

Solid Waste Balefills:

Balefills are landfills constructed of baled trash. Trash is compacted into rectangular bales at either a landfill or transfer facility and placed into a landfill cell in stacked rows. Typical baling operations consist of dumping the waste within a tipping area and efficiently sorting any recycled materials prior to the waste entering the baling process. Typically the waste is transported from the tipping area to the baling area via trash conveyors. The conveyors typically discharge to a baling hopper where the trash is compressed with approximately 250 tons of force and wrapped with steel straps to form a 2 +/- cubic yard bale. The bales are then loaded onto trucks and transported to the balefill area.

Balefill Facility Summaries

The following section provides a brief summary of each balefill and baling transfer facility reviewed:

St. Lucie, Florida – St. Lucie County Balefill Facility - Facility Summary:

- Due to limited landfill space, St. Lucie converted its conventional landfill into a balefill and constructed a new 50,000 – square foot transfer station to sort waste prior to baling. The baling operation extended the landfill life from 20 to 40 years and reduced landfilling cost by approximately \$1 per ton. Total baling facility construction cost – Approximately \$10 million.
- The baling facility process approximately 400 tons per day and is capable of processing 800 tons per day. Each bale of waste contains approximately two years of waste generated from each home in St. Lucie.

Bristol, VA - Facility Summary:

- The City of Bristol operates a two-story transfer station, which utilizes a two-stage baler to compact the MSW prior to landfilling. The facility operates by dumping MSW onto a 20,000 square foot tipping floor on the second level of the facility. The MSW is screened and sorted and placed into a conveyor pit, which discharges to the baling hopper on the first floor of the facility. The MSW is compacted into bales, loaded into roll-offs and transported to an abandoned quarry of landfilling. The quarry provides approximately 8 million yards of air space of about 35 years of landfill space for the surrounding communities.
- The facility currently processes 600 tons per day of MSW at approximately \$25.50 per ton, which totals annual landfill revenue of approximately \$4 million. Total annual operating costs are approximately \$1.75 million. The projected cost to operate the facility and capital amortization, over the life of the landfill, is approximately \$12 to \$16.50 per ton. By baling the MSW, the material is pre-

stressed prior to placement in the landfill, which significantly reduces landfill settlement and stress on the baseliner system.

Northern Cook County, IL - Facility Summary:

- The solid waste facility of Northern Cook County operates an 82,000 square foot transfer station, which utilizes three Logemann Model AT-445-B1-BG multimedia balers, which process 55 tons of MSW per baler per hour. Typically two balers operate daily with the third baler utilized as backup when a unit requires maintenance. The cost to bale the MSW is approximately \$2.75 per ton.
- The transfer station was constructed in 1999 for \$12 million and services approximately 850,000 residents who generate 1,500 tons per day of MSW. Currently the bales are transported off site for landfilling at Pheasant Run landfill in Bristol, Wisconsin.

Balefill Benefits:

- Reduced operational cost
- Eliminated daily cover by utilizing a spray-on mixtures (Pozy Shell)
- The transfer station and landfilling areas are esthetically more pleasing than conventional landfill.
- Reduced litter and bird activity
- Reduce landfill operational cost
- Increased landfill density and filling life
- Transfer facility has the option to operate as a conventional transfer station or baling facility.

Cost Summary:

The average per ton cost to implement baling and balefilling at the above referenced facilities is approximately \$28/ton/year. This estimate was determined by dividing the total construction cost for each facility by the yearly MSW tonnage. This per ton cost was utilized to determine an approximate cost to implement balefilling at RIRRC.

RIRRC receives approximately 1.1 million tons of trash per year; therefore the total cost to implement balefilling at RIRRC is approximately \$30.8 million (\$28 * 1.1 million tons). However RIRRC is currently utilizing a transfer station to sort and transport trash to an active landfill cell, this transfer station could be modified to function as a baling facility. Therefore by subtracting out the total construction cost of the existing transfer station the absolute cost to implement baling is approximately \$20 million.

