BENEFICIAL USE OF MUNICIPAL WASTEWATER BIOSOLIDS THROUGH DRYING AND PELLETIZING

MARK P. HEPP AND DAVID L. WOJICHOWSKI
Wheelabrator Technologies Incorporated
Hampton, New Hampshire

Discussion by:

Ron Albrecht
Ron Albrecht Associates, Inc.
Annapolis, Maryland

In a segment of the industry plagued with well intentioned but often disastrous projects, it is a pleasure to review a paper about a successful one. The concept of using dried sludge as a low-grade fertilizer has a long history. There have been many false starts and projects plagued by explosions and a final product that proved unmarketable. The authors could enhance the paper's usefulness to the profession by providing technical information about the energy requirements, costs of drying and pelletizing sludge, and the flexibility of the process to alter the composition and physical characteristics of the pellets. To many people with sludge disposal problems, New York City is a special case because of the lack of land for sludge utilization, for example, by direct land application or using composting. Consequently, additional information on costs may generate more interest in drying and pelletizing. Further, many are skeptical about user acceptance of sludge-derived fertilizers. Information on distribution of the product deserves more attention than one sentence in the summary. It is noteworthy that sludge pellets are distributed in areas other than the citrus groves in Florida.

AUTHORS' REPLY

We are very appreciative of the points brought up in the discussion by Mr. Albrecht. The issues of operations costs and product distribution are extremely important, but go beyond the original scope of the paper, which focused on the design, construction, and startup of this new facility. Each of these new topics could result in a separate paper and presentation, which will probably be done at a later date when more definite information and data has been collected.

Discussion by

Robert B. Billman and Richard W. Krotz
Havens and Emerson
A Division of Montgomery Watson Americas, Inc.
Cleveland, Ohio

(a) This appears to be one of the largest municipal facilities on the east cost and reflects New York City's commitment to solve its biosolids disposal problems.

(b) Page 357 refers to Fig. 1, which is missing.

(c) On p. 358 in the eleventh line, is the 65–75% solids from the mixing of wet cake with returned dry pellets (i.e., before the actual drying)?

(d) On p. 359 are air emissions shown in Table I per process train (of six trains) or for the overall system?

(e) On p. 359 in the ninth line of the right hand column, 980% should read 98%

(f) On p. 361 "Summary" is this product *not* marketed in New York State?

(g) What is the fertilizer content?

(h) On p. 360, Table II needs a title.

(i) Is nitrogen padding used for explosion control? If not, what is used?

(j) Is the manifesting/sealing of delivery trucks feasible, practical, and necessary?

(k) What are the approximate capital and O/M costs?

AUTHORS' REPLY

Again, we would like to thank Mr. Billman and Mr. Krotz for their effort in reviewing our paper. Several of the issues discussed refer to typos and early draft format issues which we agree with. The discussions below refer to the more substantive issues raised by the reviewers.

(a) To the best of our knowledge, the NYOFCO facility is the largest biosolids drying and pelletizing facility in the world.

(b) It appears on p. 358.

(c) The process includes a mixing step where the 30%

solids content wet cake is mixed with recycled dry pellets to produce at 65–75% solids mix entering the rotary dryer. This quick pre-mixing step prevents sticky materials handling problems in the chutes and drum.

(d) Emissions are listed on a per train basis.

(e) Agree.

(f) The NYOFCO pellets are being actively marketed for use in New York State, but at the time of this paper, the product was being shipped to other locations.

(g) The average analysis of the biosolid pellets sold is 5–2–0.

(h) Agree.

(i) Nitrogen padding is available in the pellet storage silo. The material stored in the silos is monitored for temperature using thermo ropes to alert operators of any hot spots and explosion potential. Other process areas are protected by relief vents as a safety precaution.

(j) The manifesting/sealing of delivery trucks is a mandatory operating permit condition, and is working well without much difficulty.

(k) The capital cost of the plant in the Bronx is $125,000,000. The O&M costs are not available for release at this time.