DCN PH4P023
COMMENTER Beazer East, Inc.
RESPONDER JL
SUBJECT WOOD7
COMMENT a. BCD Technology EPA has asked for comment on the use of BCD technology and other technologies to treat dioxin/furan. 60 Fed. Reg. 43681, Col. 3. Beazer does not believe that the BCD technology has been sufficiently demonstrated to warrant its inclusion in the list of candidate nonwastewater treatment technologies. Our information suggests that EPA researchers, at its Risk Reduction and Engineering Lab ("RREL/ORD"), advised that demonstration tests at two sites have resulted in evidence that the dechlorination process in the "liquid reactor" is not successfully performing, specifically for dechlorinating dioxin/furan. A test in 1993 indicated that dioxin/furan could be removed from soils, but the off-gas stream treatment could not be evaluated due to analytical interferences. A recent 1995 test in Region X was terminated due to the inability of the process to meet the air emissions standards for dioxins/furans. Id. b. Shirco Infrared Thermal Process The Agency has suggested in the Proposed Rule that the Shirco infrared thermal process can be used to treat dioxin/furan. 60 Fed. Reg. 43681. This process was tested by EPA in 1987 for destruction of PCBs. Id. However, Beazer found no data in EPA's Superfund Innovative Technology on-line database regarding use of the technology for destruction of dioxins/furans. Indeed, the Dioxin Treatment Document indicates that although infrared destruction has advanced to commercial use in Germany, no permitted facilities exist in the United States for destruction of dioxins/furans. Dioxin Treatment Document, p. 26. c. Hubber Supercritical Oxidation Thermal Process The Agency also suggests that the Hubber supercritical oxidation process can be used to treat dioxin/furan wastes. 60 Fed. Reg. 43681, Col. 3. According to the Dioxin Treatment Document, however, the Hubber supercritical oxidation thermal process referred to in the Proposed Rule can only be used to treat liquid wastes and perhaps finely ground, thin slurries. Dioxin Treatment Document, p. 60. It has not been tested at a commercial scale on any solid wastes or even the proposed thin slurries, thus further limiting its appropriateness as a viable technology. Id. d. Pyrolitic Destruction Pyrolitic destruction is another technology that EPA believes is capable of treating dioxin/furan wastes. Id. Like the Hubber process, pyrolitic destruction of dioxin/furan has the same limitations in that it can only treat liquid wastes and perhaps finely ground, thin slurries (with a viscosity similar

to 30 wt. motor oil). The technology is being pursued by only one company and has not been demonstrated at commercial scale for destruction of dioxin/furan. Dioxin Treatment Document, p. 60. e. APEG and KPEG Processes In the Proposed Rule, EPA requests comments on whether the APEG or KPEG processes can be used to meet the dioxin/furan LDRs. Id. The APEG and KPEG processes were introduced in the 1980s and found application at commercial scale for dechlorinating organic fluids and oils. However, the treatment of nonwastewaters has not progressed successfully since its introduction. As an example, a Region VI CERCLA site in Houston mobilized a full scale APEG treatment system owned by Galson Research Corporation six or seven years ago and was unable to meet the treatment requirements for PCBs. The unit was demobilized and Galson has not pursued the technology further. f. Ultraviolet Photolysis EPA has also requested information on the use of ultraviolet photolysis in treating dioxin/furan. 60 Fed. Reg. 43682, Col. 1. The use of ultraviolet photolysis for destruction of dioxin/furan in soils requires dissolution of the dioxin/furan from the soil into a solvent extract and subsequent destruction of the dioxin/furan in the liquid solvent. This technology will face the same developmental difficulties impeding the development of critical fluid extraction for soils (material handling and agglomeration) and for the BCD liquid reactor (destruction of the dissolved dioxins/furans in the solvent extract to levels low enough to allow recycle of the solvent). Further, the process has not yet been demonstrated at commercial scale. g. Biotreatment Finally, the Agency proposes the use of biotreatment for wastewater. 60 Fed. Reg. 43681, Col. 1. Beazer contacted several water treatment equipment manufacturers to verify that the proposed treatment standards could be achieved with the specified technologies. Zimpro, the manufacturer of one of the most effective wastewater biotreatment systems available had no data to support removal of dioxin/furan to the proposed UTS levels. Because the ability of biotreatment to achieve the very stringent dioxin/furan UTS levels for wastewater was not confirmed by Beazer's contacts with equipment vendors, Beazer requests that EPA provide performance data to confirm the assertion made above regarding biotreatment of wastewaters.

RECOMMENDATION:

RESPONSE

The commenter raised concerns on whether the treatment technologies mentioned by EPA in the Phase 4 preamble and the Proposed BDAT Background Document for F032, F034, and F035 are commercially available to meet the proposed UTS limits. The commenter has also pointed out to potential waste/soil characteristics that may limit the application of the treatment

technologies suggested by EPA as potentially applicable to contaminated media. EPA has addressed and incorporated specific comments on each soil/groundwater remediation technology described by the commenter into the Final BDAT Background Document for Wood Preserving F032, F034, and F035, April 15, 1997 (see, specifically, Section 6 and Appendix K in such BDAT Background Document).

EPA notes, however, that none of these technologies have changed EPA determination of the BDAT treatment technology models that support the UTS treatment standards promulgated, today, for eachone of the regulated constituents in F032, F034, and F035. EPA has found, however, that energy and chemical intensive remedial technology trains are most likely to enable members of the regulated community to meet the promulgated treatment standards since these technologies can treat, generally, within one or two orders of magnitude of the UTS limits and presumably, may be able to undergo optimization for soils/groundwaters that can be pretreated to undergo effective treatment. EPA also recognizes that there may be instances where some contaminated media may be unable to meet the treatment standards due to matrix interferences or where EPA is persuaded that the treatment standards are not appropriate. (See, for example, the memorandum titled: Use of Site-Specific Land Disposal Restriction Treatability Variances Under 40 CFR 268.44(h) During Cleanups, from Michael Shapiro, Director , Office of Solid Waste and Steve Luftig, Director, Office of Emergency and Remedial Response, to RCRA/CERCLA Senior Policy Mangers, Region I-X, dated January 8, 1997.)

Although EPA believes that treatability variances under the 40 CFR 268.44(h) will be effective, generally, in addressing circumstances where the contaminated media cannot meet the treatment standards or where the treatment standard may be inappropriate, the EPA has identified in the Final BDAT Background Document other potential waivers or variances that may lessen the impact of the land disposal restrictions promulgated today.

DCN PH4P032
COMMENTER Penta Task Force
RESPONDER JL
SUBJECT WOOD7
SUBJNUM 032
COMMENT

II. ALTERNATIVE TREATMENT STANDARDS PROVIDE THE ONLY PRACTICABLE SOLUTION.

A. EPA Should Establish Incineration As An Alternative Treatment Standard.

Incineration in a four 9's combustion unit currently is the only practicable technology for treating F032 waste streams. Because of the stigma problem, that technology will be unavailable if the Agency sets treatment standards for dioxin/furan constituents in the waste. In our view, the problem can most readily be addressed by setting alternative treatment standards that allow a generator to meet either the numerical treatment standards for dioxins/furans or a technology standard specifying incineration. The provision for incineration as a technology standard would solve the stigma problem in that four 9's incinerators and BIAS would no longer have any reason to decline to take the wastes. The alternate performance-based numerical treatment standard would allow the generator the flexibility of selecting any applicable treatment method as long as the numerical treatment standards are met. This would provide adequate incentives to the continued development of alternate non-incineration technologies.

EPA appears to believe, and has oft stated, that incineration destroys dioxins and furans to levels below analytical detection. Because EPA believes that incineration will necessarily destroy the dioxins and furans in F032 wastes, there is no need to establish dioxin and furan standards. Incineration will serve to ensure that these constituents are appropriately treated.

To the extent EPA would prefer to set some concentration-based limits to provide a mechanism to ensure proper combustion performance of individual treatment units, it can designate polycyclic aromatic hydrocarbons ("PAHs") as part of the incineration standard. See Attached report entitled "Evaluation of Potential Surrogates for Dioxins in Wood Treatment Residues." (Tab 7). The PAHs have similar physical properties to the dioxins/furans in terms of their relative vapor pressures, boiling points, and aqueous stability. Also, many of the PAHs are more difficult to burn than the dioxins/furans. The table below provides a ranking of the thermal stability of various compounds on the basis of the temperature required for 99 percent destruction given a reaction time of 2.0 seconds under oxygen depleted

conditions (designated" T99 (2) degrees C"). As shown in the table, many of the PAHs -- i.e., naphthalene -- are ranked as more thermally stable than the listed dioxins. (Furans are considered to be less stable than dioxins and thus necessarily would have a lower ranking score.)

[TABLE IN TEXT NOT REPRODUCED HERE.]

Moreover, a number of PAHs -- naphthalene, benz(a)anthracene, benzo(a)pyrene, benzo(k)flouranthene, dibenz(a,h)anthracene and indeno(1,2,3-c,d)pyrene are present insignificant quantities in F(32 wastes. See Tables in Attachment at Tab 7.As such, these PAHs are present in sufficient concentrations to allow analysis and detection in the combustion residues.

The relative difficulty of analyzing for dioxins and furans in F032 wastes provides an additional justification for establishing an alternative standard based on incineration technology. In general, numerical standards are established for waste constituents which are amenable to analyses, and standards specifying specific treatment technologies are developed for wastes that are difficult to analyze. See Final Best Demonstrated Available Technology (BDAT) Background Document for U and P Wastes and Multi-Source Leachate (F039), Volume C, at 1-2 (May 1990). Indeed, the treatment standards for a significant number of waste codes specify a technology based treatment. As discussed in Section 3.8.3 of the F032 BDAT Background Document, there are significant problems associated with the analyses of dioxins/furans in F032 wastes. These problems are fully described in many of the technical documents found in the docket to this rulemaking. As EPA's contractor have observed in one such report:

"These samples also had a devastating effect on the performance of the capillary chromatography column during the GC/MS analysis. Injecting the samples without dilution caused immediate and irreversible damage to the column to the point where virtually all of the compounds would be lost even in standards. It is possible that the internal standards were actually present in the final extract but could not be detected due to the degradation of the capillary column.

The nature of this interference does not lend itself to straightforward documentation. Every time the samples were injected in either laboratory, a chromatogram of baseline noise and column bleed would result, and all subsequent injections would also give primarily baseline noise and column bleed. This would result in breaking down the instrument, cleaning the chromatographic system, replacing the column, recalibrating, and trying again."

In light of these significant analytical difficulties, and the availability of other constituents, I.e.,PAHs, to provide a measure of proper combustion performance, there is no justification for requiring that dioxins/furans be analyzed for in combustion residuals.

RESPONSE

In response to comments from the Penta Task Force and the American Wood Preserving Institute, the EPA has also proposed and is promulgating in today's rule an alternative compliance treatment standard that sets combustion ("CMBST") as a treatment method for D/F constituents in F032. EPA is also promulgating treatment limits for D/F as proposed.

EPA has promulgated, however, a revised "CMBST" compliance alternative which limits the availability of the "CMBST" to those combustion devices in compliance with applicable combustion standards in the 40 CFR 264 Subpart O, or 40 CFR 266. F032 wastes combusted in combustion devices operating under 40 CFR 264 or 266 do not have to monitor the concentrations of D/F left behind in combustion residues. However, the facilities must meet UTS numerical limits applicable to each organic and metal constituent regulated in F032 as a prerequisite to land disposal.

It should be emphasized that facilities seeking the combustion of F032 in an incinerator regulated under a 40 CFR 265 Subpart O do not qualify for a "CMBST" treatment standard. F032 residues arising from 40 CFR 265 units must meet the applicable UTS numerical limits for each regulated D/F constituent as a prerequisite to land disposal.

EPA's authority to prescribe treatment limits or methods of treatment under the LDR are set under section 3004 (m) of HSWA. Under such HSWA provisions, EPA is directed to set treatment standards that would reduce short- and long-term threats to the human health and the environment.

In today’s rule, EPA allows F032 to comply with either a numerical limit or with the use of a combustion device operated in accordance with Part 264, incinerators, or Part 266, Boilers and Industrial Furnaces (BIFs). EPA believes that by limiting the promulgated method of treatment, i.e., availability of the combustion (“CMBST”) standard, to a Part 264 incinerator or 266 BIF, EPA can ensure that the combustion of D/F in F032 is conducted in a manner that is protective to the human health and the environment.

EPA has promulgated similar kinds of technology standards for hazardous wastes regulated under Part 268.43 and hazardous debris under Part 268.45. These specific treatment standards under Parts 268.42 and 268.45 prescribe treatment methods and EPA has relied on permit authority, federal/state air emission standards, or promulgated operational technology performance requirements to ensure that the technology treatment methods are protective to the human health and the environment, and in particular do not result in the type of impermissible cross-media transfer of hazardous constituents referred to by the Chemical Waste Management

court.

In addition, EPA does not accept the commenters' assertion that analyzing for non-D/F constituents should serve as a surrogate for D/F destruction to BDAT levels. Although demonstration of destruction of the other constituents is certainly some evidence of destruction of D/F as well, the Agency believes some added assurance is desirable given the toxicity of D/Fs. This added assurance is the part of the alternative standard assuring that treatment is occurring in a combustion unit which is known to operate with good combustion efficiency, either because it is subject to an explicit regulatory standard or (in the case of interim status incinerators) has made a specific demonstration of such efficiency.

DCN PH4P032
COMMENTER Penta Task Force
RESPONDER JL
SUBJECT WOOD7
SUBJNUM 032
COMMENT

D. Requiring De Facto Six 9s Incineration Of F032 Wastes Is Unjustified And Contrary To EPA's "Toxic" Classification For These Wastes.

EPA in 1990 expressly considered whether to designate F032 wastes as an acutely hazardous dioxin-containing waste and thereby subject the waste to the special management provision of 40 C.F.R. §§ 261.30(d), 268.31, which includes treatment by an incinerator meeting six 9s DREs. See 55 Fed. Reg. 50,450 (Dec. 6, 1990) (final F032 listing rule). See also 53 Fed. Reg.53,282, 53,291-53,308 (Dec. 30, 1988) (proposed rule). After an exhaustive review of the data, EPA concluded that F032 wastes should be designated as toxic (rather than as acutely hazardous). As a consequence of this 1990 listing decision, F032 wastes should not be subject to the exacting standards for incineration (incineration by a six 9s unit) that are required for acutely hazardous wastes.

EPA's decision to classify F032 wastes as toxic rather than acutely hazardous was firmly grounded in the record. At the time the Agency considered the designation of F032 wastes, the National Toxicology Program ("NTP") had published a cancer bioassay on commercial pentachlorophenol formulations of varying HxCDD content. The NTP data demonstrated that HxCDD was not a valid predictor of the risk associated with pentachlorophenol wastes. As EPA explained:

In light of the NTP study results, EPA can no longer use HxCDD as a reasonable surrogate to indicate the toxicity of pentachlorophenol The NTP study provides carcinogenic potency values for pentachlorophenol products such as "purified"pentachlorophenol, 0.245 (mg/kg/day)-1, and technical grade pentachlorophenol, 0.788(mg/kg/day)-1, which are within the range of values associated with other wastes listed as toxic.

55 Fed. Reg. at 50,467. In short, because the NTP study demonstrates that the carcinogenic potency of F032 wastes is well within the range of potency values of other toxic wastes regulated under RCRA, the Agency had no choice but to designate F032 wastes as a toxic waste.

Having decided the issue in 1990, EPA now appears to be attempting through the RCRA land disposal ban program to require that F032 wastes be treated as if they were acutely hazardous dioxin-containing wastes, i.e., by incineration to six 9s

DRE. This conclusion is apparent from the record. In the proposed rule, EPA states that "it has identified one commercial facility currently permitted to combust wastes that may have PCDD and PCDF constituents with concentrations one to two orders of magnitude higher than those levels found in F032." 60 Fed.Reg. 43,681. That statement necessarily refers to the Aptus incinerator in Coffeyville, Kansas because Aptus is the only "fixed-base" commercial incinerator permitted to handle dioxin-contaminated wastes. See EI Digest, "Environmental Information," Minneapolis, MN(June 1994), at 22. The draft RIA also suggests that EPA contemplates six 9s incineration for F032 wastes, see, RIA, 3-7 ("Under this rule, wood preserving facilities will be required to incinerate dioxin-contaminated waste (i.e., F032) nonwastewaters and demonstrate a destruction and removal efficiency rate of 99.9999 percent."); see, id., Exh. ES-6 n.a. ("Incineration costs for F032 nonwastewaters assume a 99.9999 percent destruction and removal efficiency rate"), as do statements in various staff memoranda that have been added to the rulemaking record. See, e.g. Memorandum from J. Labiosa to R. Kinch and L. Rosengrant, Re: "Regulation of Dioxins in F032, F033, and U242" (undated) (noting that rotary kiln incinerators followed with adequate air pollution control devices (APCDs) are likely to meet existing six 9s DRE performance requirements).

Having decided the issue in 1990, we believe that is improper for EPA now to propose a treatment strategy that treats F032 wastes as though they had been identified as acutely hazardous and relies on the management of the wastes in a six 9s incinerator. But unless the stigma issue is squarely addressed in this rulemaking, precisely that improper result will come to fruition.

RESPONSE

It appears that the commenter was concerned that since the BDAT model supporting numerical limits for D/F constituents was based on six 9's Destruction and Removal Efficiency (DRE) incinerators, facilities seeking compliance with the numerical limits in RCRA incinerators, cement kilns, or other industrial furnaces achieving a four 9's DRE were likely to fail the proposed UTS limits. It also appears that EPA's discussions in the preamble and the BDAT Background Document for F032, F034, and F035 that at least one facility was permitted to treat D/F containing wastes as difficult to treat as F032 led the commenter to believe that EPA was considering limiting the combustion of F032 to a six 9's DRE - RCRA combustion device. EPA is clarifying, therefore, that in today's rule EPA is not amending §§264.343 (a) (2) or 266.104 (a) (3) to compel the combustion of F032 or F024 in a six 9's Destruction and Removal Efficiency combustion device. Nor has EPA proposed that the combustion of F032 or F024 be only conducted in a six 9's or a four 9's DRE - RCRA combustion device.

It should be noted that although the BDAT combustion technologies supporting the development of UTS limits for D/F regulated in nonwastewater forms of F032 and F024 met a RCRA incineration performance of six 9's DRE performance, the modeled compliance treatment alternative of "CMBST" was based on the performance a four 9's DRE - RCRA 40 CFR 264 Subpart O, rotary kiln incinerator combusting F024. Data from the F024 incineration study shows that a well designed and well operated four 9's DRE incinerator can also meet the proposed limits of 1 ppb for nonwastewater forms of F024. Based on this information, EPA believes that RCRA Omnibus permit authorities can be used under 40 CFR 264 Subpart O and 40 CFR 266 to ensure that the combustion of F032 (and F024) is conducted in a well designed and well operated combustion devices and thus, minimizing the release or generation of D/F during combustion .

DCN PH4P039
COMMENTER AWPI
RESPONDER JL
SUBJECT WOOD7
SUBJNUM 039
COMMENT F032 REQUIREMENT FOR SIX-9'S INCINERATION IS UNWARRANTED

EPA is inappropriately requiring treatment standards for F032 at levels accorded to acutely hazardous waste. This is evidenced by several statements. The Agency "identified one facility currently permitted to combust wastes that may have PCDD and PCDF constituents one to two orders of magnitude higher than those levels found in F032" (the Aptus facility). "Incineration costs for F032 non-wastewaters assumes a 99.9999 percent destruction and removal efficiency" according to the draft RIA. An undated internal memorandum between OSWER staff noting that rotary kiln incinerators followed with adequate air pollution control devices (APCDs) are likely to meet existing six 9's DRE performance requirements. EPA has already given a thorough review to the proper classification of F032 wastes. The Agency cited the results of the National Toxicology Program (NTP) cancer bioassay on commercial pentachlorophenol formulations of varying HxCDD content as further evidence in support of a "toxic waste" classification. COMMENT: This "backdoor" approach to regulate F032 as a de facto "acutely hazardous waste" is inappropriate and further evidence of the need for EPA to reconsider the UTSs for F032 wastes.

RESPONSE

It appears that the commentor was concerned that since the BDAT model supporting numerical limits for D/F constituents was based on six 9's Destruction and Removal Efficiency (DRE) incinerators, facilities seeking compliance with the numerical limits in RCRA incinerators, cement kilns, or other industrial furnaces achieving a four 9's DRE were likely to fail the proposed UTS limits. It also appears that EPA's discussions in the preamble and the BDAT Background Document for F032, F034, and F035 that at least one facility was permitted to treat D/F containing wastes as difficult to treat as F032 led the commentor to believe that EPA was considering limiting the combustion of F032 to a six 9's DRE - RCRA combustion device. EPA is clarifying, therefore, that in today's rule EPA is not amending §264.343 (a) (2) or §266.104 (a) (3) to compel the combustion of F032 or F024 in a six 9's Destruction and Removal Efficiency combustion device. Nor has EPA proposed that the combustion of F032 or F024 be only conducted in a six 9's or a four 9's DRE - RCRA combustion device.

It should be noted that although the BDAT combustion technologies supporting the development of UTS limits for D/F regulated in nonwastewater forms of F032 and F024 met a RCRA incineration performance of six 9's DRE performance, the modeled compliance treatment alternative of "CMBST" was based on the performance a four 9's DRE - RCRA 40 CFR 264

Subpart O, rotary kiln incinerator combusting F024. Data from the F024 incineration study shows that a well designed and well operated four 9's DRE incinerator can also meet the proposed limits of 1 ppb for nonwastewter forms of F024. Based on this information, EPA believes that RCRA Omnibus permit authorities can be used under 40 CFR 264 Subpart O and 40 CFR 266 to ensure that the combustion of F032 (and F024) is conducted in a well designed and well operated combustion devices and thus, minimizing the release or generation of D/F during combustion.