are adequately addressed, the starting point should not be the BDAT list but rather the entire list of U and P, appendix VIII, and other toxic chemicals present in the hazardous waste universe. The next LDR rulemaking ("Phase IV") will discuss the universe of hazardous constituents regulated by RCRA (i.e., a composite of the above lists) and may propose which constituents from the composite list are considered "nonamenable" or "amenable". Today's preamble, however, raises general issues associated with "amenability" in order to solicit comments on specific questions. These questions will be addressed in LDR Phase IV. For example, the Phase IV proposed rule may include a discussion of quantification problems and the use of surrogate parameters such as BOD/COD/ TOC ratios to assist in measuring performance where analytical methods do not exist.

### 2. Biotreatment as BDAT

EPA has already promulgated biodegradation (BIODG) as a specified method of treatment for quite a few U and P waste codes that fall under the category that ETC has asked to be classified as "nonamenable". (For example, nitrosamines easily break down in water to nitroamines. Nitrogencontaining organics can typically be biodegraded. Most microorganisms flourish in the presence of nitrogen containing chemicals.) EPA has also established numerical standards for many chemicals based on biotreatment data. EPA is including all of the chemicals in both of these cases in this proposed rule and is asking for comment on them and seeking data that would refute or support that biotreatment is BDAT for these chemicals.

### 3. Toxics Along for the Ride

EPA intends that the Phase IV proposed rule will expand the discussion on the concept of "toxics along for the ride" in biotreatment (i.e., concern about how best to regulate those toxic compounds that are not degraded to less toxic compounds and consequently pass untreated through the unit and on to land disposal). While the concept is environmentally attractive, in order to create a regulatory construct prohibiting such constituents from biotreatment, the Agency must consider the following constituent-specific factors:

(a) Is the elemental composition of the chemical such that it is truly not "amenable to biotreatment" such as for metals? (b) Does a low rate of hydrolysis indicate low biodegradability?

(c) Does high volatility necessarily indicate low biodegradability?

(d) What retention time is required for biodegradation?

(e) Is the biological system responsible for degradation of the compound sensitive to upsets in either the chemistry of the impoundment or its biocomposition?

(f) Is the bioactivity considered "aggressive"?

(g) Is the constituent actually chemically treated in the

impoundment?

(h) Will the constituent encounter treatment after the impoundment?

(i) Is the waste containing the constituent difficult to segregate from other wastes?

(j) Does the chemical occur naturally in the surrounding soil or water?

(k) Is the chemical already present in the sludge and could then be released by the sludge even though the influent is reduced?

(l) Is the chemical present in other nonhazardous waste that are commingled with the decharacterized wastes?

(m) Is the chemical generated at concentrations below that which is considered neither a chronic nor an acute health risk?

(n) Is there an ecological risk from the inorganic composition of the waste such as the high salinity (dissolved solids) of most D002 wastes?

(o) Is the chemical a surprise presence from the use of some product that contains trace levels that couldn't be measured when the product was used (below product specifications)?

(p) Is the chemical appearing due to corrosion of pipes and equipment?

# *G.* Treatment Standard for Wastes With a High Concentration of Organics

In the Phase II final rule (59 FR 47982, September 19, 1994), EPA finalized regulations prohibiting the disposal in Class I nonhazardous waste injection wells ignitable characteristic wastes with a high total organic carbon (TOC) content and toxic characteristic pesticide wastes, unless either the well is subject to a no-migration determination, or the wastes are treated by the designated the LDR treatment method. The treatment method promulgated was either combustion (i.e. incineration or fuel substitution) or recovery of organics. Today the Agency is raising the option of proposing the same treatment standard for characteristic wastes with high concentrations of organics managed in surface impoundments. This would

result in a prohibition of these wastes going into biological impoundments.

The Agency requests comment on this option, including the question of how to define "high" levels of organics that would justify prohibition from surface impoundments. The Agency believes this option provides many of the benefits of segregation of refractory "nonamenable" streams with significantly lower analytical requirements.

## VI. Treatment Standards for Newly Listed Wastes

#### A. Carbamates

Hazardous Wastes from Specific Sources (K Waste Codes)

- K156—Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes.
- K157—Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes.
- K158—Bag house dust, and filter/separation solids from the production of carbamates and carbamoyl oximes.
- K159—Organics from the treatment of thiocarbamate wastes.
- K160—Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbonate wastes.
- K161—Purification solids (including filtration, evaporation, and centrifugation solids), baghouse dust, and floor sweepings from the production of dithiocarbamate acids and their salts. (This listing does not include K125 or K126.)
- Acute Hazardous Wastes (P Waste Codes)
- P203 Aldicarb sulfone
- P127 Carbofuran
- P189 Carbosulfan
- P202 m-Cumenyl methylcarbamate
- P191 Dimetilan
- P198 Formetanate hydrochloride
- P197 Formparanate
- P192 Isolan
- P196 Manganese dimethyldithiocarbamate
- P199 Methiocarb
- P190 Metolcarb
- P128 Mexacarbate
- P194 Oxamyl
- P204 Physostigmine
- P188 Physostigmine salicylate
- P201 Promecarb
- P185 Tirpate
- P205 Ziram
- **Toxic Hazardous Wastes**
- U394 A2213
- U280 Barban
- U278 Bendiocarb
- U364 Bendiocarb phenol
- U271 Benomyl
- U400 Bis(pentamethylene)thiuram
  - tetrasulfide