

sunlight intensity for it appears that the provision of artificial light, to make the process more widely applicable, would increase process cost prohibitively. We have conducted research jointly with the Los Angeles County Sanitation Districts at Lancaster, Calif., on the removal of nutrients by algae with emphasis on the harvesting problems involved. A contract with North American Aviation (largely funded through a transfer of funds from NASA) was devoted to the study of forced algae growth for waste water treatment.

By physical-chemical methods now under study, more than 95 percent of the nitrogen and essentially all of the phosphate can be removed by adjustment of the pH of certain secondary effluents to approximately 11. The phosphates are precipitated chemically while the nitrogen, in the ammonia form, may be removed by air stripping.

In yet another approach to nutrient removal now under study, the activated sludge process is controlled and modified to achieve biological nitrification and subsequent denitrification. Potentially, a large percentage of the nitrogen may be removed by this process through biological conversion to harmless nitrogen gas.