News from
SALEM COUNTY
Office of Public Information

Mr. Robin B. Weinstein, Public Information Officer
Office: (856) 935-7510 ext. 8202
Cell: (856) 297-5433

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Contact: Mr. Robin Weinstein (856) 935-7510 ext. 8202

ONE PERSON'S TRASH IS ANOTHER PERSON'S TREASURE
Freeholder David Lindenmuth gets an up-close and personal tour of the County's Landfill Operation

(Salem, NJ)—If you have ever wondered where all our trash goes, you can ask Freeholder David Lindenmuth. On Wednesday, March 22nd, Freeholder Lindenmuth toured the Salem County Landfill that is operated by the County's Utilities Authority and saw first hand how the trash business has moved beyond waste management into a science that could revolutionize our energy production.

"It was fascinating to learn of the various innovations that have taken waste management into new frontiers," said Freeholder Lindenmuth. "Our Utilities Authority has been on the cutting edge of waste management technologies and there are plans in the work that will take our trash and make it into something that will improve our way of life."

Freeholder Lindenmuth began his tour of the Landfill with a meeting with the Executive Director of the Utilities Authority, Michael Chapman. During this meeting, Mr. Chapman informed Freeholder Lindenmuth of some of the innovative techniques that they employ that have earned them recognition in PP&E magazine and among other Utilities Authorities.

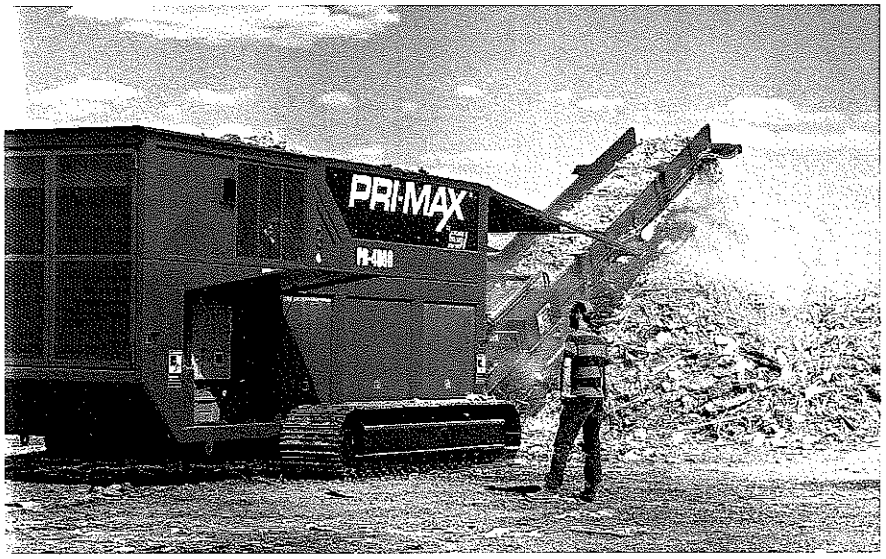
"Space is a commodity in our landfills," said Mr. Chapman. "When you have a limited amount of space and the trash keeps coming, you need to develop innovative processes to maximize space."

In order to deal with the continuous flow of trash and the space restrictions, the Utilities Authority tested, rented and purchased primary volume reduction equipment to densify the incoming construction and demolition debris. By processing incoming construction and demolition debris in the Pri Max 4000, manufactured by SSI Shredding Systems of Portland Oregon, the Authority is able reduce the space it takes up in the landfill by more than 30%. Additionally, the Authority began to use tarps, rather than dirt for their daily cover. Lastly, they employed recycling technologies to begin excavating existing slide slopes back down to the debris.

A NEW IDEA IN Landfill RECYCLING

Primary reduction equipment helps pioneer a new path in landfill operations.

BY TROY SYMPSON



The term "landfill recycling" seems contradictory, incongruous and oxymoronic. If you think about it, however, landfill operators are consistently concerned with maximizing space and extending landfill life — so why not recycle the landfill?

That's what Salem County Utilities Authority of New Jersey did after being faced with a legal issue and dwindling landfill space. Primary reduction equipment played a key role in helping the Authority convert a temporary challenge into a long-term opportunity to improve landfill operations.

In February of 2004, the Authority awarded a contract for construction of a new five-acre landfill cell. The award of the contract was immediately challenged in court, which started a lengthy litigation process. The plan was to begin construction in early April, with completion by the second week of November.

The annual topographical survey in April projected that the landfill would be out of space on or before the first week in November — sooner than expected. The Authority quickly realized that the landfill would be out of capacity before the new cell could be completed.

In an effort to continue serving customers, a number of operational changes were immediately implemented, according to Mike Chapman, the Authority's executive director.

First, primary volume reduction equipment was rented to densify the incoming construction and demolition (C&D) debris. Second, tarping equipment was purchased, which eliminated the need for daily cover. Finally, the Authority began recycling the landfill by excavating existing side slopes back down to debris. This took advantage of increased settlement due to bioreactor landfill activities and the generous use of cover material to grade and contour the side slopes. The Authority's annual landfill volume is approximately 120,000 tons, with about 50 percent of the volume being C&D.

"By processing C&D and recycling the side slopes, we were able to divert incoming C&D from the working face of the landfill to the side slopes from May of 2004 until April of 2005," says Chapman. "This extended the landfill's life nearly six months and — more importantly — kept the landfill open."

When justifying the purchase and operation of primary volume reduction equipment, Chapman says a mere 10 percent increase in total in-place density can result in an additional $3.44 per cu. yd. of revenue during the life of one five-acre, 533,000-cu.-yd. cell.

The Authority's data shows their current stream of unprocessed C&D has a density averaging 325 lb. per cu. yd.. A single pass through their reducer increases density to 647 lb. per cu. yd., and a double pass to 875 lb. per cu. yd.. By doubling the density of the C&D portion of the waste stream before in-place compaction and settlement, it's easy to see how the equipment will more than pay for itself.

"Not only are we generating more revenue per cell, but we'll also be able to extend the life of the landfill," says Chapman.

After proving the viability of reduction, a competitive bid request was issued for the purchase of a

permanent, track-mounted primary reducer to process up to 80 tph of material. After a thorough evaluation process, the Authority selected SSI Shredding Systems' Pri-Max 4000T and has recently taken delivery of their permanent track-mounted unit after leasing one of SSI's 4000M units on wheels. "We selected SSI based on the lowest total cost of ownership," says Chapman. "Not only did we consider the purchase price, but we also factored in total operating and maintenance costs, as well as resale value."

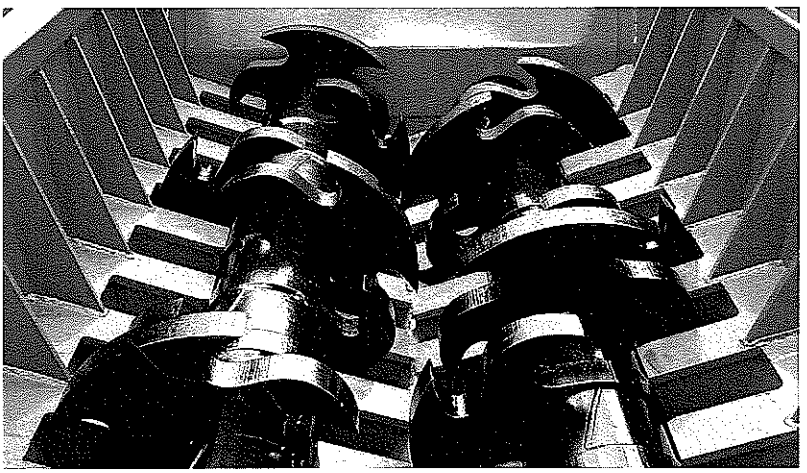
Weighing 100,000 lb., the machine is maintenance friendly and built to endure harsh operating environments like C&D processing. The cross-belt magnet is adjustable for optimal ferrous recovery, a debris shield protects against operator spillage and the discharge conveyor system features a mining-duty belt with cleats. Extra wide, 700-mm tracks were used for the landfill terrain. The diesel-hydraulic power pack features extreme-duty components, an oversized cooling system and severe shock load protection. The control system includes submersion-rated components and an operator interface with extensive troubleshooting capabilities. The same features are incorporated into SSI's 140,000-lb. PR-6000T. One of these will be delivered to a Long Island, N.Y. transfer station next month.

SSI's Pri-Max line of low speed, primary reducers process up to 150 tph of the broadest range of waste materials. The patented, twin-shaft design, with aggressive bi-directional cutting action, maximizes grabbing ability and production rates, while minimizing jamming or wrapping concerns. The open style, vertically fed cutting table allows fines and abrasives to fall through, minimizing unnecessary wear. Pri-Max boasts the lowest operating costs on the market, says the company, with cutters lasting as long as 3,000 hours or more without needing replacement.

In addition to helping recycle the landfill side slopes and extend life, the Authority's new Pri-Max reducer will be helping them recycle in other ways. First, the discharge magnet is recovering so much metal that the Authority is in the process of acquiring an additional conveyor to move material away from the machine.

"We have so much metal coming off the processing line that the pile builds up quickly enough to cause problems. This is a good problem," says Chapman. In addition, Chapman will be going through an approval process to have the shredded C&D approved as alternate daily cover. Daily cover, in the form of dirt, uses approximately 20 percent of the landfill space.

Chapman had to go above and beyond the conventional thinking to add value in the situation for Salem County. Primary reduction technology has long offered a number of advantages to recyclers and demolition contractors by optimizing transportation and productivity. Chapman also found primary shredding useful in helping increase the effectiveness of operations at the landfill site.



SSI's Pri-Max line of low speed, primary reducers process up to 150 tph of the broadest range of waste materials.

Information for this article courtesy of SSI Shredding Systems Inc.

ON THE JOB

OPERATION: Salem County Utilities Authority of New Jersey's landfill

EXPERT IN THE FIELD: Mike Chapman, the Authority's executive director

WORDS OF WISDOM: "Not only are we generating more revenue per cell, but we'll also be able to extend the life of the landfill."

KEY EQUIPMENT: SSI Shredding Systems' Pri-Max 4000T

CONTACT: SSI Shredding Systems Inc., 9760 SW Freeman Drive, Wilsonville, OR 97070, Phone: 800-537-4733, Web: www.ssiworld.com

“It is a novel idea for our landfills to be in the recycling business,” Lindenmuth joked. “When space is a commodity it becomes a necessity, not a luxury, to develop innovative ways of handling our trash problem. Through the use of primary reduction equipment, the Authority is able to take a large pile of debris and reduce the size dramatically.”

In addition to learning of the innovative “recycling” techniques of the Utilities Authority, Lindenmuth was informed that there were plans in the works to utilize the gases produced from the trash into energy. The details are not available for release, but Lindenmuth said that shortly the plans will be released and will demonstrate the ingenuity of our Utilities Authority.

“They have moved beyond waste management into a new frontier of waste transformation,” said Lindenmuth. “One day in the future we could see energy produced from our landfill, which could supply a portion of our County’s energy needs. The positive ripple effect of the groundbreaking techniques employed by the Utilities Authority will spread into other areas of the county.”

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