

Events force toxic substances issue

Recent cases involving dieldrin and PVC dramatize need for coherent toxic substances legislation

There are nine toxic substances, according to the waterway effluent standards proposed by the U.S. Environmental Protection Agency. Actually, the list is much longer, but present provisions for defining them are limited to those provided for under the Federal Water Pollution Control Act (FWPCA). Although a bill dealing with toxic substances in a more comprehensive way is in the offing, as yet the Senate and House have been unable to agree on its contents.

There are other laws that deal with chemicals that are toxic, of course, such as the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended in 1972, and the Air Pollution Control Act and its amendments. But these laws, too, are concerned with toxic substances only in indirect ways. Lacking a bona fide toxic substances law, the EPA has had to rely upon the water quality provisions.

Under this mandate, the EPA, in December 1973, proposed effluent standards for aldrin, dieldrin, benzin, cadmium, cyanide, endrin, DDT (DDD, DDE), mercury, PCB's, and toxaphene. The standards are based upon water quality criteria proposed in October 1973, and are designed to protect against short-term and long-term toxic damage to man, animals, and other organisms. The EPA says final standards will be promulgated in June of this year.

In addition, the agency has published a list of pollutants from which it may identify toxic substances in the future. According to the Sept. 7, 1973, *Federal Register* (Vol. 38, No. 173), the EPA plans to examine arsenic, selenium, chromium, lead asbestos, sevirin, zinc, chlordane, lindane, acridine, hydroquinone, orthochlorophenol, beta-naphthol, alpha-naphthol, beryllium, nickel, antimony, heptachlor, camphor, methyl parathion, parathion, di-n-butyl phthalate. The agency also will examine other pollutants, including chlorinated hydrocarbons, organophosphates, metals (heavy), and materials listed as occupational carcinogens by the Department of Labor in the May 3, 1973, *Federal Register* (Vol. 38, No. 10929).

Four criteria

In choosing pollutants for its initial list, the EPA set up four criteria. The

first one concerns the actual or potential damage that a water discharge of these materials may create. Specifically, it seeks to determine whether bioaccumulations, carcinogenic, mutagenic, and teratogenic effects, and high acute toxicity, are produced.



The second criterion seeks to determine the nature and extent of toxic effects associated with the pollutant, the extent to which discharges of the pollutant have been identified, and the production, distribution, and use pattern of the pollutant. It requires documented evidence showing that discharges of the compound, or a subsequent combined form of the compound, result in damage to important organisms.

The third criterion concerns the setting of effluent standards for pollutants on the list. The fourth criterion concerns the overall environmental effect of the control measures available, including the possible effect upon groundwater and other environmental media. The use of substitute products is suggested where available.

The inadequacy of the water quality act by itself to deal with the total problem of toxic substances was underscored recently with the realization that polyvinyl chloride, which is not strictly speaking a waterway threat, nevertheless has serious toxic properties. So far some 12 cases of

angiosarcoma, a rare liver cancer, have been found among PVC workers in Kentucky, New York, Texas, West Virginia, and Great Britain. While this plastic product—used for a variety of purposes including wrapping foods—is thought to be inert in its solid state, the low levels of vinyl

chloride gas that may escape from PVC are not. Medical researchers feel PVC's are greatly understudied.

New compounds yearly

Scientists at an American Cancer Society's science writers' seminar in St. Augustine, Fla., recently estimated that some 10,000 new chemical compounds are introduced into the environment each year. Besides the problem of keeping tabs on all these chemicals, such substances as PVC seem to have a delayed effect in the harm they do to individuals. Scientists say the PVC-induced cancers observed today had their origin 15-35 years ago. Also, it has been said that thousands of men and women have died of cancers caused by asbestos following work-related exposures between 1930 and 1950.

The advantages of knowing the toxic properties of a chemical in advance was shown recently when the EPA moved to have several million broiler chickens destroyed because of contamination by the pesticide, dieldrin. It was found that the dieldrin levels in the chickens, appar-

where field surveys verify the existence of infections that could cause significant damage to dry pea crops. Other restrictions are being imposed to ensure that the DDT is properly used, and that record-keeping and monitoring are undertaken. Under a similar program last year, less than half the total dry pea acreage was treated.

power the EPA to make a premarket review of each new chemical to be produced; the House bill would not require this. A second difference concerns the priority of the federal law. The House bill would allow the EPA regulatory authority only if a problem could not be regulated by an existing state or local law. The Senate bill asks that the agency be em-

Contacts are encountered almost daily

Data are beginning to show long-term harm can arise for workers who spend years around polyvinyl chloride products. Less well understood are the possible effects to the consumer whose total exposure is considerably less. Another undecided question is just when do pesticide and insecticide chemicals warrant use. In many cases they increase crop and timber yields, but also harm birds and other animals



ently confined to the state of Mississippi, were as high as 10 times the permitted level. Although the economic loss was staggering, a serious health threat to humans was avoided.

In yet another toxic substance matter, EPA administrator Russell E. Train reversed an earlier ruling on DDT and will allow its use in two "trial" instances this summer. But the decision-making had the benefit of a DDT data base, which is at least partly the result of prior listing of it under the water quality law. Train said the agency was well aware of DDT's toxic properties, but that insects in both of these cases present a more serious threat to the environment. Right or wrong, at least an educated decision was possible.

The first of these rulings allows limited use of DDT to control an expected pea leaf weevil infestation in Washington and Idaho. The second involves the use of DDT against the tussock moth in Oregon, Idaho, and Washington. The use of DDT, in both cases, carries certain restrictions.

As for pea leaf weevil use, the chemical will be permitted only

Administrator hopeful

Train said, in making the tussock moth use decision, that the permission "is not a directive from EPA that DDT be used this summer against the tussock moth." He said it's hoped that no actual emergency will arise, that the egg hatch will not produce such large numbers of the insect. The Forest Service will determine whether an actual emergency exists. In its caterpillar stage, the moth eats the needles of the Douglas and other fir trees—thus defoliating and killing them.

What a Toxic Substances Control Act could do, if passed by Congress, is to ensure the study of, and immediate and strict control of, those chemicals that may kill or injure the unsuspecting citizen. It also could unify into one coherent bill, provisions presently contained in other federal legislation.

As for the present status of legislation, both houses passed toxic substance bills last session, but the bills died when crucial differences could not be worked out. The Senate bill, the stronger of the two, would em-

powered to act according to whichever federal bill would deal most effectively with the problem.

The growing concern over environmental poisonings from toxic chemicals is by no means restricted to the United States, although the problem is most severe in industrialized countries. The Society of Toxicology, (SOT), which met in Washington in March, was asked to provide data upon which toxicological decisions could be reached worldwide. Frank C. Lu, chief of food additives for the World Health Organization (WHO), Geneva, Switzerland, requested information especially in cases where manufacturers' research facilities are too small to provide toxicological data.

This worldwide interest is essential, but such groups as WHO lack legal mandates to enforce toxic substances policy. This realization makes the efforts, undertaken in individual countries such as the United States, loom large indeed. What we do will affect the health and safety of millions of people here, and perhaps millions of others worldwide. WSF