed Rule, is problematic due to analytical interferences and elevated detection limits clouding performance verification. Beazer is especially concerned about the potential for false positives. EPA's BDAT Background Document for Wood Preserving Wastes (July, 1995) supports this concern. The document explains: [a] number of analytical chemistry difficulties are associated with the analysis of F032 Wood Preserving Waste samples for PCDDs and PCDFs. The most significant problems are due to interferences resulting from the high concentrations of pentachlorophenol, chlorophenols, creosote, and inorganics. The effects of these interferences may result in elevated detection limits, insufficient method sensitivity, and biased false positive results. Moreover, the analytical problems associated with measurement of very low levels of the dioxins/furans described above are exacerbated by the substantial complexities of a non-homogeneous sample matrix, such as soil, sediment and sludge.
RESPONSE

Several comments emphasized that there are “analytical difficulties associated with the characterization of Dioxin and Furan constituents in F032". These commentors have urged EPA to withdraw the proposed limits for D/F in F032 in light of such “analytical difficulties”. This commentor lacks detailed information that may enable EPA to further evaluate the alledged “analytical difficulties” encountered for the routine characterization of D/F in F032.

Based on other comments that provided information on the kind of “analytical difficulties” pressumably encountered during the analyses of F032, EPA has concluded that the alledged “analytical difficulties” may be a direct result of inappropriate analytical test method procedures and perhaps, limited experience of the laboratory chemists rather than the potential short-comings with the recommended EPA’s SW 846 Test Methods. Based on these findings, EPA believes that it is technically feasible to promulgate the proposed numerical limits.

Also, EPA has revised the Final BDAT Background Document for Wood Preserving Wastes to recommend the use of SW 846 - Test Methods 8280 A or 8290, as the methods of compliance for the characterization D/F analytes in F032. EPA also points out that there are laboratories in the country that routinely untilize Methods 8280 A and 8290 to analyse D/F in

complex waste streams, soils, sediments, and debris. The BDAT Background Document for Wood Preserving Wastes F032, F034, and F035, provides a discussion of the recommended tetst methods and guidance on protocols and laboratory techniques that can minimize “potential analytical difficulties” inherent to the analysis of D/F analytes in F032 waste streams. EPA is thus promulgating numerical limits for D/F constitunets in F032, as proposed.

DCN PH4P023
COMMENTER Beazer East
RESPONDER SB
SUBJECT WOOD6
SUBJNUM 023
COMMENT

EPA should delete dioxin/furan from the F032 LDR because of the difficulties in verifying the concentrations of the materials in media.

RESPONSE

Several comments emphasized that there are “analytical difficulties associated with the characterization of Dioxin and Furan constituents in F032". These commentors have urged EPA to withdraw the proposed limits for D/F in F032 in light of such “analytical difficulties”. This commentor lacks detailed information that may enable EPA to further evaluate the alledged “analytical difficulties” encountered for the routine characterization of D/F in F032.

Based on other comments that provided information on the kind of “analytical difficulties” pressumably encountered during the analyses of F032, EPA has concluded that the alledged “analytical difficulties” may be a direct result of inappropriate analytical test method procedures and perhaps, limited experience of the laboratory chemists rather than the potential short-comings with the recommended EPA’s SW 846 Test Methods. Based on these findings, EPA believes that it is technically feasible to promulgate the proposed numerical limits.

Also, EPA has revised the Final BDAT Background Document for Wood Preserving Wastes to recommend the use of SW 846 - Test Methods 8280 A or 8290, as the methods of compliance for the characterization D/F analytes in F032. EPA also points out that there are laboratories in the country that routinely untilize Methods 8280 A and 8290 to analyse D/F in complex waste streams, soils, sediments, and debris. The BDAT Background Document for Wood Preserving Wastes F032, F034, and F035, provides a discussion of the recommended tetst methods and guidance on protocols and laboratory techniques that can minimize “potential analytical difficulties” inherent to the analysis of D/F analytes in F032 waste streams. EPA is thus promulgating numerical limits for D/F constitunets in F032, as proposed.

DCN PH4P032
COMMENTER THE PENTA TASK FORCE
RESPONDER JL
SUBJECT WOOD6
SUBJNUM 032
COMMENT

B. The BDAT Standard Must Be Adjusted To Reflect Accuracy Correction and Variability Factors.

If EPA now questions the ability of incineration to completely destroy dioxins and furans in F032 wastes and therefore is inclined not to establish an alternate incineration standard, we urge EPA to review the data and set dioxin/furan limits which fully account for analytical and treatment variability. EPA normal procedure in setting treatment standards for a waste constituent is to apply both an "accuracy correction factor" and a "variability factor" to the concentration of the constituent observed in the treatment data that support the standard. See, Final Best Demonstrated Available Technology (BDAT) Background Document for Universal Standards -- Volume A: Universal Standards for Wastewater Forms of Wastes, 5-2 (July 1994) (hereinafter "UTS BDAT Background Document"). 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. Id. Where, as here, the incineration performance data show that the concentration of the constituent in the ash is below the detection limit, EPA normally applies a default variability factor of 2.8, and a default accuracy correction factor of 5.0. Id., Vol. B, at 5-5, 6-4.

But in establishing the universal treatment standards for nonwastewater forms of organic waste, EPA departed from its normal practice and set the UTS at the 1 ppb detection limit without accounting for variability. If EPA were to apply the normal variability and accuracy correction factors to the 1 ppb detection limit for dioxins/furans in F032 nonwastewaters, the adjusted treatment standard would be 1 ppb x 2.8 x 5.0, or 14 ppb.9

RESPONSE

Several comments emphasized that there are “analytical difficulties associated with the characterization of Dioxin and Furan constituents in F032". These commentors have urged EPA to withdraw the proposed limits for D/F in F032 in light of such “analytical difficulties”. This commentor lacks detailed information that may enable EPA to further evaluate the alledged “analytical difficulties” encountered for the routine characterization of D/F in F032.

Based on other comments that provided information on the kind of “analytical difficulties” pressumably encountered during the analyses of F032, EPA has concluded that the alledged “analytical difficulties” may be a direct result of inappropriate analytical test method procedures and perhaps, limited experience of the laboratory chemists rather than the potential

short-comings with the recommended EPA's SW 846 Test Methods. Based on these findings, EPA believes that it is technically feasible to promulgate the proposed numerical limits.

Also, EPA has revised the Final BDAT Background Document for Wood Preserving Wastes to recommend the use of SW 846 - Test Methods 8280 A or 8290, as the methods of compliance for the characterization D/F analytes in F032. EPA also points out that there are laboratories in the country that routinely untilize Methods 8280 A and 8290 to analyse D/F in complex waste streams, soils, sediments, and debris. The BDAT Background Document for Wood Preserving Wastes F032, F034, and F035, provides a discussion of the recommended tetst methods and guidance on protocols and laboratory techniques that can minimize "potential analytical difficulties" inherent to the analysis of D/F analytes in F032 waste streams. EPA is thus promulgating numerical limits for D/F constitunets in F032, as proposed.

DCN PH4P039
COMMENTER AWPI
RESPONDER JL
SUBJECT WOOD6
SUBJNUM 039
COMMENT ANALYTICAL PROBLEMS ASSOCIATED WITH DIOXIN AND FURAN WASTES EPA acknowledges the existence of several analytical problems associated with dioxin wastes. EPA notes: [a] number of analytical chemistry difficulties are associated with the analysis of F032 Wood Preserving Waste samples for [polychlorinated-dibenzo-dioxins] PCDDs and [polychlorinated-dibenzo-furans] PCDFs. The most significant problems are due to interference's resulting from the high concentrations of pentachlorophenol, chlorophenols, creosote, and inorganics. The effects of these interference's may result in elevated detection limits, insufficient method sensitivity, and biased false positive results. Non-homogenous sample matrices (e.g., soils, sludges, sediments) intensify the analytical problems cited above. COMMENT: AWPI believes EPA's treatment level of 1 ppb for dioxin and furan in F032 wastes is unreasonable and places the generator in an impossible situation when attempting to verify performance. EPA should delete the dioxin and furan limits for F032 or accept incineration in a four-9s incinerator as an alternative treatment technology.

RESPONSE

After reviewing the characterization data of the commenter and the reported analytical difficulties, 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. Also, see the document titled: Background Paper Addressing Technical Issues Related to Analysis of F032 Wood Preserving Wastes for Dioxins and Furans, dated June 19, 1996, in the Administrative Record for today’s rulemaking.

In addition, the commenter felt that the high concentrations of PCP will interfere with the analyses of D/F. EPA believes that aggressive oxidation or reduction technologies must be used to reduce the concentrations of halogenated organics in F032 . EPA also expects incineration to be the technology of choice since as of today it has been proven the best technology available to destroy organics including D/F constituents. EPA also believes that incineration can significantly reduce the levels of PCP below detection and thus, eliminating most of the potential interferences anticipated by the commenter.

DCN PH4P065
COMMENTER Safety-Kleen Corp.
RESPONDER JL
SUBJECT WOOD6
COMMENT 14. Even if a 1 (g/kg (1 ppb) level for PCDD and for PCDF can be achieved through treatment, it may be impossible to confirm compliance with such a low UTS level. The Agency has proposed to set the F032 wastewater and nonwastewater treatment standards at 1 ppb (or 1 (g/kg) for all the PCDD and PCDF homologue and isomer constituents proposed for regulation for F032 wastes. Even if a 1 (g/kg level is achievable for PCDD and for PCDF, analytical limitations may make it impossible to confirm that such a low UTS level has been met. As has been pointed out to the Agency in industry comments on several LDR rulemakings in recent years, organic waste streams are not easily analyzed for certain constituents at very low concentrations. The Chemical Manufacturer's Association (CMA) comments on the Phase IV LDR proposed regulation include a report that discusses why the Agency should not establish concentration limits without considering analytical limitations. The report recommends that EPA explicitly state that, given approved test methods, nondetectable levels of constituents are equivalent to zero concentration. Rather than repeat all the various issues raised in the CMA document, Safety-Kleen incorporates by reference CMA's comments on this issue.
RESPONSE

EPA lacks data from the commenter to assess what kind of technical difficulties will be encountered during the analysis of F032 wastes. EPA contacted the commenter for a copy of the attachment cited. Since the document was never received, EPA cannot respond to the commenters statements regarding that report.

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. Also, see 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.

DCN PH4P113
COMMENTER Chemical Manufacturers Association
RESPONDER JLABIOSA
SUBJECT WOOD6
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 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. Also, see 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 EPA is 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. 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.