

treatment standards established by EPA before the waste is disposed, or is disposed in units from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. RCRA sections 3004 (d), (e), (f), and (g). (These interrelated provisions are often referred to as Land Disposal Restrictions, or LDRs.) Treatment standards must substantially diminish the toxicity or mobility of hazardous waste or constituents thereof, so that short- and long-term threats to human health and the environment are minimized. RCRA section 3004(m). EPA is required to promulgate land disposal prohibitions and treatment standards for waste identified or listed as hazardous after November 1984 within six months of a final rule identifying or listing such waste. We are proposing prohibitions and treatment standards for all of the wastes which we are today proposing to list as hazardous. We are further proposing that the date of the prohibition and treatment standard be on the same date that the listing becomes effective.

#### B. How Does EPA Develop LDR Treatment Standards?

In an effort to make treatment standards as uniform as possible, while adhering to the fundamental requirement that the standards must minimize threats to human health and the environment, EPA developed the so-called Universal Treatment Standards (UTS) (codified at 40 CFR 268.48). Under the UTS, whenever technically and legally possible, the Agency adopts the same technology-based numerical limit for a hazardous constituent regardless of the type of hazardous waste in which the constituent is present. See 63 FR 28560 (May 26, 1998); 59 FR 47982 (September 19, 1994). The UTS, in turn, reflect the performance of Best Demonstrated Available Treatment (BDAT) Technologies of the constituents in question.

EPA is also authorized in section 3004 (m) to establish methods of treatment as a treatment standard. Doing so involves specifying an actual method by which the waste must be treated (unless a variance or determination of equivalency is obtained). Given this constraint, EPA prefers to establish numerical treatment standards, which leaves the option of using any method of treatment (other than impermissible dilution) to achieve the treatment standard.

#### C. What Treatment Standards Are We Proposing?

We find that there is significant structural similarity among many of the constituents of concern, including those for which we have not previously set technology-specific standards. The constituents of concern either have been demonstrated to be treated effectively by the BDAT technology to below the analytic detection limit, or are similar enough to these constituents that it can be reasonably determined that they would not be more difficult to treat via combustion or other destructive procedures. Hence, we expect that all constituents of concern for these wastes can be treated with equal effectiveness (*i.e.*, destroyed or removed so as to be no longer detectable) by similar methods of treatment. The obvious most effective treatment for nonwastewater forms of these wastes is combustion. For wastewaters derived from K181, a treatment train of wet air oxidation (WETOX) or chemical oxidation (CHOXD) followed by carbon adsorption (CARBN), or application of combustion (CMBST) is the BDAT for the constituents of concern for which treatment standards have not previously been developed.

We also assessed the potential of developing numerical standards for those constituents with current technology-based treatment standards and those constituents of concern in K181 that lack current treatment

requirements. Numerical treatment standards have been promulgated for only nine of the organic constituents of concern. Commenters to the July 23, 1999 listing proposal (64 FR 40192) suggested that EPA establish numerical standards, because they allow any treatment, other than impermissible dilution, to be used to comply with the land disposal restrictions. We find that there is adequate documentation in existing SW-846 methods 8270, 8315, and 8325 to calculate numerical standards for all but benzaldehyde; 1,3-phenylenediamine; 1,2-phenylenediamine; and 2,4-dimethylaniline. For these constituents, with the exception of 1,2-phenylenediamine, we propose to transfer the numerical standards of similar constituents as the universal treatment standards.

For 1,2-phenylenediamine, we have found during past method performance evaluations that it can be difficult to achieve reliable recovery from aqueous matrixes and precise measurements. Therefore, for this constituent we propose that wastewaters be treated by CMBST; or CHOXD followed by BIODG or CARBN; or BIODG followed by CARBN, and all nonwastewaters would be treated by CMBST. If data adequate for the development of a numerical standard is presented in comments, the Agency may promulgate a numerical standard as an alternative, or as the treatment requirement.

If these numerical standards are shown in comments not to be achievable or otherwise appropriate, we could adopt methods of treatment as the exclusive treatment standard. Under this technology only approach, all nonwastewaters identified as K181 would be treated by CMBST, and all derived from wastewaters would be treated by either WETOX or CHOXD, followed by CARBN or CMBST.

The proposed treatment standards are presented in the following table.

TABLE VI-1.—PROPOSED TREATMENT STANDARDS FOR CONSTITUENTS IN K181

Constituents of concern	CAS No.	Wastewater (mg/L)	Nonwastewater (mg/kg)
Aniline .....	65-53-3	0.81 *	14 *
o-Anisidine (2-methoxyaniline) .....	90-04-0	0.010 .....	0.66
Azobenzene ** .....	103-33-3	0.010 .....	0.66
Benzaldehyde ** .....	100-52-7	0.065 .....	4.3
4-Chloroaniline .....	106-47-8	0.46 *	16 *
p-Cresidine .....	120-71-8	0.010 .....	0.66
2,4-Dimethylaniline (2,4-xylidine) .....	95-68-1	0.010 .....	0.66
1,2-Phenylenediamine .....	95-54-5	CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN.	CMBST
1,3-Phenylenediamine .....	108-45-2	0.010 .....	0.66
p-Toluidine ** .....	106-49-0	0.010 .....	0.66