



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-DRG1-FFFFF

Dear Sir or Madam:

Re: 66 FR 52918, "Notice of Availability of the Draft Guidance on Demonstrating Compliance With the Land Disposal Restrictions Alternative Soil Treatment Standards"

On October 18, 2001, the U.S. Environmental Protection Agency (EPA) published a notice of availability for public comment of the draft document titled "Guidance on Demonstrating Compliance With the Land Disposal Restrictions Alternative Soil Treatment Standards." The Department of Energy (DOE) believes the guidance document should help the regulated community to better prepare demonstrations of compliance with the alternative LDR treatment standards for contaminated soil and appreciates the opportunity to provide input.

The enclosed comments are divided into two sections: general and specific. The general comments address broad concerns. The specific comments relate directly to particular sections of the guidance. For clarity, each specific comment is preceded by a reference to the section of the guidance document to which it applies, and a brief description is given in boldface type of the text 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: Rhonda Minnick, Office of Solid Waste (5302W)

**UNITED STATES
DEPARTMENT OF ENERGY**



**COMMENTS REGARDING
INTERIM GUIDANCE ON DEMONSTRATING COMPLIANCE
WITH THE LAND DISPOSAL RESTRICTIONS (LDR)
ALTERNATIVE SOIL TREATMENT STANDARDS**

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

Docket No. F-2001-DRG1-FFFFF

**U.S. DEPARTMENT OF ENERGY
COMMENTS REGARDING
INTERIM GUIDANCE ON DEMONSTRATING COMPLIANCE
WITH THE LAND DISPOSAL RESTRICTIONS (LDR)
ALTERNATIVE SOIL TREATMENT STANDARDS**

General Comments

1. The U.S. Department of Energy (DOE or the Department) appreciates the effort of the U.S. Environmental Protection Agency (EPA) in developing and providing the “Interim Guidance on Demonstrating Compliance With the Land Disposal Restrictions (LDR) Alternative Soil Treatment Standards.” Generally, DOE believes the Interim Guidance should help the regulated community to better prepare demonstrations of compliance with the alternative LDR treatment standards for contaminated soils.
2. DOE notes that much of the Interim Guidance focuses on use of the Data Quality Objectives (DQO) process to develop a sampling strategy for characterizing the contaminant concentrations within soil to which the alternative LDR treatment standards will be applied. DOE believes targeted DQO guidance documents of this type could also be helpful to members of the regulated community who must develop sampling strategies for demonstrating compliance with LDR treatment standards other than the alternative soil standards. Accordingly, DOE suggests that EPA consider preparing a similar guidance document targeted at development of sampling strategies for characterizing contaminant concentrations within wastes subject to the LDR treatment standards for hazardous wastes identified in 40 CFR 268.40.
3. While DOE is an advocate of the DQO process, the Department has found that the process can become very complex, time consuming, and expensive, especially when it is applied to develop multiple, statistically-based sampling approaches at a site undergoing cleanup. This may occur when multiple contaminants are present in different media at a site, and each contaminant has multiple action levels (e.g., cleanup levels, hazardous characteristic levels, and LDR treatment standards). The problem can be compounded even further at facilities that must consider eco-risk issues or contain numerous cleanup locations. DOE recommends that EPA consider devoting future resources to evaluating the need for statistically-based sampling approaches with an eye toward simplifying the task of applying the DQO process and reducing its costs. DOE would be pleased to cooperate with EPA in such an effort.

Specific Comments

1 INTRODUCTION AND BACKGROUND

1.1 What Is the Purpose of This Guidance?

- a. **p. 1, 1st paragraph in the section – The Interim Guidance explains that 40 CFR 268.49 allows the generator of contaminated soils that will be land disposed to elect to comply with either the LDR alternative soil treatment standards at 40 CFR 268.49 or the generic treatment standards at 40 CFR 268.40.**

DOE believes it would be helpful to the regulated community for this section of the Interim Guidance to acknowledge that a third alternative might be available on a site-specific basis. Specifically, the Interim Guidance should mention that, if a generator can demonstrate that the LDR alternative soil treatment

standards would impose treatment of contaminated soil beyond the point at which threats are minimized, the generator can seek a site-specific risk-based treatment variance in accordance with 40 CFR 268.44(h)(3).

- b. **p. 1, 2nd paragraph in the section – The Interim Guidance states that it should not be used to establish site-specific soil cleanup standards.**

DOE believes it would be helpful to the regulated community for this paragraph to briefly explain why the Interim Guidance should not be used to establish site-specific soil cleanup standards. For example, a discussion similar to that provided in the preamble to the final rule promulgating the LDR alternative soil treatment standards would be useful (see 63 FR 28556, 28606 (column 2); May 26, 1998).

1.3 Why Did EPA Develop Alternative Soil Treatment Standards?

- a. **p. 2 – Section 1.3 of the Interim Guidance explains that EPA developed the alternative soil treatment standards because the traditional technology-based standards were intended for industrial hazardous waste and were often not appropriate or not achievable when applied to hazardous constituents present in soil.**

DOE suggests that Section 1.3 be expanded to briefly describe the LDR compliance option of developing site-specific, risk-based treatment standards through the variance process in 40 CFR 268.44(h)(3). The Department believes this information would be helpful to the regulated community in evaluating options for treatment of hazardous soils. In addition, the discussion could explain why EPA based the alternative soil treatment standards on technology rather than risk.

2 GUIDANCE FOR DETERMINING COMPLIANCE WITH THE ALTERNATIVE TREATMENT STANDARDS FOR CONTAMINATED SOIL

2.1 What Steps Should I Use to Plan the Sampling and Analysis Program?

- a. **p. 6, Step 3: Identify Inputs to the Decision, 1st paragraph in the section – The Interim Guidance lists the following informational inputs needed to resolve the question of whether compliance with the LDR alternative soil treatment standards has been achieved: a list of the underlying hazardous constituents; the units of measure (e.g., mg/kg or mg/L); and a listing of appropriate analytical methods, method performance criteria (e.g., for precision and accuracy), and required quantitation limits.**

Noticeably absent from the list of informational inputs described in the Interim Guidance as necessary to resolve the question of compliance with the LDR alternative soil treatment standards is input concerning background constituent concentrations, especially metals. Accordingly, DOE requests that EPA address this issue in the Interim Guidance by discussing acceptable methods for determining background constituent concentrations and for excluding them from the determination of whether compliance has been achieved. In addition, DOE requests that the Interim Guidance discuss the provisions of 40 CFR 268.44(h)(4), which allow EPA or the authorized state agency to grant a variance capping treatment at natural background concentrations in circumstances where treatment of contaminated soil to meet the LDR alternative soil treatment standards would result in concentrations of hazardous constituents that are below (i.e., lower than) natural background concentrations at the site where the treated soil will be disposed of on land.

- b. **p. 7, Step 4: Define the Boundaries, last paragraph on p. 7 – The Interim Guidance indicates that, with certain exceptions, mixing hazardous soil with nonhazardous soil may**

be impermissible dilution. The first exception is stated in part as follows: “If mixing occurs through the normal consolidation of contaminated soil from various portions of a site that typically occurs during the course of remedial activities or in the course of normal earthmoving and grading activities, then the Agency does not consider this to be intentional mixing of soil with nonhazardous soil for the purposes of evading LDR treatment standards.”

DOE notes that the delineation and excavation of soils subject to remedial action thresholds is one of the more difficult aspects of a cost effective cleanup. Costs associated with leaving staff and equipment idle while waiting for the receipt of cleanup verification results can be so prohibitive that, sometimes, it is more cost-effective to “over excavate” into “clean” soil in order to ensure that all soil containing contaminants in excess of proscribed concentrations has been removed quickly. Because it is possible that over excavation such as this could be interpreted by a responsible regulator as intentional dilution, since cleaner soil is being mixed with the soil volume targeted for cleanup, DOE requests that the discussion of Step 4 in Section 2.1 of the Interim Guidance be enhanced. Specifically, DOE recommends that EPA clarify that over excavation, when performed as described above, does not constitute impermissible dilution. In addition, DOE recommends that the Interim Guidance provide instructions or examples of how removal and remediation plans should be structured to avoid disagreements about whether over excavation constitutes impermissible dilution.

- c. **p. 8, Step 4: Define the Boundaries, last paragraph on p. 8 – The Interim Guidance states: “Note that if the 90-percent reduction standard is used, then the estimate of post-treatment concentrations should apply to the *same* unit of soil characterized initially.”**

When relying on a 90-percent reduction soil treatment standard, a strategy is needed to ensure consistent comparison of soil before and after treatment. However, some soil handling technologies and treatment technologies may significantly change both the volume and the mass of soil being treated. For example, thermal treatment technologies tend to reduce soil mass and volume as moisture and combustible fractions are driven off during the treatment process. Stabilization technologies can result in an increase in soil mass and volume because these technologies rely on mixing additives with the unit of soil being treated. Excavation technologies can also effect soil volume; the volume of *in situ* soil tends to increase after the soil is excavated. Clearly, volume or mass of soil can change as a result of excavation and treatment. As a result, DOE seeks additional clarification, perhaps through the use of hypothetical examples, to clearly communicate to the regulated community whether or not mass and volume changes caused by excavation and treatment needs to be addressed in the post-treatment sampling effort.

- d. **p. 9, Text Box: Hypothetical Example – The Interim Guidance provides an example of defining a “given volume” of contaminated soil subject to LDR treatment standards.**

- (1) DOE believes it would be helpful for the Interim Guidance to remind the regulated community that the number of samples that must be tested to determine whether soil exhibits a hazardous characteristic might be reduced using the following relatively simple screening technique. Assume that the total amount of each hazardous constituent of concern in a volume of contaminated soil (in this example, benzene) would partition to the extract during the TCLP (which is often a very conservative assumption). Then, using the fact that the TCLP has an inherent 20-fold dilution factor (liquid to solid ratio), calculate the highest concentrations that could be present before hazardous constituents of concern would cause the soil to exhibit the toxicity characteristic. For example, in the case of benzene, the TCLP toxicity characteristic concentration limit is 0.5 mg/L. Therefore, 10 mg/kg of benzene would have to be present in soil before it would exhibit the toxicity characteristic for benzene. Compare the calculated, highest allowable concentrations of hazardous constituents of concern with total concentrations measured

in each volume of soil. Only volumes of soil containing total concentrations of one or more hazardous constituents in excess of the highest allowable concentrations must be subjected to the TCLP in order to determine whether such volumes are hazardous. In the hypothetical example, only those volumes of soil containing greater than 10 mg/kg of benzene would need to be subjected to the TCLP in order to determine whether they were hazardous.

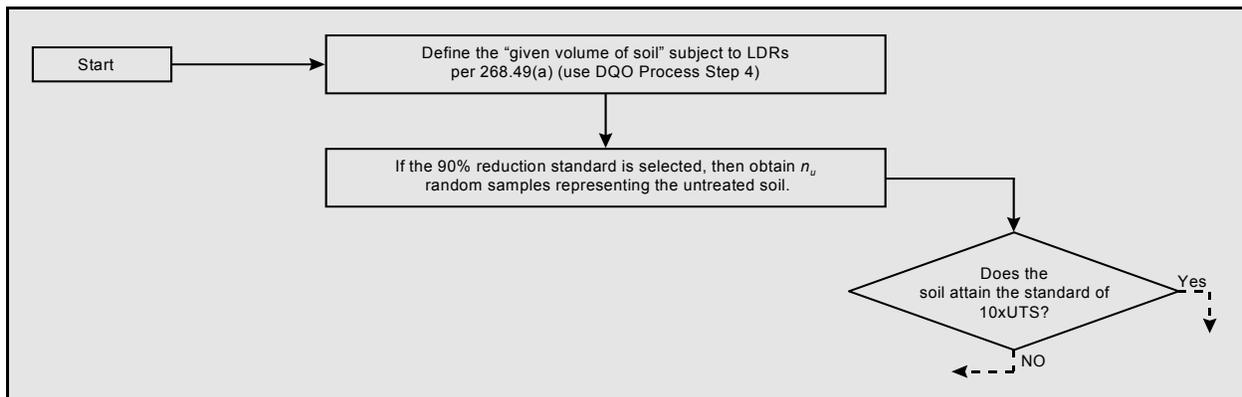
- (2) DOE requests that EPA consider including at least one other hypothetical example that is more complicated and more typical of an actual cleanup action. Such an example would depict a cleanup site containing several different locations of contamination with multiple contaminants having various types of action levels.
- e. **p.11, Step 7: Optimize the Design for Obtaining the Data – The Interim Guidance provides references to several other documents that contain detailed instructions on development and optimization of a sampling plan.**

Because Step 7 of the DQO process is so important, DOE recommends that (in addition to referencing other available guidance) this discussion in the Interim Guidance be expanded to include information focusing on the development and optimization of sampling plans that deal specifically with the management of contaminated soil.

2.3 How Should I Evaluate the Data to Determine Attainment of the Treatment Standards?

- a. **p. 13, Figure 2 – Figure 2 provides a generalized flow diagram indicating the decision-making process for determining attainment of the alternative soil treatment standards.**

Reproduced below is a portion of the flow diagram contained in Figure 2 of the Interim Guidance.



Regarding this portion of the diagram, DOE offers the following observations:

- (1) DOE believes the flow would be more logical if the diamond box (“Does the soil attain the standard of 10xUTS?”) were placed upstream rather than downstream of the box containing the statement, “If the 90% reduction standard is selected, then obtain n_u random samples representing the untreated soil.” The determination of whether or not soil attains the standard of 10xUTS should be the first step in the flow diagram, because if the soil attains this standard, it can be disposed as hazardous waste without further treatment.
- (2) DOE believes the box containing the statement “If the 90% reduction standard is selected, then obtain n_u random samples representing the untreated soil” is misleading because the statement implies that random sampling of the untreated soil is the only approach that can be used to determine whether the 90% reduction standard has been met. However, as Section 2.3.3.2 (Welch’s t-Test) indicates, sometimes systematic sampling designs are equally acceptable (see p. 21, discussion on “Procedure”).

In light of these observations, DOE suggests that EPA amend the flow chart to better reflect the narrative descriptions in the Interim Guidance of the various methods that can be used to evaluate attainment of the alternative soil treatment standards.

b. p. 13, Figure 2 – According to the flow diagram in Figure 2, if the soil does not attain either the 90-percent reduction standard or the standard of 10xUTS, then further treatment is always required.

- (1) DOE suggests that Figure 2 and the text of Section 2.3 be revised to reflect the availability of certain variances in the event that treatment of soils to meet the LDR alternative soil treatment standards is either not possible or not appropriate. DOE recognizes that the alternative LDR treatment standards for contaminated soil are intended to be achievable by well-designed and well-operated technologies appropriate to the soil matrix and constituents of concern. However, in the event that a particular soil cannot be treated by such a system to meet the LDR alternative soil treatment standards, it is DOE’s understanding that a site-specific treatability variance based on the “not physically possible” test under 40 CFR 268.44(h)(1) would still be available. It is also DOE’s understanding that a “not appropriate” treatability variance under 40 CFR 268.44(h)(2) could be approved for contaminated soil if applying the LDR alternative soil treatment standards would present unacceptable risks to on-site workers (for example, if certain explosive or radioactive contaminants are present in the soil). Accordingly, DOE believes it would be helpful to the regulated community if the Interim Guidance contained instructions for evaluating whether one of these variances could be justified for contaminated soil in a particular set of circumstances.