

Referring to figure 6 (see p. 743) the total biochemical oxygen demand (BOD) load to U.S. streams is represented by the curve, "I. Total Load." The nominal maximum removal efficiency of BOD from municipal wastes which can be expected of conventional treatment is 90 percent. On this basis, it can be seen that construction of conventional primary and secondary treatment installations will make a relatively large impact on the total pollution load discharged to the Nation's water resource because of the fact that many communities do not now employ even primary treatment, much less secondary. The degree of this impact is represented by the downward trend in the "Total Load" curve which can be seen to occur during the period from the present time to 1990. However, due to our ever-expanding population, the residual BOD load (that is the 10 percent not removed by treatment) will become increasingly more important. The curve "IV. Secondary Treated Load," represents this residual BOD load assuming the universal application of secondary municipal treatment. It can be seen that, based on present population projections, the total BOD load will again increase and by 2010 or 2020 will be equal once again to the total BOD pollution load in 1966.

From the foregoing analysis, I believe two things are clear: (1) we must proceed as rapidly as possible to apply available treatment in order to reduce pollution on a nationwide basis or even to "hold our own" in many local situations and (2) we must simultaneously accelerate our R. & D. to develop new, more efficient treatment methods. As you know, the FWPCA is even now accelerating its research, development, and demonstration activities in new waste treatment systems and in control of storm and combined sewer discharges.

With regard more specifically to question 10, let me state the following. Due to the fact that conventional secondary treatment processes are biological systems requiring certain "threshold" levels of food supply, nutrients, etc., and subject to "upsets" due to changing environmental conditions, toxic substances, etc., it appears that biological treatment systems of the type in use for the last half-century are at, or nearly at, their limit. Extensions of these biological processes substantially above their present performance levels would involve substantial capital outlays while gaining only marginal treatment ef-