

Clean water bills now go to conference committee

A House-Senate conference committee faces difficult negotiations in resolving differences between an earlier-passed Senate clean water bill and one passed last week by the House, said Sen. Edmund Muskie, principal author of the Senate version.

Both bills call for the nation's waterways to be clean enough for swimming by 1981, and for all water pollution to cease by 1985. The House bill, however, includes a provision not allowing these restraints to be applied until the National Academy of Sciences does a study of the economic consequences.

Other points of disagreement include a partial emasculation by the House of Senate provisions for broadening the rights of citizen groups in bringing suits against polluters.

In debate on the House floor, a group of Congressmen led by Rep. Henry S. Reuss (D-Wis.) fought mostly without success to amend the House bill to bring it more in line with the stricter Senate bill.

The environmentalists won a few points, however. The House bill, for instance, authorizes \$4.6 billion more than the Senate bill for sewage system construction grants—a total of \$24.6 billion over the next four years. And the environmentalist legislators, notably Rep. Bella Abzug (D-N.Y.), were able to beat back efforts to lower the fees to be charged to industries that dump their wastes into municipal sewage systems.

But it was on the Senate version's 1981 and 1985 goals that the environmentalists suffered their greatest defeat. The 1981 goal is for "no discharge" of pollutants insofar as available technology makes this possible. The 1985 goal tries to legislate technology in that it simply imposes the "no discharge" goal without the available technology provision. Muskie's assumption here is that industry, if it really wants to, can come up with the technology in time. The House version would, in effect, leave this decision up to the results of the NAS study and a subsequent Congressional vote.

There are some strong indications that the legislators on both sides fail to understand some of the deeper issues. In the House debate over fees for industrial users of municipal systems, both sides apparently failed to realize that there is considerable scientific skepticism over whether industries should be allowed to use municipal systems at all.

This skepticism involves two primary issues. Industrial waste often contains usable resources that could be recovered. Dumping the waste into municipal

systems dilutes the resources and makes them more difficult to recover. And industrial wastes are often toxic to bacteria used in the sewage treatment plants, or to humans or animals that might eat plants fertilized with sewage effluent or sludge, as in some new pilot programs for a sewage-cash crop symbiosis. According to some sewage plant operators, it is difficult and sometimes impossible for industries to schedule their waste dumping in advance so that sewage systems could prepare to cope with it (SN: 3/25/72, p. 205 and 4/24/71, p. 286). However, both House and Senate versions have a provision that industrial wastes must be "compatible" with municipal treatment systems.

A second issue where understanding may be limited, especially on the environmentalist side, regards exponential growth of industry. Even if a high degree of pollution abatement could be achieved, the gains might be canceled by sheer proliferation of polluting industries. At current rates of growth, it seems unlikely that either the 1981 or 1985 goals can be met. □

States lose bid for role in radiation standards

The U.S. Supreme Court this week denied a hearing to the state of Minnesota in its dispute with the Atomic Energy Commission over whether the state could set standards for radiation discharges from a nuclear power plant stricter than those set by the AEC. The Minnesota case was seen earlier by environmentalists as a major issue that could settle what they regard as a conflict of interest within the AEC. They contended the agency both sets standards for the plants and "promotes" the building of them.

The Minnesota case began several years ago when a state environmental protection agency sought to impose stricter standards than AEC's on discharges from a plant being built by the Northern States Power Co. Although the Supreme Court did not discuss the issues of the case, it is possible the Justices felt provisions of the National Environmental Protection Act gave environmental interests a large enough role in AEC standard setting. Environmentalists warn now, however, that AEC is attempting to undercut the Act.

In a related action, the House last week refused to accept an amendment to its clean water bill that would have given states the right to preempt nuclear power plant radiation regulations.

Now that the issue has been taken out of the courts, the environmentalists' only hope appears to be to get the amendment restored to a conference committee version of the clean water bill or to seek new legislation. □

High-power, short-pulse laser: A significant step

In the 25-year-old search for ways to make controlled thermonuclear fusion possible as a source of energy, one of the newer ideas is to use beams of laser light to turn solid pellets into ionized plasmas and induce fusion in them. In principle this can be done if a laser can be made that will deliver enough energy in a short enough burst.

Work of this sort has led to a number of improvements in laser design and power. One such was reported in Ottawa last week: a carbon dioxide laser that delivers billions of watts in bursts lasting only 50 nanoseconds. Its developers believe it is the first laser capable of delivering such power in such short pulse times.

The instrument was designed by A. J. Alcock and M. C. Richardson of the National Research Council (of Canada) Division of Physics. Its design follows that of a family of lasers called TEA (transversely excited atmospheric pressure), which were first invented at the Defense Research Establishment Valcartier at Valcartier, Quebec. The new laser was built in the short time of four months by Richardson, Kurt Leopold and Peter Burbyn.

According to Alcock the new laser is still a long way from what is required for laser-induced fusion, but it is nevertheless a significant step, especially for its "reasonably short pulse length." Its energy is about 150 joules. For laser-induced fusion megajoule energies are necessary, and, says Alcock, "Nobody's in that ball park." The best glass lasers give a few hundreds of joules. The next improvement, which the Ottawa researchers expect soon, is kilojoule energies in short pulses.

The long-term trend of the research is "looking at various types of large volume discharge systems," Alcock says. The group is investigating the use of preionization, double discharges and novel excitation schemes to stimulate the lasing gas with the intention of getting fairly high energies per liter. The ultimate hope is to get megajoule energies from gas lasers.

Meanwhile commercial development of the present laser will soon be undertaken by an Ottawa firm, Lumonics Research Limited, which has been licensed to do so by the Canadian Patents and Developments Ltd., a subsidiary of the National Research Council. A second firm, Gen-Tec (1969) Inc. of Quebec city, is developing another member of the TEA family. Industrial applications are foreseen for the TEA lasers, but so far, says Alcock, the firms find that they can sell enough for research purposes to make the business worthwhile. □