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EPA

Superfund LDR Guide #7

Determining When Land Disposal Restrictions (LDRs) Are Relevant and Appropriate to CERCLA Response Actions

CERCLA Section 121(d)(2) specifies that on-site Superfund remedial actions shall attain "other Federal standards, requirements, criteria, limitations, or more stringent State requirements that are determined to be legally applicable or relevant and appropriate (ARAR) to the specified circumstances at the site." In addition, the National Contingency Plan (NCP) requires that on-site removal actions attain ARARs to the extent practicable. Off-site removal and remedial actions must comply with legally applicable requirements. **This guide outlines the process used to determine whether the Resource Conservation and Recovery Act (RCRA) land disposal restrictions (LDRs) established under the Hazardous and Solid Waste Amendments (HSWA) are "relevant and appropriate" to an on-site CERCLA response action.** (See Superfund LDR Guide #5 for determining when LDRs are applicable to CERCLA response actions.) The guide also provides examples of when the LDRs are likely to be relevant and appropriate and when they are not. With respect to contaminated soil and debris, EPA is undertaking a rulemaking to establish specific LDRs; until this rulemaking is completed, EPA generally will not consider the LDRs to be relevant and appropriate for soil and debris contaminated with hazardous substances that are not RCRA restricted wastes. More detailed guidance on Superfund compliance with the LDRs is being prepared by the Office of Solid Waste and Emergency Response (OSWER).

LDR RELEVANT AND APPROPRIATE DETERMINATIONS

For on-site CERCLA responses that constitute placement, and for which the LDRs have been determined not to be applicable (i.e., the wastes being placed are not prohibited or restricted RCRA wastes), site managers should evaluate whether the LDRs are relevant and appropriate. As discussed in the CERCLA Compliance with Other Laws Manual (EPA, August 8, 1988), relevant and appropriate decisions require best professional judgment of site-specific factors to determine wether a requirement addresses problems or situations sufficiently similar to the circumstances of the release, or remedial action contemplated, and is well-suited to the site, and therefore, is both relevant and appropriate.

Section 300.400(g)(2) of the proposed NCP [53 FR at 51436 (December 21, 1988)] outlines a number of factors pertaining to CERCLA situations and potential ARARs which should be compared to determine whether a requirement is both relevant and appropriate. The four pertinent factors to compare when evaluating the potential relevance and appropriateness of the LDRs are: (1) the action or activities regulated by the requirement (e.g., placement on the land) and the remedial action contemplated; (2) the purpose of the requirement and the purpose of the CERCLA action; (3) the substances regulated by the requirement and the substances found at the CERCLA site; and (4) the medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site. These factors are evaluated to determine **whether the circumstances of the release and remedial action contemplated are such that use of the LDR requirements is well-suited to CERCLA response objectives.**

The evaluation of the circumstances of a release is conducted as part of the remedial investigation, during which information is collected on contaminant sources, potential routes of migration, and potential human and environmental receptors of concern. The results of this effort (which is ultimately documented in the site characterization and baseline risk assessment chapters of the RI/FS report) are used to establish remedial action objectives for the areas or media contaminated at the site that pose a threat to human health and the environment. The site-specific CERCLA response objectives of the remedial action contemplated should be compared with the purpose or objectives of the LDRs as a first step in determining the potential relevance and appropriateness of the LDRs [proposed NCP factors (a) and (e)].

The objective of LDRs is to achieve reductions in the toxicity and/or mobility of a

hazardous waste, based on application of the best demonstrated available technology (BDAT), prior to its land disposal. While this objective will often be compatible with remedial alternatives designed to destroy highly concentrated, toxic, and mobile materials such as liquids, other remedial alternatives involving treatment of the principal threats of a site may have different objectives to which the LDRs are not well-suited.

Once a decision is made that achieving BDAT reductions in the toxicity and/or mobility of a waste source is compatible with CERCLA response objectives for the site, site managers should utilize information on waste constituents and matrices collected as part of the site characterization to evaluate whether a CERCLA waste is "sufficiently similar" to a listed RCRA waste code or family of waste codes (e.g., K048-K052, petroleum refining wastes) such that the LDR standard for that waste code is appropriate for the CERCLA waste.

In determining whether a CERCLA waste is sufficiently similar, site managers should consider whether the BDAT used to set the LDR standard would be effective for the CERCLA waste. (Technologies other than those used to set the BDAT standards may be considered, although they must be regarded as capable of meeting the promulgated concentration requirements.) Although **a constituent-by-constituent analysis is not necessary for relevant and appropriate determinations**, a general comparison of the waste constituents and matrices is useful for identifying waste codes to which a CERCLA waste may be similar, and therefore, helpful in the identification of technologies that may be appropriate for consideration.

If a CERCLA waste that consists of a complex mixture of several different wastes occurs in a different medium (e.g., soil) or matrix (BDAT standards may be established for specified matrices, such as wastewaters, nonwastewaters, or both) from what is specified for a particular restricted waste code or contains incompatible waste constituents, use of BDAT may not be appropriate for that waste, and therefore, the LDRs would not be relevant and appropriate [proposed NCP factor (b)]. It has been the experience of the Superfund program that Treatability Variances are frequently necessary for soil and debris contaminated with a restricted RCRA waste (see Superfund LDR Guide #6A), because the promulgated LDR standards are based on treating less complex matrices of industrial process wastes. As a logical corollary to this finding, the Agency believes that LDRs generally would not be "relevant and appropriate" requirements for soil and debris contaminated with non-RCRA restricted wastes. However, the Agency plans to undertake a rulemaking that will prescribe applicable standards for the treatment of soil and debris contaminated with RCRA-restricted wastes. In the future, these standards may be relevant and appropriate to the treatment of soil and debris contaminated with non-restricted wastes.

NOTE: If the LDRs are determined to be relevant and appropriate requirements for a CERCLA action (i.e., there is a close match between the CERCLA and the LDR objectives, and a close match between the constituents/matrix or the CERCLA waste and the constituents/matrix of the relevant RCRA waste code), but the treatment process involved in the remedy does not achieve BDAT levels in the field as anticipated, a Treatability Variance establishing alternate treatment levels should be sought.

Examples illustrating the relevant and appropriate determination process follow:

- A number of drums containing hazardous wastes are discovered during a site investigation. Although no written documentation or specific knowledge of the source is available to identify with certainty the origins of the wastes, the laboratory analyses indicate that they contain very high concentrations of a predominantly liquid waste indicative of industrial waste streams. Therefore, maximum destruction of the drum contents is established as the remedial action objective. Due to the general similarity of the bulk liquids to the spent solvents listed in the F001-F005 waste codes, the CERCLA site manager determines that use of incineration (one of the BDAT identified in the solvent and dioxin rule for that family of waste codes) would be technically suitable. Therefore, the LDRs would be relevant and appropriate for an alternative involving the treatment and placement of the drummed waste.

- A CERCLA waste mixture from an unknown source is found to consist of wastes similar to F021 dioxin-containing wastes (i.e., they contain constituents found in dioxin-containing wastes) and mercury. Because use of incineration -- the BDAT for dioxin-containing wastes -- would not be compatible with a waste also containing mercury, application of the LDR treatment standards to this waste mixture would not be appropriate. Therefore, the LDRs would not be relevant and appropriate to a CERCLA response involving the placement of this waste mixture. (Alternate methods of treating the waste might still be necessary to satisfy both the CERCLA statutory requirement to utilize treatment to the maximum extent practicable and the program expectations that are outlined in the proposed NCP.)