Staten Island has been selected as most nearly meeting the meteorological requirements. The first study there will be of the effectiveness of tall stacks under typical inversion conditions.

Radioisotope technology may also assist in the solution of the pollution problems associated with the pulp and paper industry. If pulp fibers could be traced throughout paper-mill processes and on to their ultimate fate as finished products or as stream pollutants, the industry could learn much more about the sources and types of its effluents and, perhaps, about their control. Radioisotopic tracing was considered, but instead a similar method has been developed to trace the fibers through the mill and into effluent streams without introducing any radioactive material to the system. A small amount of fibers or chips is treated with metallic salts in such a way that the metal component becomes bonded to the cellulose or is precipitated within the fiber lumen. The treated fibers are released into the process stream, and samples are collected at various points downstream and in the effluent and are returned to the laboratory for neutron activation analysis.

This labeling technique has been used successfully in a number of paper mills in Montana and Washington. It has allowed the plants to determine the retention time of chips in continuous digesters, the clarifier pipeline flow, clarifier system operational characteristics, and the sawdust digester flow patterns.

Some observations

These applications are only a few of the many industrial uses of radioisotopes that have resulted from research by the AEC and development by industry in a relatively short time. They should indicate the great range of uses that radioisotopes and radioisotope techniques will have in the industrial processes of tomorrow.

As we have seen, the industrial applications of radioisotopes are benefiting not only private industry but the entire nation in at least three major ways. First, they are the sources of new products, like the wood—plastic that will be manufactured in this plant, which are not only opening new ventures for industry but also enriching the lives of us all. Second, their tracing, gauging, and radiographic applications are significantly increasing the productivity of private industry and bolstering our national economy. Third, radioisotope technology promises to increase our knowledge about the critical subject of