



Department of Energy
Washington, DC 20585
December 3, 2001

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

Docket Number F-2001-DRG2-FFFFF

Dear Sir or Madam:

Re: 66 FR 52918, "Notice of Availability of the Draft Interpretative Memorandum on the Stabilization of Organic-Bearing Hazardous Wastes"

On October 18, 2001, the U.S. Environmental Protection Agency (EPA) published a notice of availability for public comment of the document titled "Draft Interpretative Memorandum on the Stabilization of Organic-Bearing Hazardous Wastes." The Department of Energy (DOE) appreciates EPA's effort in preparing an interpretative memorandum intended to clarify the criteria for evaluating whether stabilization of hazardous organic constituents would be considered a permissible form of treatment or impermissible dilution. Our comments are enclosed for your consideration.

For clarity, each comment is preceded by a reference in boldface type identifying the section in the text of the Draft Interpretative Memorandum 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,

A handwritten signature in black ink, appearing to read "T. Traceski".

Thomas T. Traceski
Director, RCRA/CERCLA Division
Office of Environmental Policy and Guidance

Enclosure

cc: Rita Chow, Office of Solid Waste (5302W)

**UNITED STATES
DEPARTMENT OF ENERGY**



**COMMENTS REGARDING
DRAFT INTERPRETATIVE MEMORANDUM ON
STABILIZATION OF ORGANIC-BEARING
HAZARDOUS WASTES TO COMPLY WITH
RCRA LAND DISPOSAL RESTRICTIONS**

**Notice of Availability
(66 FR 52918; October 18, 2001)**

Docket No. F-2001-DRG2-FFFFF

**U.S. DEPARTMENT OF ENERGY
COMMENTS REGARDING
DRAFT INTERPRETATIVE MEMORANDUM ON
STABILIZATION OF ORGANIC-BEARING HAZARDOUS WASTES
TO COMPLY WITH RCRA LAND DISPOSAL RESTRICTIONS**

Notice of Availability (66 FR 52918; October 18, 2001)

1. General Comment – The U.S. Department of Energy (DOE or the Department) appreciates the effort of the U.S. Environmental Protection Agency (the EPA) in preparing an interpretative memorandum intended to clarify the criteria for evaluating whether stabilization of hazardous organic constituents would be considered a type of impermissible dilution. However, as discussed in comment 3 below, DOE believes that using a total waste analysis to show that immobilization of organic constituents has occurred as a result of stabilization is flawed.
2. p. 5, Sec. B.1(a), 2nd paragraph – DOE agrees that impermissible dilution does not occur when a stabilization unit treats hazardous wastes containing hazardous organic constituents in a manner that yields treatment residues meeting the applicable LDR treatment standards and controls organic constituents either in conformance with 40 CFR parts 264 and 265, subpart CC or in accordance with Best Management Practices for soil treatment technologies.
3. pp. 6 through 11, Sec. B.2 –
 - a. This section of the Draft Interpretative Memorandum indicates that, if the following conditions exist, it would demonstrate that immobilization (rather than impermissible dilution) has occurred.
 - (1) The stabilization reagents used have highly adsorptive and bonding properties (e.g., clays, alumina, and activated carbon).
 - (2) The total waste analysis indicates a reduction in the measured total content of hazardous organic constituent(s) in the stabilized waste (compared to the untreated waste).
 - (3) The laboratory conducting the total waste analysis has demonstrated analytical procedures that are appropriate and that achieve acceptable QA/QC performance.
 - (4) Co-disposal of the stabilized waste will not occur with other organic wastes that could cause adsorbed organics to desorb.
 - (5) The stabilized waste will not be disposed in conditions where the pH could fluctuate beyond the range in which the stabilization reagents are effective.
 - (6) The total waste analysis is not simply blinded by addition of stabilization reagents.
 - (7) The actual disposal conditions will be less aggressive than the extracting conditions used in conducting the total waste analysis.

DOE believes there is a fundamental problem with the approach of using total waste analysis to show immobilization of organic constituents. As the Draft Interpretative Memorandum explains, the protocol for conducting a total waste analysis involves exposing a representative sample of the waste to an aggressive extractant with the expectation of pulling out the total amount of hazardous organics in the sample, whether or not these organics have been immobilized. In other words, a total waste analysis is not designed to account for any reduction in mobility provided by a

stabilization process - - which is a key factor in determining the availability to affect persons or the environment of hazardous organic constituents in stabilized wastes. Therefore, in the long term, to demonstrate that hazardous organic constituents have been immobilized and that treated wastes have not been impermissibly diluted by the stabilization process, DOE contends that EPA needs to develop appropriate leachate-based LDR treatment standards for hazardous organic constituents (i.e., standards expressed as leachate concentrations). This would offer a scientifically valid approach to showing that hazardous organic constituents have been immobilized in stabilized wastes.

Until EPA can develop appropriate leachate-based LDR treatment standards for stabilized wastes containing hazardous organics, DOE believes it should be EPA's policy that stabilized wastes containing hazardous organic constituents are presumed to be eligible for a site-specific treatment variance under 40 CFR 268.44(h)(2) and that impermissible dilution has not occurred, if the following conditions are met:

- (1) The stabilization reagents used have highly adsorptive and bonding properties (e.g., clays, alumina, and activated carbon).
- (2) The leachable concentrations of hazardous organic constituents in the stabilized waste has been reduced by 90 percent in comparison to the untreated waste, as measured by the Toxicity Characteristic Leaching Procedure (TCLP), or another appropriate leaching test.
- (3) Co-disposal of the stabilized waste will not occur with other organic wastes that could cause adsorbed organics to desorb.
- (4) The stabilized waste will not be disposed in conditions where the pH could fluctuate beyond the range in which the stabilization reagents are effective.

DOE is suggesting this approach (i.e., establishing a presumption that further treatment of organic contaminants would be inappropriate when the TCLP, or another appropriate leaching procedure, verifies that organics have been immobilized in a waste) as an interim measure until appropriate LDR treatment standards for stabilized wastes containing hazardous organics can be developed. DOE notes that EPA has previously advised the regulated community that stabilized wastes containing hazardous organic constituents would be proper candidates for site-specific treatment variances under 40 CFR 268.44(h)(2) (see "Clarification of Standards for Hazardous Waste Land Disposal Restrictions Treatment Variances," 62 FR 64504, 64505; December 5, 1997).

- b. If EPA decides to develop LDR treatment standards based on leachate concentrations for stabilized wastes containing hazardous organics, DOE suggests that the leaching procedure specified to demonstrate compliance not include the particle reduction step currently required by the TCLP. DOE believes it is inappropriate to reduce particle size for solidified matrices. Use of particle size reduction gives no credit for physical solidification or encapsulation, which along with chemical stabilization, offers protection against mobilization of chemical constituents into the environment. This is particularly true for new stabilization technologies that produce solidified matrices with improved resistance to weathering and freeze-thaw cycles. DOE suggests that a test of the longevity of a monolithic waste form, involving simulation of weathering and freeze-thaw cycles, might be appropriate, in addition to conducting a leachate test on the monolithic form.

4. p. 12, Sec. C, 3rd paragraph – The title of Section C poses the question, “What Additional Factors Should Be Considered to Evaluate Whether Impermissible Dilution Is Occurring?” In the 3rd paragraph of the section, the Draft Interpretative Memorandum describes two examples of stabilization reagents that may produce effects that are harmful to human health and the environment. Regarding stabilization reagents expected to act as oxidizers or reducing agents, the Draft Interpretative Memorandum indicates that these should be carefully added to the waste, and breakdown products should be examined for leachability. Regarding alkaline stabilization reagents, the Draft Interpretative Memorandum warns that they may increase the leachability of constituents.

DOE requests that the final Interpretative Memorandum include further clarification of how this factor (i.e., capability of the reagent to produce harmful effects to human health and the environment) should be applied in evaluating whether impermissible dilution of hazardous organic constituents is occurring during stabilization. Specifically, since demonstrating compliance with LDR treatment standards for a waste that exhibits the toxicity characteristic for an organic constituent would require showing compliance with the numerical concentration limit for the organic constituent of concern and the UTS for any other underlying hazardous constituents, DOE requests clarification on what additional testing would be expected to identify and evaluate breakdown products. DOE believes that meeting the existing requirements should be adequate. Additionally, DOE requests clarification on what would be required to demonstrate that oxidizing and reducing agents are being “carefully added.”