

record. It is a pleasure to see you this morning. We appreciate very much your standing by all morning long during the hearings of the committee. The hearings have gone a little bit longer than we have expected, but I would say it is a pleasure that in 2½ days we are accumulating a volume of testimony which I think will be one of the most impressive hearings that the committee has held and will be one of the most impressive and informative hearings yet compiled, and much of it based on practical experience in some extremely difficult areas. You will be contributing to this hearing in connection with the ships, both foreign and domestic carriers, that use the large inland body of water called the Great Lakes.

Will you please proceed.

Admiral HIRSHFIELD. Mr. Chairman, I am going to skip some of this statement in the interest of saving some time.

PECULIAR DESIGN OF GREAT LAKES VESSELS

First of all, I would like to let it be understood that our vessels have their own peculiarities, vessels that are not found in the ordinary seagoing vessel.

Of course, the Great Lakes, as you gentlemen know, is the largest fresh water body in the world. It has got about 95,000 square miles in it. They are international waters. They have been declared so by treaties. And the design of the vessel, as I indicated, is peculiar to the Great Lakes. From the smallest to the largest they are of similar construction with the bridgehouse forward and nothing until you get to the aft end where the machinery is. The intermediate portion; that is, between these two houses, is devoted to the carriage of cargo and primarily, as a matter of fact entirely bulk cargoes of iron ore, coal, limestone, grain, and some petroleum products are the trade of the lakes.

Our Great Lakes vessel industry is most anxious that the water quality of the Great Lakes be preserved. I am speaking now, Mr. Chairman, purely as to the pollution by commercial vessels.

SEWAGE TREATMENT FACILITIES ON VESSELS

Every new vessel constructed on the Great Lakes since World War II, and nearly every major conversion since that time, has included some type of sewage treatment facility. By 1960, a system called the Bio-Gest, through private research and at considerable expense, had been developed. This system is based on a bacteriological and oxygen process and actually digests wastes. This Bio-Gest tank is about 10 feet by 8 feet by 4 feet and occupies some 320 cubic feet of vessel space not including piping.

In 1964 this system was considerably improved so that today our operators have considered it a highly efficient unit. However, it has been impossible to obtain approval of the Bio-Gest system, or any other system, by the U.S. Public Health Service. That is, the effluent that comes from these systems.

There have been 75 waste treatment systems on 41 vessels at a cost of about \$15,000 a vessel. This meant an initial expenditure for each vessel just to purchase the equipment of from \$30,000 to \$45,000—this was the installation cost—the equipment costs \$30,000 to \$45,000 when it was bought.