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PHOSPHORUS REMOVAL BY LUXURY UPTAKE—COMMUNICATION

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Mulbarger *et al.* ["Phosphorus Removal by Luxury Uptake." *Jour. Water Poll. Control Fed.*, **43**, 1617 (1971).] incorrectly discredit biological removal of phosphate from wastewater. They state "The [Greater Manassas, Va., Sanitary District] plant was designed for biological phosphorus removal by luxury uptake within the activated sludge systems.[1-3]" They attribute the phosphate removal design to Levin and Shapiro, and Levin and Shaheen in their References 1 and 2, and then report the failure of the process.

Levin did do the original research for the plant and proposed a design. However, this design was supplanted by another dictated by the Environmental Protection Agency (EPA) and Prince William County, Va., officials. Levin then predicted that the selected process would not work since it lacked the anaerobic stripping feature clearly spelled out in References 1 and 2, as cited by Mulbarger *et al.*

Thus, on October 6, 1966, almost 2 yr before the plant was constructed, Levin withdrew from the program. He wrote the County Executive of Prince William County of his "reservations concerning whether or not the proposed plant can obtain the desired levels of phosphate removal. . . . Accordingly, I feel I must disassociate myself from any stated or implied approval of the current plan." This letter is included in the official record of the Virginia State Water Control Board, in Richmond.

Because this unsoundly designed plant has failed, Mulbarger *et al.* make the statement ". . . specialized activated sludge plant design for high-level phosphorus removal should be avoided . . . ," thus unfairly condemning all efforts in this promising line of attack on phosphate pollution.

To the contrary, the removal of phosphorus by luxury uptake, *including* the stripping process, was extensively tested in pilot-plant runs at Biospherics Incorporated in Rockville, Md., recently, and better than 97 percent removal of dissolved phosphate was sustained. These results were released on November 23, 1970 (*Chemical and Engineering News*, November 30, 1970; *Civil Engineering*, March 1971, and widely elsewhere) in ample time to have come to the attention of Mulbarger *et al.* prior to the appearance of the August JOURNAL WPCF publication. In reality, the prospects are that, correctly applied, the biological removal of phosphate will become an important new wastewater treatment process.

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