

cleaning the beaches and for eliminating the oil patches in the water for which they are responsible. They should be held liable for the costs of such cleanup.

Unfortunately, the practice of emptying old oil and bilge tanks close in shore has become entirely too common. The result has been that beaches up and down the coastlines of the United States have been encountering ever more frequently of late unsightly patches of oil besmirching the beaches, entangling waterfowl, and adversely affecting all forms of aquatic life.

This must stop. The best way to do it is to provide for strict regulations and rigid enforcement.

Oil pollution is not the only kind resulting from the operation of shipping. There is sanitary waste from ships and even small boats. There are many waterfront industries, wharves, docks, warehouses and other buildings and structures, where man's activities result in waste products being deposited in the ocean, estuarine waters, and rivers. These are responsible for a great volume of pollutants in many forms and should be held responsible to the same extent.

In these days of lightning fast development in all of the branches of science and technology new products are being manufactured, new substances are being formed, particularly in the chemical world. A fair proportion of most of these find their way into the Nation's watercourses where they do not belong in nature. Little is known of the effects of these many substances on man, on water quality and on property. Basic data is completely lacking on many of them, methods of treating them are not known to be completely efficient, and the long term effect is completely unknown.

It is essential that the research program of the Federal Water Pollution Control Administration be continued and greatly strengthened. This may be done by in house research and by contract.

Such a program should be directed at determining the characteristics and effects of pollutants and methods must be developed for elimination of those found to be deleterious to man's health and welfare.

As soon as possible knowledge developed in the laboratory should be tried in the field, through the pilot demonstration program, which again exists in current authority but should be greatly strengthened and expanded. Direct application to the benefit of the national water pollution control program of the Nation would then follow. A great deal remains to be done in this respect.

An area in which a serious weakness is developing in the war against water pollution is the lack of trained personnel. This is true of engineers needed to design treatment plants and sewer systems, and of the technical talent needed to operate the plants when constructed.

It is vitally necessary that this situation be corrected.

At the present time there is a program in operation at the field laboratory in Cincinnati which provides a training course for technical personnel. I strongly urge that this program be expanded. Authority for a definitely larger program should be included in any legislation on water pollution control. This institution should provide training to state water pollution control personnel in order for them to carry out their functions more effectively.

Similarly the program now in existence granting fellowships at various institutions in the field of sanitary engineering should be vastly expanded and made attractive enough to induce young engineering students in greater numbers to specialize in the field. This could be done by granting scholarships as is being done in many fields throughout Federal programs.

The vast construction program, to say nothing of the research and demonstration programs which are important elements in the Nation's efforts to achieve some degree of sanity in its treatment of the physical environment, will require, for many years, an infinitely increased number of trained personnel.

The control of water pollution involves more than just money. Without the manpower to carry out programs and projects to appropriate more money would be a waste of time.

Philadelphia Water Commissioner Samuel Baxter testified two years ago before Congress when he was president of the American Water Works Association that he seriously doubted whether we had enough depth of technical talent to extract full benefit from spending on the scale then being proposed. The engineering manpower situation hasn't changed for the better since.

A spokesman for the Water Pollution Control Federation says also that plant operators are very scarce in many areas, probably because of poverty level wages,