DESIGN OF AN MSW COMPOSTING FACILITY

THOMAS D. JONES AND
JOHN A. TALBOTT
Talbott Engineers, Inc.
Portland, Oregon

WILLIAM D. GIBSON
Resource Systems, Inc.
Portland, Oregon

Discussion by
John J. Brehany (Retired)
The Ralph M. Parsons Company
Pasadena, California

This report provided a good description of a generic large scale composting plant. In this light, it is useful to those who have little knowledge of how such a facility is composed. Of particular interest is the detailed composition of the Portland waste stream which is presented and which can be compared to other areas.

While the flow diagram is complete, generally it would be more illuminating if the mass balance at the various process points were presented. One item not mentioned in the text was whether it was planned to periodically remix and turnover the material during its 21 days on the aeration bed. I believe this is necessary for a good quality product.

Since the report was generated in conjunction with the design of a specific plant, a brief summary of construction and operating costs, along with personnel requirements, would be helpful. Construction and operating costs would vary considerably depending on days/year of operation and number of shifts/day. Also, a cash flow analysis would be important to determine the sales price of the compost.

A further item of interest would be some indication of how the compost will be utilized in the Portland area and if there is a market to meet the required sales price.

AUTHORS' REPLY

While I certainly can agree that a complete mass balance for the process flow would have added value to the paper, it was not possible to do so because portions of the composting process are proprietary. Rather than present only part of the mass balance, a decision was made to delete all quantities.

With regard to remixing and turning the MSW during its 21 days on the aeration bed, there are no specific plans to do so. However, since the material resides upon open beds, it would be possible to turn the material if required, and the front-end loaders have been specified with this requirement in mind. A second approach, providing a blanket of mature compost has been considered and is achievable within the design of the facility.

At this time the facility is still under construction and, therefore, accurate construction and operating costs are not yet available. With regard to personnel requirements, it is difficult to predict what personnel will be required until actual operating experience is obtained. The total number of personnel is largely dependent upon the number of recyclers utilized to remove recyclables from the waste stream. The amount of recycling required is, in turn, a function of the efficiency of the composting process and the characteristics of the waste stream.

Regarding the sales and sales price of the mature compost, it should be pointed out that the revenue generated by the project does not depend upon the sale of the compost. One of the requirements imposed, however, is that all compost produced by the plant be committed to users prior to the initial plant operation. Users, mostly nurseries, have committed to accepting the entire plant output, subject to certain quality standards. Since the revenue stream for successful plant
operation is dependent upon the tipping fee charged and not on the sale of the finished compost, a realistic sales price has not been determined. It is likely that, during the early stages of operation, compost will be delivered at little or no cost to the user. In this manner, experience in the use of compost can be obtained and its market potential determined. One factor in the pricing and marketing of compost in the Portland area is that there are several local yard debris composting operations. Compost from these operations has been marketed in the Portland area for several years. Ultimately, the market place will determine the value (price) for the essentially fixed supply of product.