

E&E Project Summary Report

Project Name: Peel Region MRF Optimization Study

Project Number: 85

Lead Sponsor: Entec Consulting Ltd

Total project cost: \$24,600

Priority Area: MRF Rationalization

Completed By: August to February 06

E&E fund contribution: \$19,600

Project Overview:

I. Goals

1. Research commercially-available bag-breaker technologies for the automated processing of recyclables collected in plastic bags (including information related to reference MRF locations, mechanical reliability, throughput capacity, operational constraints); and
2. Carry out a cost-benefit analysis to evaluate the feasibility of adding an automated optical sorter for plastics at the Region of Peel MRF

II. Accomplishments

- *Bag-breaker:* technical data and operating experience for six bag breaker technologies (two manufactured in North America and four in Europe) was gathered, as well as cost information for film plastic sorting where these breakers are used
- *Optical Sorting Component:* The project identified the capital and operating costs inherent in each of the two proposed options (optical sorting of mixed plastics, and optical sorting of 4 individual plastic resins [all PET; coloured HDPE; natural HDPE; mixed rigid plastic containers]) and compared these costs to the "status quo" alternative of manual sorting of plastics, as per the original tender and MRF design.

III. Limitations

Bag Breaker Component: The project relied on cooperation of the equipment manufacturers and was hindered by the lack of response to information requests by one of the European manufacturers.

Optical Sorting Component: The only issue of concern was the length of time taken by the Peel MRF operator to respond to requests for additional data and clarifications (hence extending the duration of the project).

IV. Lessons Learned/Best Practice implications

Bag Breaker:

Bag breaking technology has improved considerably over the past 5 years

For Ontario MRF applications, there are only two bag breakers (Bulk Handling Systems and Machinex Industries) that are manufactured and readily available in North America.

In general, the cost of removing film plastic (including the cost of the breaker) varies between about \$6 and \$10/tonne processed.

Optical Sorting Component:

In most cases, quality control sorting is still required in conjunction with the use of an optical sorter

To be comparable to the manual sort status quo, the Region would need to receive between \$424 and \$490/tonne for the plastic material, depending on whether aluminium is recovered or not before selling the mixed plastic stream

Resources & Tools

- Peel has requested \$155,125 from the E&E Fund (25% of the total cost) to purchase and install a bag breaker that will enable the Region to process bagged recyclables. The technology selected by Peel (BHS) received a favourable evaluation from the research carried out by the consultant.
- A Peel Region representative has been invited to present the findings from this project at the next Ontario Recyclers Workshop, scheduled June 1st, 2006 in Ottawa.

