disposal of hazardous waste as fill material is not a type of use constituting disposal subject to the special standards of Part 266 subpart C, but rather disposal plain and simple, and hence illegal unless occurring in a regulated unit; or, as explained below, if the prohibited waste can be shown to be treated to satisfy section 3004(m). Section 3004(m) of the statute states that EPA is to establish "levels or methods of treatment, if any, which substantially reduce the likelihood of migration of hazardous constituents from the wastes so that short-term and long-term threats to human health and the environment are minimized." (Emphasis added). In this case, the Agency is unable to determine any level of treatment of hazardous wastes which can guarantee the requisite minimization of short-term and long-term threats when prohibited hazardous wastes are used as fill material.

Because there are no specifications or constraints on placement of fill material, reliable assessments pose particular uncertainties and difficulties. These uncertainties relate to release, transport, and ultimate exposure, and include uncertainties regarding release mechanisms, types and amounts of hazardous constituents released due to potential waste variability, location of human and environmental receptors, and transport mechanisms. cf. HWTC III, 886 F. 2d at 1362-63. The existing LDR treatment standards do not fully address these potential problems for at least two reasons. First, the LDR standards are technology-based, not risk-based standards. Second, for metal hazardous constituents, the LDR standards do not regulate the total metal content of hazardous wastes. Total metal content is relevant to many possible exposure pathways when hazardous waste is used as fill material, including inhalation and direct ingestion pathways. See also 59 FR at 43499 (August 24, 1994), where EPA made similar findings with respect to use of hazardous waste K061 as antiskid or deicing material (uses which are better defined, and hence more assessable, than use as fill material). Similarly, this type of disposal does not appear to satisfy the ultimate protectiveness standard in sections 3004 (d), (e), and (g) (which requires that disposal of hazardous waste that meets a treatment standard must nevertheless still be protective, taking into account enumerated uncertainties—including long-term uncertainties associated with the persistence, toxicity, mobility, and propensity to bioaccumulate—of land disposed hazardous waste and

hazardous constituents). See 56 FR at 41168 (August 19, 1991), adopting this standard, which was first articulated in *NRDC* v. *EPA*, 907 F. 2d 1146, 1171–2 (D.C. Cir. 1990) (dissenting opinion).

EPA is not, in this notice, proposing to prohibit other uses of hazardous waste that involve placement on the land. Thus, hazardous waste presently placed on the land as fill material can be diverted to a less risky, more acceptable activity. See 59 FR 8583 (Feb. 23, 1994) noting availability of safer alternatives as justification for the then-proposed prohibition on nonencapsulated uses of hazardous waste K061. Nor would the agency preclude the possibility that particular types of prohibited waste could be used as fill material, provided that it can be established that threats to human health and the environment have been minimized, taking into account all of the statutorily-enumerated uncertainties cited above.

In a recent proposed rule on the product use of High Temperature Metal Recovery slags derived from K061, F006, and K062 hazardous waste, the Agency initially evaluated the risks that result from a variety of uses of these slags, including use as road subbase, an ingredient in cement and asphalt, top grade material for roads, etc. (59 FR 67256, December 29, 1994). While this evaluation considered the possible release and transport of waste constituents, the uses examined did not include the unrestricted use of the waste-derived product as fill material. Use as fill could result in placement of the waste residual in almost any location, including a residential setting. Therefore, an evaluation of the risks posed by use of waste-derived products as fill would need to consider the potential for direct exposure to receptors located on-site (e.g., direct ingestion or inhalation of the material), in addition to the potential for movement of the material off-site to other receptors. Such an evaluation would need to consider at a minimum the volume of material used as fill, the levels of toxic constituents in the material (both total and leachable), the placement site and proximity to receptors, and activity at the site that would promote release, transport, and exposure. Indirect exposure pathways also could be relevant, particularly for hazardous wastes containing bioaccumulative hazardous constituents (including dioxins and dibenzofurans).

IX. Capacity Determinations

A. Introduction

This section summarizes the results of the capacity analysis for the wastes covered by this proposal. For background information on data sources, methodology, and a summary of each analysis, see the Background Document for Capacity Analysis for Land Disposal Restrictions, Phase III—Decharacterized Wastewaters, Carbamate and Organobromine Wastes, and Spent Potliners, found in the docket for today's rule.

In general, EPA's capacity analysis methodologies focus on the amount of waste to be restricted from land disposal that is currently managed in land-based units and that will require alternative treatment as a result of the LDRs. The quantity of wastes that are not managed in land-based units (e.g., wastewaters managed only in RCRA exempt tanks, with direct discharge to a POTW) is not included in the quantities requiring alternative treatment as a result of the LDRs. Also, wastes that do not require alternative treatment (e.g., those that are currently treated using an appropriate treatment technology) are not included in these quantity estimates.

EPA's decisions on whether to grant a national capacity variance are based on the availability of alternative treatment or recovery technologies. Consequently, the methodology focuses on deriving estimates of the quantities of waste that will require either commercial treatment or the construction of new on-site treatment systems as a result of the LDRsquantities of waste that will be treated adequately either on site in existing systems or off site by facilities owned by the same company as the generator (i.e., captive facilities) are omitted from the required capacity estimates.19

B. Capacity Analysis Results Summary

For the decharacterized ICR and TC wastes managed in CWA, CWA-equivalent, and Class I injection well systems, EPA estimates that between 3.5 and 15 billion tons will be affected as a result of today's proposal. EPA believes that some affected facilities need time to build treatment capacity for these wastes, as wastewater volumes

¹⁹ Traditionally, capacity analyses have focused on the demand for alternative capacity once existing on-site capacity and captive off-site capacity have been accounted for. However, for some of the wastes at issue in this rule it may not be feasible to ship wastes off site to a commercial facility. In particular, facilities with large volumes of wastewaters may not readily be able to transport their waste to treatment facilities. Alternative treatment for these wastes may need to be constructed on site.