From Compliance to Cost Savings

The Business Case for Dewatering Paper Mill Waste

Paper mills that use recycled furnishes to make new products create large volumes of wet waste material that must be handled separately from the mainstream process. The coarse waste material, rejected from the various pulping, screening, and cleaning operations within the recycling system, is often landfilled at direct cost to the mill.

Subtitle D of the Resource Conservation and Recovery Act (RCRA), a U.S. federal law, specifically prohibits landfilling of waste material containing "free liquids." Test Method 9095 (EPA Pub. No. SW-846) outlines the paint filter test, which is used to distinguish the suitability of wet waste materials for landfilling. Paper mills that fail to meet the Subtitle D requirements could receive substantial fines from the U.S. Environmental Protection Agency (EPA).

The RCRA and Subtitle D guidelines should not be seen as a legislative burden, but rather as an opportunity to reduce bottom line costs associated with the transportation and disposal of this waste material. With the costs of waste transportation and landfill tipping fees continuing to rise and the actual available landfill space being threatened, reducing the weight and volume (associated with the free water present in the rejects) of the mill's waste material becomes an obvious economic opportunity.

Problem and Solution:

Table 1 shows the average landfill tipping fees (US$/ton) for various U.S. regions. An average mill in the Midwest recycling 450 tons/day of consistency and generating at least 2.5% rejects at approximately 80% moisture content would pay an estimated US$ 1,302,000 per year in tipping fees alone. Local waste haulers impose additional transportation fees that can significantly increase a mill's annual waste handling expenses.

Fortunately, advanced waste handling equipment is widely available. In particular, ram presses offer many process cost cutting benefits and, when properly applied, are efficient rejects dewatering machines. The mill in Table 1 could save an estimated US$ 868,000 per year in tipping fees at the landfill by implementing an efficient ram press to handle rejected wet waste material and reduce water weight from 80% to 40% going to the landfill. This mill would also achieve substantial transportation savings by reducing the total waste stream volume.

Average Landfill Tipping Fees - by U.S. Region 2024

Region	Tipping Fee Cost ($)
Northeast	$80.67
Pacific	$72.88
Midwest	$66.09
Mountains/Plains	$56.61
Southeast	$50.12
South Central	$44.87
National Average	**$62.28**

Source: EREF Study 2024 - Waste Advantage Magazine

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Equipment Funding:

Capital investment dollars are hard to come by these days. Many mills come up short when trying to fund projects to improve the quality of their product(s). Dewatering wet waste material is not likely to directly improve product quality; but, if analyzed correctly, it will improve quality indirectly by reducing costs and freeing up capital dollars for other projects.

With several financial options available, including leasing and rental packages, most mills do not have to use capital investment funds for these projects. Part of each month's generated waste handling savings would pay for the equipment, while the rest is realized net savings that can be used to help fund other projects.

Take a look at your mill's current waste handling practices. Are your wet rejects being hauled to the landfill at 50% solids or higher?Does your current waste handling process require only minimal manual labor and attention? Are your process rejects in environmental compliance before they are hauled away? If you have answered "no" to any of these questions, your company most likely has an opportunity to significantly reduce its waste handling costs-or is risking a fine from the EPA.

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