example, the wastewater exit level for a constituent may be on Table A, whereas the nonwastewater exit level may be on Table B.

• Where an exit level does not exist on Table A or B for a particular constituent, the waste need not be tested for that constituent. For example, some constituents that are hydrolyzers have exit levels for nonwastewaters, but not for wastewaters. A complete discussion of deletions to the master constituent list can be found in section IV.C.

The tables' columns:

• Columns 1 and 2 are the CAS numbers & constituent names.

• There are two proposed options for the development of today's proposed exit levels. Option 1 is the option whereby Maximum Contaminant Levels (MCLs) from the Drinking Water program are used as an acceptable toxicity exposure for human drinking water exposure and toxicity benchmarks are used for other exposures. Option 2 is the option whereby toxicity benchmarks are used as acceptable exposure levels for all exposures. A more complete discussion of these two options is found in section IV.D. of today's proposed rule. The effect of co-proposing these two options is that there are two independent sets of proposed exit levels.

—Columns 3, 4, and 5 represent the exit levels that were derived by using an MCL benchmark for drinking water ingestion & using toxicity benchmarks for all other routes of exposure.

—Columns 6, 7, and 8 represent the exit levels that were derived by using toxicity benchmarks for all routes of exposure.

• The definitions of wastewater and nonwastewater are discussed in VIII.A.1.a.ii.

• Columns 3 & 6 represent wastewater exit values. If a generator determines he/she has a wastewater, if each constituent in the waste meets these wastewater exit levels, it is eligible for exemption.

—Values in columns 3 & 6 were derived from the most limiting of non-groundwater-ecological receptor, non-groundwater-human receptor, and groundwater pathway values from surface impoundments and tanks (the risk assessment's wastewater units).

• Columns (4 and 5) and (7 and 8) represent nonwastewater exit values. If a generator determines he/she has a non-wastewater, if each constituent in the waste meets both of these nonwastewater values, it is eligible for exemption. The totals level must be met by a totals analysis. The leach level must be met by a TCLP test or the calculational screen.

—Values in columns 4 & 7 were derived from the most limiting of the non-groundwater-ecological receptor and non-groundwater-human receptor pathway values from land application units, ash monofills, and waste piles (the risk assessment's nonwastewater units).

—Values in columns 5 & 8 were derived from the most limiting of the groundwater pathway values from land application units, landfills, and waste piles (the risk assessment's nonwastewater units).

VI. Minimize Threat Levels

A. *Background*

1. Summary of the Hazardous and Solid Waste Amendments of 1984

The Hazardous and Solid Waste Amendments (HSWA), enacted on November 8, 1984, allow hazardous wastes to be land disposed of only if they satisfy either of two conditions: (1) They can either be treated or otherwise satisfy the requirements of section 3004(m), which requires EPA to set levels or methods of treatment, if any, which substantially diminish the toxicity of the water or substantially reduce the likelihood of migration of hazardous constituents from the water so that short term and long term threats to human health and the environment are minimized; or (2) they can be land disposed in units satisfying the so-called no migration standards in sections 3004(d)(1), (e)(1), and (g)(5). Land disposal includes any placement of hazardous waste in a landfill, surface impoundment, water pile, injection well, land treatment facility, salt dome formation, underground mine or cave. See RCRA section 3004(k).

EPA was required to promulgate land disposal prohibitions and treatments standards by May 8, 1990 for all wastes that were either listed or identified hazardous at the time of the 1984 amendments, a task EPA completed within the statutory time frames. See RCRA section 3004(d), (e), and (g). EPA is also required to promulgate prohibitions and treatment standards for wastes identified or listed after the date of the 1984 amendments within six months after the listing or identification takes effect. See RCRA section 3004(g)(4).

The land disposal restrictions are effective on promulgation. See RCRA section 3004(h)(1). However, the Administrator may grant a national capacity variance from the effective date and establish a later effective date (not to exceed two years) based on the earliest date on which adequate alternative treatment, recovery, or disposal capacity that protects human health and the environment will be available. (RCRA section 3004(h)(2).) The Administrator may also grant a case-by-case extension of the effective date for up to one year, renewable once for up to one additional year when an applicant(s) successfully makes certain demonstrations. (RCRA section 3004(h)(3).) See 55 FR 22526 (June 1, 1990) for a more detailed discussion on national capacity variances and case-by-case extensions.

As explained in the legislative history, the purpose of the land disposal restrictions is to reduce the risks associated with land disposal. Congress also intended the restrictions to reduce reliance on land disposal and promote waste minimization since land disposal was its least favored method of managing hazardous wastes.

2. EPA's Interpretation of Standard for Treatment Requirements

The heart of the LDRs are the standards for treatment prior to land disposal, which must meet the statutory requirement to ''substantially diminish the toxicity of the water or substantially reduce the toxicity of the waste so that short term and long term threats to human health and the environment are minimized.'' RCRA Section 3004(m): EPA's interpretation of this ''minimize threat'' requirement has evolved through a long series of rulemakings.

When EPA proposed its first set of LDR treatment standards it took the position that the most effective way to minimize threats was to base standards on the capabilities of generally available treatment technologies. (51 FR 16011 (January 14, 1986).) To avoid unnecessary treatment, however, EPA also proposed to ''cap'' the technology based standards with risk-based screening levels based on human health toxicity thresholds for individual hazardous constituents and modeling of the groundwater route for exposure. (51 FR 16011–13.)

In the final rule EPA promulgated only the technology based standards. EPA explained that although it believed it had authority to promulgate risk-based standards, it was not promulgating the proposed risk-based caps because of extensive comments raising concerns about the scientific uncertainties of risk analysis. (52 FR 40578 (November 7, 1986).) Industry challenged the final standards, claiming that they required treatment to concentrations below ''minimize threat'' levels. On review, the Court held that section 3004(m) authorized both