



Department of Energy

Washington, DC
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RCRA Information Center
U.S. Environmental Protection Agency Headquarters (5305G)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Docket Number F-2000-TSSP-FFFFF

Dear Sir or Madam:

Re: 65 FR 42937, "Land Disposal Restrictions; Treatment Standards for Spent Potliners From Primary Aluminum Reduction (K088) and Regulatory Classification of K088 Vitrification Units"

On July 12, 2000, the Environmental Protection Agency (EPA) published a notice of proposed rulemaking (NPRM), in which EPA suggests revising certain land disposal restriction (LDR) treatment standards for spent potliners from primary aluminum reduction (EPA Hazardous Waste No. K088). In addition to announcing EPA's determination of vitrification as the Best Demonstrated Available Technology (BDAT) for treating K088 waste, the NPRM proposes that:

- All K088 waste vitrification units be classified as Subpart X miscellaneous hazardous waste treatment units for purposes of regulation under 40 CFR Part 264; and
- Resource Conservation and Recovery Act (RCRA) permit writers be required to use the maximum achievable control technology (MACT) standards for hazardous waste incinerators as a point of departure when setting unit-specific air emission limits for a K088 waste vitrification unit.

Further, the NPRM explains that EPA believes the rationale for regarding K088 vitrification units as Subpart X miscellaneous units could logically be extended to all hazardous waste vitrification units, whether direct-fired or indirectly heated, and irrespective of the waste being treated or recycled. On September 18, 2000, the Agency extended the comment deadline for the NPRM until December 11, 2000 (65 FR 56287).

While most of this NPRM is not directly relevant to DOE activities, DOE appreciates the opportunity to comment on the possible extension of the regulatory approach for K088 vitrification units to all hazardous waste vitrification units. As the enclosed comments indicate, DOE favors classifying all hazardous waste vitrification units that must obtain RCRA permits as "miscellaneous units" subject to 40 CFR Part 264, Subpart X. However, the NPRM is unclear about whether other aspects of the K088 proposal would also be extended, such as the presumption that incinerator MACT standards would apply for purposes of writing unit-specific RCRA permit conditions. Therefore, the balance of the Department's comments request clarification and make suggestions regarding the possibility of extending certain aspects of the K088 proposal to all hazardous waste vitrification units, including those which treat high-level mixed waste.

For clarity, each comment is preceded by a reference to the section of the NPRM to which it applies, and a brief description is given in boldface type of the issue within that section to which DOE's comment is directed. If you have any questions or need further clarification of our comments, please contact Bill Fortune of my staff at (202) 586-7302 or william.fortune@eh.doe.gov.

Sincerely,

[signed]

Andy Lawrence
Director
Office of Environmental Policy and Guidance

Enclosure

cc: E. Eby, EPA, Office of Solid Waste (5302W)
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UNITED STATES DEPARTMENT OF ENERGY

**COMMENTS ON LAND DISPOSAL RESTRICTION
TREATMENT STANDARDS FOR SPENT POTLINERS
FROM PRIMARY ALUMINUM REDUCTION (K088)
AND REGULATORY CLASSIFICATION OF K088
VITRIFICATION UNITS**

**NOTICE OF PROPOSED RULEMAKING
(65 FR 42937 - 42959; July 12, 2000)**

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**UNITED STATES DEPARTMENT OF ENERGY
COMMENTS ON LAND DISPOSAL RESTRICTION TREATMENT STANDARDS FOR
SPENT POTLINERS FROM PRIMARY ALUMINUM REDUCTION (K088) AND
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**NOTICE OF PROPOSED RULEMAKING
(65 FR 42937 - 42959; July 12, 2000)**

I. Background

I.D Today's Proposal

1. **p. 42940, col. 2, Footnote 3** – The Notice of Proposed Rulemaking [65 FR 42937-42959; July 12, 2000] (NPRM) explains that one component of the proposal is “regulation of K088 vitrification units as RCRA Subpart X miscellaneous treatment units.” In footnote 3, EPA requests comments on extending this approach to all vitrification units, stating that:

[T]he rationale for regarding [regulation of K088 vitrification units] as Subpart X miscellaneous treatment units would logically extend to all vitrification units treating various hazardous wastes. Thus, all vitrification units, whether direct-fired or indirectly heated and irrespective of the waste treated or recycled, would be classified as Subpart X treatment units.

When a hazardous waste vitrification unit must obtain a Resource Conservation and Recovery Act (RCRA) permit, DOE favors use of the design and operating standards in 40 CFR Part 264, Subpart X, “Miscellaneous Treatment Units,” over the standards applicable to incinerators or boilers and industrial furnaces. While some vitrification processes have designs similar to combustion units, others do not. DOE believes the flexibility provided in the performance-based Subpart X standards would best accommodate permitting of multiple vitrification process designs, regardless of the waste being processed. In addition, the Department agrees that classifying hazardous waste vitrification units that must obtain RCRA permits generically as Subpart X units would reduce regulatory uncertainty in the RCRA permitting process.

The Department's more detailed comments on the regulatory approaches being considered under the proposed rule are provided below.

III. Regulation of K088 Vitrification Units

III.C What Regulatory Options Is EPA Considering?

III.C.2 Standards Applicable to K088 Vitrification Units

1. **p. 42948, col. 2** – The NPRM explains that permits issued under Subpart X must contain terms and provisions as necessary on a case-by-case basis to ensure protection of human health and the environment. It is noted that this broad standard can be a potential source of controversy resulting in delay of a permit's issuance. Hence, to avoid this, EPA is proposing that permit writers be required to consider the maximum achievable control technology (MACT) standards for hazardous waste incinerators, which EPA recently promulgated under authority of the Clean

Air Act, as the point of departure for emission control requirements in RCRA Subpart X permits for K088 vitrification units. However, if a particular incinerator standard is not technically applicable to the type of device being permitted, or if imposing an incinerator standard is unnecessary to ensure protection, then the permit writer would be free to develop a technical justification as to why that particular standard should not be included in a permit.

DOE appreciates the flexibility that the 40 CFR Part 264, Subpart X standards provide to RCRA permit writers. Hence, DOE prefers applying Subpart X to hazardous waste vitrification units. Nevertheless, DOE is concerned that, even in cases where a valid technical justification could be prepared, RCRA permit writers may be reluctant to deviate from hazardous waste incinerator MACT standards, if a presumption that such standards apply is created. For this reason, the Department urges EPA not to create a regulatory presumption that incinerator MACT standards are appropriate for all vitrification units. Instead, DOE suggests that the Agency provide guidance to permit writers concerning the features of a vitrification unit which would make use of hazardous waste incinerator MACT standards appropriate. This would assist permit writers in reviewing vitrification permit applications and selecting appropriate emission standards. It would also avoid creating situations in which a permit writer includes inappropriate conditions in permits based on the presumption that the hazardous waste incinerator MACT standards should apply.

With respect to high-level mixed waste vitrification units, DOE believes that it would be inappropriate to establish a presumption that hazardous waste incinerator MACT standards apply. High-level mixed waste vitrification units face very different challenges in demonstrating compliance with standards than would vitrification units treating nonradioactive hazardous wastes (such as K088). For example, at high-level mixed waste vitrification units, workers who conduct sampling and analyses of emissions must be protected from radiation exposure, and residues from air pollution control equipment must be managed according to the requirements applicable to both radioactive waste (under the Atomic Energy Act of 1954 (AEA)) and hazardous wastes (under RCRA). Furthermore, DOE submits that vitrification processes treating high-level mixed waste have different waste feed systems, operational control systems, and air emission control systems than the K088 vitrification process reviewed in this NPRM.

Regarding existing operational high-level mixed waste vitrification units, DOE is concerned that it would be problematic and very costly to complete initial testing and analyses, and subsequent emissions monitoring to demonstrate compliance with incinerator MACT standards if the proposed presumption were to somehow cause the standards to apply. For example, at DOE's West Valley Demonstration Project (WVDP), the high-level mixed waste vitrification unit is a RCRA interim status thermal treatment unit, with air emissions regulated by EPA and the New York State Department of Environmental Conservation (NYSDEC). This unit began operations in July 1996 for the purpose of demonstrating a method for solidifying 2.3 million liters (600,000 gallons) of liquid high-level waste at the West Valley site, consistent with the requirements of the West Valley Demonstration Project Act (Public Law 96-368). In June 1998, the first phase of vitrification at the WVDP was completed, with more than 96 percent of the high-level waste inventory at the site having been treated. The second phase of vitrification is currently underway. It involves removing and treating the high-level waste residuals (heels) remaining in the tanks, and is

scheduled for completion within a few years.¹ The unit is equipped with an air pollution control system which operates according to the requirements of federal and state regulatory programs (e.g., federal NESHAPs, state air emissions permits). The air pollution control system includes two prefilter assemblies and two banks of high efficiency particulate air filters connected in series, which remove more than 99.9 percent of particulates from the melter exhaust. As a result of operations since 1996, the WVDP vitrification unit now has high levels of radioactivity in many areas, particularly in the cell containing the melter, which is where the particulate filter system is located. If EPA, or the NYSDEC, imposed a presumption that incinerator MACT standards apply to the WVDP vitrification unit, determining whether MACT standards are being met may cause workers to be unnecessarily exposed to radiation. In light of the limited life expectancy of this unit, DOE believes that the risks of incurring personnel radiation exposures for such a purpose outweigh the potential benefits.

III.C.3 Availability of Interim Status for Existing K088 Treatment Units

1. **p. 42948, col. 3 - p. 42949, col. 1** – The NPRM explains that EPA is persuaded that K088 vitrification units should be regulated as hazardous waste treatment units in spite of whether they could be deemed to conduct exempt recycling (pursuant to 40 CFR 261.6(c)), because K088 contains high concentrations of toxic compounds that could be released from a vitrification unit that is not properly designed, operated and maintained. Therefore, the Agency concludes that it would be appropriate for a state, should the state so choose, to use the authority of 40 CFR 270.10(c) to allow an existing facility not holding a RCRA permit to qualify for interim status within 30 days of the date of promulgation of the revised LDR treatment standards for K088. An interim status unit would be required to operate under the interim status standards in 40 CFR 265, Subpart P (Thermal Treatment).
 - a. If EPA decides to extend the NPRM so that all hazardous waste vitrification units would be classified as Subpart X units, DOE believes that EPA should explicitly clarify that, like K088 vitrification units, existing non-K088 hazardous waste vitrification units are not “incinerators.” This clarification is recommended because it would signal the Agency’s intention that existing non-K088 hazardous waste vitrification units qualifying for interim status are not subject to 40 CFR 265, Subpart O, “Incinerators.” In addition, DOE recommends that EPA explicitly clarify that existing non-K088 vitrification units that qualify for interim status are subject to 40 CFR 265, Subpart P, “Thermal Treatment.” Without such clarification, some existing non-K088 vitrification units that qualify for interim status might be required to comply with Subpart O. This could happen if such units use controlled flame combustion, because the applicability of Subpart P is limited to facilities that thermally treat hazardous waste in devices *other than* “enclosed devices using controlled flame combustion” [40 CFR 265.370]. Hence, without both recommended clarifications, a responsible regulator might conclude that, under the extended final rule, no option exists but to apply Subpart O to an interim status non-K088 vitrification unit which uses controlled flame combustion, even though vitrification units have been excluded from the “incinerator” definition.

¹ Plans for future decommissioning of the vitrification unit and support facilities are underway. Additional information about project status is available in the WVDP Site Environmental Report, Calendar Year 1999 (June 2000) [<http://www.wv.doe.gov/Departments/EnvironmentalAffairs/Reports/1999aser/START.HTM>].

- b. DOE also suggests that, if the NPRM is extended to all hazardous waste vitrification units, EPA clarify that a non-K088 hazardous waste vitrification unit, which has been permitted by the responsible state agency under non-RCRA authorities and which (for reasons other than recycling) does not require a RCRA permit, would not have to qualify for interim status.

III.D What Rule Changes Are Being Proposed To Regulate K088 Vitrification Units as Miscellaneous Treatment Units?

1. **p. 42949, col. 2** – The NPRM explains that EPA is proposing to revise 40 CFR 260.10 by changing the definition of an incinerator to specifically exclude K088 vitrification units and by adding a definition for K088 vitrification unit. Comments are requested on whether to expand these regulatory changes to include all vitrification units.

DOE urges EPA to finalize expanded definitions in 40 CFR 260.10, which cover all hazardous waste vitrification units. In addition, the Department recommends some clarifications to the regulatory language proposed in the NPRM. The comments on “Proposed Regulatory Language,” below, specify DOE’s suggestions.

Proposed Regulatory Language

1. **p. 42957, col. 2, §260.10, *Incinerator*** – The NPRM proposes to change the definition of “incinerator” to specifically exclude K088 vitrification units.

DOE recommends changing “K088 vitrification unit” to “vitrification unit” in the final regulatory language. Accordingly, the Department suggests the following changes to the proposed regulatory language [strikeout = deletion]:

Incinerator means any enclosed device that:

- (1) Uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, carbon regeneration unit, or ~~K088~~ vitrification unit, nor is listed as an industrial furnace; or
- (2) Meets the definition of infrared incinerator or plasma arc incinerator.

2. **p. 42957, col. 2, §260.10, *K088 vitrification unit*** – The NPRM proposes to add the following definition of “K088 vitrification unit” to 40 CFR 260.10:

***K088 vitrification unit* means an enclosed device in which K088 waste and other materials are introduced into a pool of molten glass and whereby waste components that are dissolved or suspended in the molten matrix are subsequently entrapped or chemically bound in the matrix upon cooling to form a solid mass. Such units are classified as other thermal treatment units.**

DOE believes the definition of “K088 vitrification unit” should be broadened to include all vitrification units and to acknowledge all components of the vitrification system, rather than just the melting device. In addition, the Department believes that the term “other thermal treatment units,” which appears in the last sentence of the proposed definition, should be defined in the regulations to clearly indicate EPA’s intention that: (1) K088 vitrification units requiring RCRA permits be subject to the performance standards in 40

CFR Part 264, Subpart X; and (2) interim status units be subject to the performance standards in 40 CFR 265, Subpart P. Accordingly, DOE suggests the following modifications to the proposed regulatory language [strikeout = deletion; redline = addition]:

~~K088~~ *Vitrification Unit* means ~~an enclosed~~ a device in which ~~K088~~ hazardous waste and other materials are introduced into a pool of molten glass, and whereby waste components become part of that are dissolved or suspended in the molten mixture or undergo thermal destruction or removal. ~~matrix are subsequently entrapped or chemically bound in the matrix upon cooling to form a solid mass.~~ The molten mixture is then tapped into containers where it cools and solidifies into a waste form within which hazardous constituents are chemically bonded or encapsulated. Such units are ~~classified as other thermal treatment units not considered~~ “incinerators” (see 40 CFR 260.10, definition of “incinerator”), whether they are direct-fired or indirectly heated and irrespective of the wastes they treat or recycle. During interim status, these units are subject to 40 CFR 265, Subpart P (Thermal Treatment), and for full permitting under 40 CFR 270, they are “miscellaneous units” as defined in this section.