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www.wasteadvantagemag.com March 2013 Vol.4, No.3

WasteAdvantage

magazine

The Advantage in the Waste Industry and Beyond

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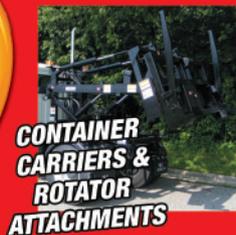
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Editor's Note



WITH THE FIRST DAY OF SPRING AROUND THE CORNER, WE HERE AT *WASTE*

Advantage Magazine are looking at new topics, trends and happenings in the waste and recycling industries in order to keep on the pulse of what you want to see in the publication. One of the ways we will be reaching out to get your opinion is posting a reader survey online at www.wasteadvantagemag.com. When you have a moment, visit our home page and click on the survey link. We would love to get your feedback.

March's issue highlights some great topics. The spotlight focuses on the Perdido Landfill in Florida, a facility that continues to evolve as regulations change and strives to protect the surrounding environment from contamination (page 14). "Choosing the Right Unit for Waste Transportation" (page 18) discusses the types of units that are available and the best ones for your application, while "The Right Fit: Finding the Correct Gloves for Your Application" (page 22) talks about major improvements in the glove manufacturing industry in the last few years. Other articles discuss fleet maintenance (page 20) and examining the value propositions in a waste-by-rail market study (page 24). And don't miss the articles in our Recycling/Transfer Stations/Landfills section (page 31). We've got an overview of trends affecting landfills gas energy in the U.S. (page 32), essential features to consider when choosing a compactor (page 38) and much more.

The Waste Expo is right around the corner! This annual event, taking place in May at the Ernest N. Morial Convention Center in New Orleans, LA, gives us the chance to meet and greet with all of you great professionals in the industry and get your valuable insight into what is going on now and in the future. We are very much looking forward to it and continue to prepare for this great show. Before that time, feel free to contact me with any questions, comments, suggestions, etc. We are always open to your input.

Best Regards,
Angelina Ruiz

Editorial Director
angelina@wasteadvantagemag.com

Editorial Advisory Board

Rick Eggleton
Human Resources
Universal Waste Systems (Santa Fe Springs, CA)

Sal Tagliavia
President
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Drew Weil
Account Representative
Sunbelt Hydraulics (Pompano Beach, FL)

PUBLISHER
Gary Orfe
gary@wasteadvantagemag.com
(800) 358-2873 Ext. 2

EDITORIAL
Editorial Director
Angelina Ruiz
angelina@wasteadvantagemag.com
(800) 358-2873 Ext. 7

Associate Editor
Meghan Pirone

ART/PRODUCTION
Director of Production/Design
Heidi Jensen
heidi@wasteadvantagemag.com
(800) 358-2873 Ext. 8

CIRCULATION
Circulation
Elisa Weil
elisa@wasteadvantagemag.com
(800) 358-2873 Ext. 5

SALES
Sales Manager
Noreen Cocron
(800) 358-2873 Ext. 1
noreen@wasteadvantagemag.com

Account Executive
Marcus Rubio
(800) 358-2873 Ext. 3
marcus@wasteadvantagemag.com

Account Executive
Eddie Alvear
(800) 358-2873 Ext. 4
eddie@wasteadvantagemag.com

ACCOUNTING
Accounting Manager
Elisa Weil
elisa@wasteadvantagemag.com
(800) 358-2873 Ext. 5

WASTE ADVANTAGE, LLC.
PO BOX 30126
PALM BEACH GARDENS, FLORIDA 33420-0126
TEL: (800) 358-2873 • FAX: (888) 871-4515

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DARELL LUTHER



On the Cover:

The Tana purpose built landfill compactor is a full-width twin drum, hydrostatic machine, that offers unique features and benefits.

Photo courtesy of Tana North America (Lubbock, TX).

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Photos courtesy of Escambia County Department of Solid Waste Management, Palfinger North America and St. Landry Parish, LA Solid Waste Disposal District.



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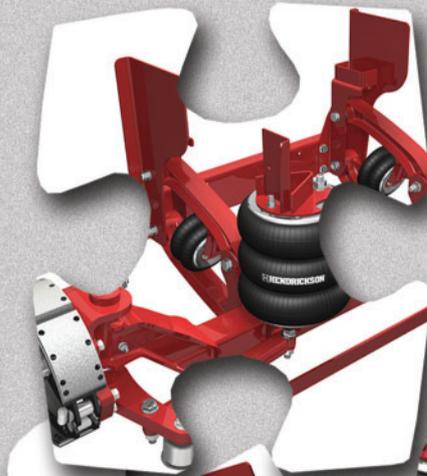


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Waste Management Announces Acquisition of Greenstar, LLC

WASTE MANAGEMENT, INC. (Houston, TX) announces that its subsidiary, WM Recycle America, L.L.C., has acquired Greenstar, LLC from NTR plc. The acquisition will provide Waste Management's customers with greater access to recycling solutions by adding the operations of one of the nation's largest private recyclers to Waste Management's already extensive recycling

network. With this acquisition, Waste Management will have the capacity to manage approximately 15 million tons annually of recyclable materials for municipal, industrial and commercial customers. "Acquiring Greenstar advances our growth and transformation strategy to extract more value from the material that we manage. We have a stated goal of managing 20 million tons of recyclable material by 2020. With these assets, we have the capacity to achieve almost three quarters of that goal and extend our ability to provide

the recycling services that customers want," said William Caesar, President of Waste Management Recycle America and Organic Growth. Operational activities at these facilities will continue as normal while integration with Waste Management proceeds in the weeks ahead.

For more information, visit www.um.com.



NEXGEN Designs Tulsa's American Waste Control Material Recovery Facility

NEXGEN (Vernon, AL) and dealer, United Engines, recently partnered to design and install \$7 million in upgrades to the MRF at American Waste Control in Tulsa, OK, equipping this facility with the latest innovations in waste recycling. American Waste Control chose NEXGEN for this project based on the equipment manufacturer's experience in designing and building turnkey MRFs and their ability to offer a comprehensive equipment package from curbside collection to material processing including balers, conveyors and compactors. The design upgrades converted the existing facility to fully automated single-stream recycling, enabling easier recycling of a wider variety of waste material such as cardboard, paper, aluminum, plastic and glass. Currently, 125 tons of recyclables are processed per day with the ability to reach 200 tons per day once a 24-hour/six-day week schedule is implemented. NEXGEN's design for American Waste Control reduces material waste, generates cleaner energy, reduces the footprints for landfills, and makes recycling easier and more accessible for the Tulsa community.

For more information, visit www.nexgenbalers.com.

BHS Acquires Nihot Recycling Technology BV

Eugene, OR-based **BULK HANDLING SYSTEMS** (BHS) has acquired Nihot Recycling Technology BV (Nihot), an Amsterdam-based company that designs and manufactures air sorting and separation equipment for the solid waste and recycling industries, among others. "We are very excited to welcome Nihot to the BHS family of companies," remarked BHS CEO Steve Miller. "Having partnered with Nihot for a number of years, I have great respect for the company's people and product quality. They are the best at what they do, and our new relationship will strengthen the integrated solutions that BHS offers its customers."

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18 – 20: SWANA's 36th Landfill Gas Symposium

Rio Resort and Casino
Las Vegas, NV
www.swana.org

19 – 20: Plastics Recycling Conference

Sheraton New Orleans
New Orleans, LA
www.plasticsrecycling.com

19 – 21: Americana 2013: 10th International Environmental Technology Trade Show and Conference

Palais Des Congres De Montreal
Montreal, QC
<http://americana.org>

21 – 23: Mid-America Trucking Show

Kentucky Exposition Center
Louisville, KY
www.truckingshow.com

APRIL 2013

2: NERC Spring Workshop—Textiles Reuse & Recycling

Nathan Hale Inn at the University of Connecticut
Storrs, CT
www.nerc.org

8 – 10: Waste and Management Recycling India

India Expo Centre and Mart
Greater Noida Expressway, Delhi
www.wmrandia.com

8 – 10: International Biomass Conference & Expo

Minneapolis Convention Center
Minneapolis, MN
www.biomassconference.com

10 – 12: SWANA Northwest Regional Symposium

Sheraton Vancouver Airport Hotel
Richmond, BC
<http://swanabc.org>

15 – 16: SWANA New Jersey Chapter Annual Spring Conference

Tropicana Resort and Casino
Atlantic City, NJ
www.swanachapters.org/newjersey

16 – 18: Navigating the American Carbon World (NACW) 2013 Conference

Palace Hotel
San Francisco, CA
www.nacw2013.com

22 – 24: 21st Annual North American Waste-to-Energy Conference

Sanibel Harbour Marriott Resort & Spa
Fort Myers, FL
<http://nawtec.swana.org>

24 – 26: 42nd Environmental Show of the South

Gatlinburg Convention Center
Gatlinburg, TN
www.tn.gov/environment/swm/conference

MAY 2013

1 – 2: John Zink Institute Landfill Flares Training

Tulsa, OK
www.johnzinkinstitute.com

5 – 8: 2013 Federation of New York Solid Waste Association Conference and Trade Show

The Sagamore
Lake George, NY
www.nyfederation.org

14 – 16: The ZONE 2013

Grand Hyatt Riverwalk
San Antonio, TX
www.zonarsystems.com

16 – 17: 2nd Annual Anaerobic Digestion & Biogas Conference 2013

The Hotel Kabuki
San Francisco, CA
www.renewable-waste.com/anaerobic-digestion-conference

21 – 23: Waste Expo 2013

Ernest N. Morial Convention Center
New Orleans, LA
www.wasteexpo.com

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WasteAdvantage Magazine March 2013 **11**

Government Gossip



EPA Proposes 2013 Renewable Fuel Standards

EPA is proposing the 2013 percentage standards for four fuel categories that are part of the agency's Renewable Fuel Standard program (RFS2). The proposal announced was open for a 45-day public comment period and EPA considered feedback from a range of stakeholders before the proposal was finalized. EPA continues to support the use of renewable fuels within the transportation sector through the RFS2 program, which encourages innovation, strengthens American energy security and decreases greenhouse gas pollution. The Energy Independence and Security Act of 2007 (EISA) established the RFS2 program and the annual renewable fuel volume targets, which steadily increase to an overall level of 36 billion gallons in 2022. Based on the standard, each refiner and importer determines the minimum volume of renewable fuel that it must ensure is used in its transportation fuel. Overall, EPA's RFS2 program encourages greater use of renewable fuels, including advanced biofuels. For 2013, the program is proposing to implement EISA's requirement to blend more than 1.35 billion gallons of renewable fuels over the amount mandated for 2012.

For more information, visit www.epa.gov.

Solid Waste and Recycling Industry Supports Law Enforcement Efforts

NSWMA expresses support for efforts to rid the industry of organized crime. The solid waste industry in New York and New Jersey has a decades-long history of working with law enforcement officials to implement policies to help eliminate elements of organized crime from the industry. Sharon H.

Kneiss, NSWMA's President and CEO, stated, "Anyone found guilty of such crimes is not representative of the solid waste and recycling industry. And government officials and media reporting on this story should take care to not unfairly impugn the reputations of the hundreds of thousands of law-abiding, hard-working solid waste and recycling professionals, who keep our communities healthy and clean by collecting and managing our garbage and recyclables. These arrests should not lessen the pride that industry employees feel about their work, handling the increasingly complex solid waste stream."

Kneiss added, "It is vital that we do what is necessary to maintain the integrity and professionalism of our industry. The government should use every tool at its disposal to act against these types of activities."

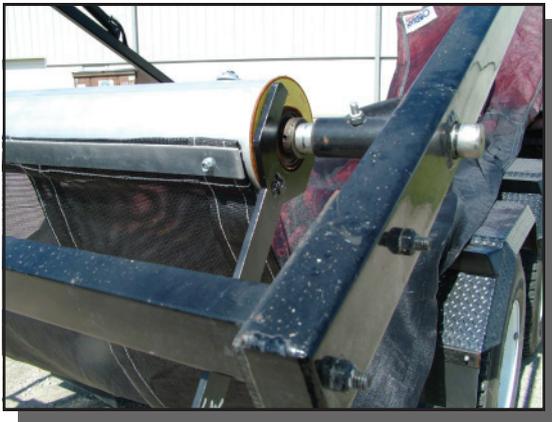
For more information, visit www.environmentalistseveryday.org.

OSHA Site-Specific Targeting program aims to reduce injuries and illnesses in high-hazard workplaces

OSHA has issued its annual inspection plan under the Site-Specific Targeting 2012 program to direct enforcement resources to workplaces where the highest rates of injuries and illnesses occur. The SST program is one of OSHA's main programmed inspection plans for high-hazard, non-construction workplaces that have 20 or more workers. The SST plan is based on data collected from a survey of 80,000 establishments in high-hazard industries. In addition to the SST program, OSHA implements both national and local emphasis inspection programs to target high-risk hazards and industries.

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The Perdido Landfill: Continuing to Evolve

Not only does the Perdido Landfill provide gas-to-electricity to the surrounding communities, but they also are involved in Escambia County's environmental programs, fighting groundwater contamination and keeping up with regulatory compliance.

ESTABLISHED IN JUNE 1980, THE PERDIDO LANDFILL, located in Cantonment, FL, is operated by Escambia County's Department of Solid Waste Management, as an integrated municipal solid waste facility. It currently accepts various recyclables—i.e. metals, plastics, paper, cardboard, glass—as well as e-waste, paints, concrete, asphalt, vegetative debris and shoes. Because the Escambia County Solid Waste Department serves the 300,000 citizens of Escambia County, the City of Pensacola and the Town of Century, collecting residential, commercial and industrial waste, the Perdido Landfill itself collects about 250,000 tons per year of waste and recycling annually. The facility currently employs 40 staff members in various roles including equipment and scale operators, mechanics, engineering and environmental personnel, financial and customer service staff, recycling management, and education personnel, and uses approximately 70 pieces of light to heavy equipment, from four wheelers and front loaders to 120,000 lb. waste handlers.

Innovative Programs

Since Escambia County is home to Pensacola Beach, the 2010 BP oil spill and current economy have had a significant impact on this area resulting in a decrease in tourism and, consequently, less generation of commercial solid waste. However, according to Patrick Johnson, Director of Escambia County's Solid Waste Management Department, the decreases in business have been offset by lowering operating expenses such as

privatized recycling processing, internalized operations of the transfer station, using Caterpillar's certified rebuild program for heavy equipment replacement and reducing personnel. As a result, Johnson points out that business is currently stable.

In order to stay ahead of any challenges, the Department has received permitting from the Florida Department of Environmental Protection for the mining of closed unlined sections of the Perdido Landfill. Since it is essentially uncovered, excavated, screened soil is stockpiled for future use and approximately 70 percent of the excavated material is beneficially reused as daily cover. There are also plans for the construction of approximately 45 acres for future landfill expansion. The first phase of mining started in the Fall of 2009 with 17 acres of mining completed in 2011. Mining will be intermittent across the 45 acres as needed to expand landfill disposal capacity. Johnson says, "Mining was selected for several reasons—removing a source of groundwater contamination, recovering overburden soil, providing a daily cover and allowing expansion of the landfill on existing site footprint."

Since recycling in the community is strictly voluntary, specific recycling programs are developed and budgeted to promote reduce, reuse and recycle. Recycling drop off centers—centrally located in the community in order to assist rural areas as well as multi-family dwellings and businesses that are not eligible for curbside recycling programs—neighborhood clean ups, curbside collection and residential collection of household hazardous waste (HHW) programs are offered to citizens and operated

An overview of the Citizens Convenient Center with green waste processing in the background. ▼





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consistently. The department also supports a variety of HHW community amnesty events including Regional Roundups, the Clean Sweep program and the City of Pensacola's program. Regional Round Ups are quarterly events typically held on Saturdays at local High Schools for free drop off of HHW; Clean Sweeps are typically held at Community Redevelopment Areas to allow for proper disposal of bulky waste and HHW; and the City of Pensacola program is the same as the Clean Sweep within the city limits. Johnson is proud of the fact that the Department currently has a 43 percent recycling rate. Johnson says that the ultimate recycling goal is 75 percent by December 31, 2020.

With respect to safety, Johnson points out that the Landfill is approaching two and a half years without a lost time injury. In order to stay on top of safety issues, a full-time Safety Technician is employed to develop and maintain a safety program, providing training and conducting accident investigations. In addition, the staff conducts safety briefings every morning highlighting the risks associated with the operation. "We routinely examine incidents in detail that occur within the industry and we have worked diligently to establish a safety culture on and off the job. Our Landfill provides consistent routine training for staff health and safety, waste screening, landfill operations, heavy equipment operating and a hazardous waste operations refresher," says Johnson.

Protecting the Environment

The Perdido Landfill has developed a set of procedures with the goal to protect the surrounding environment from contamination, including leachates and landfill gas. Says Johnson, "All of our Subtitle D landfill cells have modern liner components with leak detection systems. Leachate is collected and temporarily stored at two large lined basins, aerated and then conveyed to the local wastewater treatment plant for proper treatment. However, Johnson expresses that they are in the process of evaluating alternate leachate disposal methods such as artificial wetland treatment and use of a local paper mill treatment system.

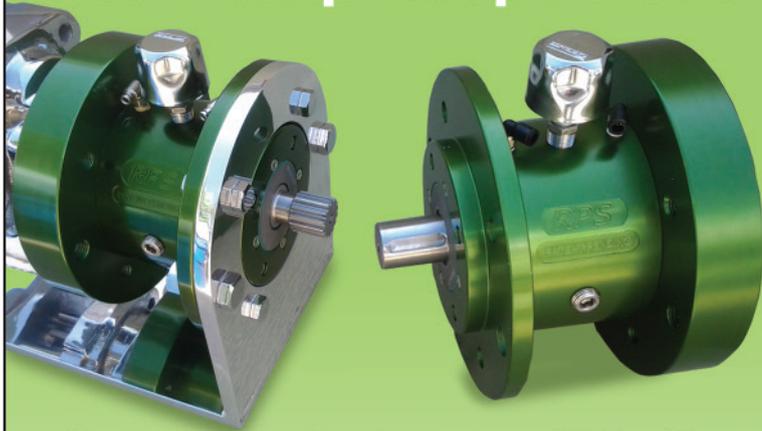
The Landfill also has a gas collection system that operates under Title V regulations. Currently, the Landfill has a 20-year contract in place with the local utility company, Gulf Power, for the sale of landfill gas to electricity to surrounding homes in the area. Any excess gas is burned by a flare and landfill gas quality and boundary emissions are routinely monitored for environmental compliance. The Perdido Landfill has also generated a Request For Information to waste conversion technology vendors for alternate waste disposal technology such as pyrolysis, hydrolysis and gasification.

The Perdido Landfill has trained spotters perform waste screening at weigh stations, citizen drop off facilities and an active Class I landfill to identify prohibited waste—tires, batteries, paints, liquids, herbicides, fluorescent bulbs—which is required by the State of Florida. The Department also conducts countywide inspections of small quantity generators of hazardous materials such as printing inks, paints, spent solvents, waste degreasers, cleaning compounds and by-products of chemical processes for regulatory compliance as well as uses onsite artificial wetlands for contaminated groundwater treatment. The wetland treatment system has been designed and permitted to remove volatiles from contaminated groundwater from the closed portion of the Perdido Landfill.

Successes and Ongoing Challenges

Currently, Johnson stresses that the decrease in revenue has been challenging and as a result they have decreased operating and personnel expenditures accordingly. "Unfortunately, lack of pay increases for staff has been challenging. We have a well-trained and dedicated staff who deserve fair compensation. So, in an effort to maintain morale and productivity, we have worked hard to be able to offer other types of incentives such as employee of the month/year programs, grant leave time for a job well done, flex time schedules, casual work wear days, leave buy back opportunity, employee appreciation events, tuition reimbursement and Commercial Drivers License training."

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The Perdido Landfill: Continuing to Evolve



Recycling containers are processed through weigh station to track tonnage from individual recycling drop off locations.

Groundwater contamination at closed landfills has also been a challenge. "We work long and hard to resolve one issue, but then the parameters change and then we need to work again on making those changes," says Johnson. In addition, improperly operated privately owned landfills that have become a public health and safety hazard have been challenging because of the health advisories issued due to heavy smoke, fire and ashes impacting the surrounding neighborhoods and schools. "In one instance heavy dust, odor and traces of hydrogen sulfide became a health concern," says Johnson. As a result, the County has established ordinances that require permitting and compliance inspections that the Department manages and enforces.

Johnson believes that the fight for trash is an ongoing battle. The Perdido Landfill's move from the historical source of revenue from tip fees to other sources of revenue to fund programs poses significant challenge during these times. "At this point the only other source of significant revenue we have realized is the successful sale of landfill gas to electricity. However, due to the fact that we have expended significant funds associated with permitting and monitoring of private landfills, some discussion has ensued associated with charging fees to these facilities to cover the costs of this activity."

Despite these multiple challenges, Johnson is proud of the fact that the Perdido Landfill has been the model for excellence. In 2009, the solid waste program received SWANA's Gold Landfill Management Excellence Award and in 2010, the Landfill received SWANA's Bronze Public Education Outreach Award and the Landfill Methane Outreach Program's community partner of the Year. He also points out that the Perdido Landfill gas-to-electricity program has been a steady revenue source for the County as well as proving to be a very beneficial relationship with Gulf Power. "It has helped improve the quality of the gas collection system while reducing emissions." The program, which began in 2010, will extend through to at least 2030. On average, the electricity generated is enough to power approximately 1,500 homes.

Looking Ahead

Johnson says that the Perdido Landfill's ongoing objective is to continually evolve their programs in place to provide sustainable waste services well into the future. "We are currently soliciting information associated with alternate waste disposal technology and conducting a feasibility study to convert excess landfill gas into Bio-CNG. Our goal is to consistently benchmark our operation and continue to be involved in research/development of the next generation of waste resource management and to never stop asking 'What if?'" | **WA**

For more information, contact Patrick Johnson at (850) 937-2160 or visit www.myscambia.com/government/departments/sw.

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Choosing the Right Unit for Waste Transportation

Brittany Alexander

Waste transportation is a fundamental part of a successful waste management system. Choosing a master unit for transporting solid wastes, scrap metals, construction and demolition debris, agriculture and recyclables can be a simple task.

THE CREATION AND ACCUMULATION OF WASTE IS a direct result of human activity. Whether it is routine household activities, commercial operations, renovations, construction and demolition or simply the participation in agriculture through farming and gardening, generating waste is an activity in which North Americans participate in on a daily basis. To put into perspective the significance of our waste contribution, the U.S. EPA reports that America's waste industry manages an incredible 250 million tons of household waste per year, while the average person rejects 4.43 pounds of trash daily.¹ This figure however, does not include construction, demolition debris and other non-hazardous wastes, which brings the amount of annual waste to an astonishing 545 million tons.² Of course, an abundant amount of waste generation calls for an efficient and dependable system for removal. Waste management is crucial toward keeping communities, organizations and homes clean while ultimately keeping the societies healthy. A key aspect of that system is undoubtedly waste transportation.

As an organization operating within the waste management industry, a major decision will involve determining the safest, the most efficient and the most reliable vehicle or unit for transporting different categories of waste. With a variety of trucks, lifts, hoists and containers available on the

market, it can be difficult to determine which unit will really provide the best solution for your waste transportation needs. What should you look for? Which features on the market are superior? This article will provide an understanding into the best practices for waste transportation and choosing the best unit for transporting waste.

Cable or Roll-Off Hoists

In order to complete the first step to determining the appropriate product, consider the general features, or must haves, regarding units in the waste transportation industry. To a majority of North American transportation operators, the most desirable and important elements include safety, efficiency and minimized downtime. Using a cable or hooklift roll-off hoist may offer the best solution for waste transportation needs across North America since both designs have the capacity to transport a variety of different materials by truck, including solid waste, scrap metal, construction and demolition debris, recyclables and agriculture—one unit generally satisfies all waste transportation needs. The versatility of a cable or hooklift roll-off hoist improves the efficiency because it is not necessary to invest in different units to transport different wastes. Being able to have an empty container placed near a generation point of materials so that it can be filled without having to tie up a truck is a big savings in terms of both equipment and personnel usage.³

Automation

Since the waste industry is one of the most dangerous professions, the safety attributes are arguably the most important. Among others, typical collection methods incorporate roll-offs, front loads and residential two-and-three man methods, all potentially leading to challenges and accidents.⁴ The dangers presented by trash trucks and collection methods make it important to seek innovative technologies that minimize risk. For example, modern units that hold automatic pickup technology, like hooklift applications, are desirable because the driver does not have to leave the cab to engage or disengage with the container. Countless benefits derive from automation; the number of workers needed is reduced, exposure to the roadway is lessened, employee fatigue is decreased, while heightened morale and productivity result—all delivering a positive impact to your business.⁵ Hooklifts and new technology



Using its ability to transport waste, this PALFINGER American Roll-Off safely unloads gravel at a recycling facility. Photo courtesy of PALFINGER North America.

cable hoists are also attractive for transporting waste because they are 1,200 lb. to 1,500 lb. lighter than a comparable capacity traditional style cable hoist, allowing the maximum legal payload to rise, while offering improved container maneuverability to increase the operations efficiency.⁶

Hooklifts

Hooklifts have been gaining more of the market share than they had just 20 years ago.⁷ They have an advantage in speed, but lack the versatility of length of bodies that can be handled.⁸ The hook can connect to the container while operated from inside the cab, where the driver is not required to be in the danger zone between the truck and the container. Likewise, safety interlocks prevent accidental disengagement of dump locks while in the dump mode. In addition to its safety features, many of the hooklift models offer high efficiency through dual points of articulation that allow for a pickup/set-off mode and a separate dump mode, plus the efficiency benefits previously mentioned.⁹ Low maintenance is evident, reducing cost and frequency through product design. Hooklifts also operate in many other industries and applications that may exploit lighter capacity hoists with a capacity range of 10,000 lb. to 30,000 lb. for the lighter GVWR chassis.¹⁰ Although other applications use both lower and higher capacity hoists, the 50,000 lb. and the 20,000 to 24,000 lb. are the most appropriate and the most popular for reliable waste transportation.¹¹

Safe and Dependable Units

Waste transportation is a fundamental part of a successful waste management system. Included in that are the best practices for the units and vehicles that make efficient and dependable waste removal possible in North America. Choosing a master unit for transporting solid wastes, scrap metals, construction and demolition debris, agriculture and recyclables can be a simple task. Cable or hooklift roll-off hoists provide the best solution and the most efficient, reliable and safe outcome. | **WA**

Brittany Alexander is the Marketing Intern for PALFINGER North America Group, including PALFINGER American Roll-Off (Trenton, NJ). She is also a new graduate from Brock University's Bachelor of Business Administration Program. Brittany can be reached at (905) 374-2975, ext. 279 or via e-mail at b.alexander@palfingerna.com.

Notes

1. "Municipal Solid Waste Generation, Recycling and Disposal in the United States: Facts and Figures for 2010." United States Environmental Protection Agency (2011) www.epa.gov/wastes/nonhaz/municipal/pubs/msw_2010_rev_factsheet.pdf, accessed 22 Jan. 2013.
2. Repa, Edward W. "Size of United States Solid Waste Industry" (2001). R.W. Beck, Inc.
3. David Klinger, Service Manager for PALFINGER American Roll-Off.
4. "2012: Year in Review." *Waste Advantage Magazine* (2012). <http://epaperflip.com/aglaia/viewer.aspx?docid=fb9d9c183d384e1fbcac3b57dfb8480e>, accessed 23 Jan. 2013.
5. Ibid.
6. Klinger, Op. Cit.
7. Warren Kimble, General Manager for PALFINGER American Roll-Off.
8. Ibid.
9. Ibid.
10. Klinger, Op. Cit.
11. Ibid.

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Keep Waste Management Assets Rolling At Peak Efficiency

Dave Walters

Fleet management software fills a critical information void for waste haulers on many levels.

WASTE HAULERS RELY HEAVILY ON TECHNOLOGY TO

control costs and improve asset use. In evaluating the opportunities to make new investments, they often start with their profit centers, like operations, where the daily planning, scheduling and billing take place.

Fleet maintenance is often perceived as a cost center and, as such, lags behind the investment curve. Some waste haulers, for instance, still use whiteboards in their maintenance bays to schedule repair work. Paper files and spreadsheets are also used to track warranties, parts inventory, and record maintenance costs and activities.

Including a maintenance program in the daily routine is just as important to the financial well-being of a company as buying a new truck or efficient routing. An effective program will bring organization and information to fleet operators and open the inside lane for achieving their cost and use objectives.

The benefits of using the latest fleet maintenance management software includes analyzing and dissecting costs, maximizing vehicle run time, recovering warranty and a high availability of parts with minimal inventory costs. Maintenance programs have also become vital for managing fleet safety and compliance.

Driving Down Cost

Without maintenance software, waste haulers tend to view maintenance costs like any other expense in the general ledger—as a total. Accounting systems lack the features necessary to measure and analyze maintenance costs and take systematic steps to reduce them.

Maintenance software comes with features for tracking and analyzing equipment costs on a per-vehicle basis. It also employs use ratios such as cost per mile and cost per hour. With detailed information, managers can make smart decisions on equipment purchases and disposals. The software also reveals repair trends and how vehicle operating costs change over time. These reports help managers fine-tune PM intervals and ensure that equipment is being used for the right applications. The analysis helps to provide feedback to drivers on ways to improve fuel economy and lower maintenance costs for the specific vehicles they operate.

To keep cost metrics current, waste haulers can use software modules that interface with third-party fuel management and telematics systems. The interfaces capture gallons and odometer readings. Fuel costs can be tracked daily on a per-mile, per-hour, per-ton or other defined measure for analysis. Other integrated fuel management features include fuel tax reports, tracking site fuel inventories and vendor fuel purchase histories.

Routine Scheduling

Scheduling preventive maintenance (PM) has always been the core function of fleet maintenance software systems. Effective scheduling results in fewer service interruptions, which lowers cost and increases use.

Like any vehicle engaged in a frequent stop-and-go operation, waste handling trucks pay the price in increased wear on brakes, tires, suspensions, hydraulics, cooling and electrical systems. The heavy, compacted cargo also contributes to maintenance issues on crucial components.

With such rough duty cycles, collecting detailed records on the work performed to each vehicle, over time, can be used for insightful analysis. Trends begin to appear in breakdowns and part failures. This information becomes critical for adjusting PM schedules. As schedules are fine-tuned, the majority of repairs become scheduled repairs, which frees up resources to go after the exceptions—the breakdowns and component failures—that drive up costs and drive down asset use.

Using the scheduling features to establish routine maintenance will pay for the entire software system in a very short time. For routine maintenance issues like oil, brake and tire changes, schedules can be created immediately based on time or mileage. Over the long term, maintenance issues like engine, transmission and drive train rebuilds can be scheduled in advance based on historical data.

Fleet-Wide Visibility

Visibility to maintenance schedules extends beyond the maintenance bay. Using a fleet's own computer network or by using a maintenance system with online access, fleet managers can see inspections, PM services and schedules for trucks under their control from any location. This continuous visibility helps maintenance and operations departments coordinate schedules.

When used effectively, PM scheduling and repair history details are essential for identifying defects early and striking down the root causes. Managers can look at failures that occur between PM services and adjust schedules accordingly. Once schedules are set up, automated notifications let managers know when services are due. These notifications are triggered by mileages, hours and engine fault codes through integration with vehicle telemetry systems, fuel cards and other electronic sources.

Besides scheduling PM services, maintenance software can be used to create schedules for all inspection intervals required by State and federal agencies as well as for license renewals.

Behavior Analysis & Safety Improvement Categories

- 1) DRIVER FITNESS
- 2) UNSAFE DRIVING
- 3) FATIGUED DRIVING/
HOURS OF SERVICE
- 4) CONTROLLED
SUBSTANCES/ALCOHOL
- 5) CRASH INDICATOR
- 6) VEHICLE MAINTENANCE
- 7) CARGO SECUREMENT

Warranty Recovery

In order to effectively manage parts inventory and maximize warranty recovery from repairs, technicians must operate within a tightly controlled system. Maintenance software provides such controls by immediately identifying parts covered by warranty and capturing all information needed to file claims quickly. The systems do this by tracking the warranty period of each item. If a part is replaced on a vehicle within the warranty period, the system flags the item and prompts technicians to initiate a claims process.

The software captures other details necessary to receive reimbursement like the time expended to make a warranty repair, the cost of replacement parts and all the associated costs to the warranty repair.

Parts Management

Besides using the technology to increase warranty recovery, fleets can maximize vehicle uptime by ensuring mechanics have parts needed to complete repairs. Chasing parts not only causes delays but leads to unpredictable pricing.

Keeping a healthy supply of spare parts on hand could be done without using software, but would likely lead to having excess parts in inventory. Waste haulers would rather have their capital earning a return. Using fleet maintenance software to optimize inventory can save both money and keep assets rolling. For every item in inventory, the software keeps track of where it came from, what it cost, where it is now and how many are left. To help ensure that inventory data is accurate and efficient, fleets can use barcodes and scanners to receive items into their shops and to attach items to repair orders as repair work is performed.

Software can automatically adjust min-max inventory levels by using historical parts usage data to forecast demand and optimize the settings. Fleets can also run reports to identify slow-moving items and return excess parts to suppliers in exchange for credits or faster-moving items. For parts that are purchased from more than one vendor, the software keeps a record of the price that was paid to each supplier to simplify future buying decisions. For efficiency, purchase orders can be sent directly from the software to vendors through e-mail, fax or electronic data interchange. The purchase order includes all part numbers, quantities and the last approved cost for each item.

By having a centralized parts management system, waste haulers with more than one location can have a corporate-level parts manager purchase parts for all of their companies' facilities. The decision on what to buy is no longer in the hands of individual shops. The systems keep a detailed record of inventory at each location and a history of equipment repairs.

Software systems have various checks and balances to help fleets avoid stocking obsolete or mismatched parts. For example, fleets can apply cross-references to part numbers, equipment specs and vendors to ensure that their inventories stay current with changes to the fleet. For instance, if a purchasing manager needs to buy an alternator for a certain truck, he can quickly find the part number by searching the repair history of an identical truck in the fleet in which the alternator was replaced.

Resource Management

Once maintenance is scheduled and vehicles arrive in the shop, modern technology simplifies the data entry for technicians. A streamlined data entry process helps to ensure that important details are captured at the time the service takes place. This live data capture gives managers real-time visibility of their labor and capacity on the shop floor.

With a computer workstation and touchscreen monitor on the shop floor, technicians can see all the work that is scheduled for the day. As they go through

the scheduled work, the system prompts them to document all activities in a repair order such as labor and parts used. The touchscreen simplifies the process with greater speed and fewer typing mistakes than standard keyboard entry.

Waste haulers can implement technology tools to evaluate how technicians and managers are spending their time and taking steps to optimize both cost and productivity. Standard repair times can be created for each type of repair order. Managers can evaluate the productivity of technicians against these standards. These reports are useful to identify areas where more training, technician development and better tooling might be needed.

Besides keeping labor and repair costs in line, maintenance software also helps match available shop capacity with demand throughout the workday. A shop foreman can use a planning module to see all open repair orders, technicians assigned to jobs and the estimated completion time of each repair.

Compliance

Besides using maintenance software to reduce costs and maximize equipment uptime, the technology has taken on the critical role of helping to improve safety and compliance. Under the Compliance, Safety, Accountability program, the Federal Motor Carrier Safety Administration (FMCSA) is paying much closer attention to fleet maintenance practices.

The CSA program categorizes the violations from roadside inspections into seven Behavior Analysis & Safety Improvement Categories (see **Sidebar, page 20**). Each month, the violations in each BASIC are scored by Safety Management System formulas to quantify carriers' on-road safety performance; the higher the SMS score, the more likely trucks are pulled over for inspections.

The Vehicle Maintenance BASIC includes more than 200 violations that an officer can identify in a roadside inspection. It is one of seven categories that the FMCSA uses to determine how a motor carrier ranks relative to other carriers with a similar number of safety events (i.e., inspections, violations or crashes).¹

Because of this added Vehicle Maintenance exposure, maintenance software can be one of the most effective safeguards from vehicle defects that harm SMS scores. For waste haulers, the CSA program puts a premium on inspecting vehicles regularly and getting defects promptly repaired. A successful PM will result in fewer roadside inspections and citations, which in turn will result in a better safety score.

PM programs are especially important in regard to tires, brakes, lighting and other obvious defects that might show up during a roadside inspection. Drivers can play an important role in this regard by sending in quality pre- and post-trip inspections.

Through integration with onboard computers and communications systems, maintenance software can create a closed-loop inspection and repair process. An electronic driver vehicle inspection report (DVIR) can be used to trigger an inspection ticket and repair order in the software system. Regardless of whether fleets use electronic or paper DVIRs, fleet maintenance software can provide documentation that driver-reported complaints are addressed in a proper and timely manner.

Filling a Void

Fleet maintenance management software fills a critical information void for waste haulers on many levels. From scheduling PM to tracking costs, repairs, vehicle histories and warranty recovery, these systems give managers the information they need, each day, to keep assets rolling at peak efficiency. | **WA**

Dave Walters is the Solutions Engineer, for TMW Systems (Beachwood, OH). He can be reached at dwalters@tmwsystems.com.

Note

1. http://csa.fmcsa.dot.gov/Documents/FMC_CSA_12_009_BASICs_VehMaint.pdf.



The Right Fit: Finding the Correct Gloves for Your Application

Craig Wagner

The glove manufacturing industry has evolved from the days when having cotton or leather gloves were the only choices for employees. By striving to make that “perfect glove”, major improvements have changed the glove manufacturing industry in just the last several years.

ACCORDING TO THE BUREAU OF LABOR STATISTICS, injuries to the wrist, fingers and hands account for almost 25 percent of total workplace injuries. OSHA hand protection standard 29CFR 1910.138 mandates employers to select and require employees to use appropriate hand protection. It also states that employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of the use, the hazards and the potential hazards identified. The bottom line is that employers are responsible for making sure that employees wear the right hand protection.

Creating the “Perfect Glove”

The glove manufacturing industry has evolved from the days when having cotton or leather gloves were the only choices for employees. By striving to make that “perfect glove”, two major improvements have changed the glove manufacturing industry in just the last several

years. The first is the high performance yarns. Today, yarns are lighter, stronger and thinner than in the past. Aramid yarns commonly known by the brand names of Kevlar® or Twaron® are commonly enhanced with other fibers. The same with HDPE (high density poly ethylene) commonly known as the brand names Spectra®, Dyneema® or Tuffalene® is also combined or enhanced. This has afforded glove manufacturing the ability to make the shells lighter and more dexterous.

The second improvement is the dipping process. Costs have come down as technology has improved through automation, better efficiency and more competition. New polymers and chemical processes have also greatly improved the dipped product. Different polymers have been developed and improved for positive grip in almost any environment today.

One of the challenges facing employers is getting employees to wear hand protection at all times. Too many times employees have taken off gloves because the dexterity is poor or the glove is uncomfortable. The challenge is finding the perfect glove.



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Photos courtesy of Global Glove and Safety Mfg., Inc.



Tsunami Grip® Orange nylon Mach finish nitrile with Velcro closure. Electronic assembly, food processing, automotive, construction work and general all-purpose use. Outstanding wet oil grip.

The Best Fit Glove for Your Application

Today, gloves offer better wearability/dexterity, cut, impact, puncture protection and grip. Costs have come down drastically making the high performance gloves of yesterday now affordable in general applications. In order to determine which type of glove is the best fit for your application, consider the following:

1. *Are the gloves being used in a wet or dry application?* Wet (chemicals, oils, water, and extreme dirt or dust) spec in a rough finish glove. Foam nitrile also affords a good wet grip. There are several different types of "oil grip" nitriles on the market today. Dry (totally free of water, oils and chemicals but with some dirt and rough edges present) spec in a smooth finish glove.

2. *Are the gloves being used in any chemicals?* Check the chemical guide, which can be found on every manufacturer's Web site for assistance of polymer best used with the chemical.

3. *Are the gloves being used to handle sharp or abrasive items?* Natural rubber provides the best overall cut, puncture and dry grip protection but very little chemical resistance, while nitrile provides good cut, puncture and normally the greatest abrasion protection. It has good chemical resistance and can be made to have good wet/oil grip. Neoprene provides good chemical and cut protection with little resistance to puncture and abrasion protection. PVC is economical and provides good chemical resistance with lower cut, puncture and abrasion protection compared to nitrile and leather gives good abrasion and some cut protection depending on the grade of leather but are very inconsistent. The majority of leather sold in the glove manufacturing industry is lower grades.

4. *Do your workers need protection over the wrist?* Gloves are available in knit wrist, safety cuff, 10, 12, 14 and 18 inch gauntlet. Knit wrist is warmer and stops debris from getting inside the glove. They are also the most common. Add 1 inch to the cuff if the workers need to create a gauntlet cuff.

5. *Do your workers take their gloves on and off frequently throughout the day?* If this is the case, safety cuffs, band tops and gauntlets slide on and off the hand quicker, easier and are cooler on the hand, while knit wrists are better and most common if the workers keep their gloves on all day. Remember that a knit wrist glove will be warmer on the hand than a safety cuff.

6. *How much dexterity do your workers need?* The more dexterity wanted, the thinner the glove material needed. You will get more dexterity out of a glove that is seam-free and tighter knit—15 and 13 gauge knits offer the best dexterity and in general have thinner coatings than 10 or 7 gauge dipped/coated gloves.

Striving for Perfection

Will the perfect glove every happen for every application? The waste industry is starting to take advantage of the improvements. Hand protection will continue to improve in the industry as we get closer to the "perfect glove". | **WA**

Craig Wagner is part owner, CEO and President of Global Glove and Safety Mfg. Inc. (Ramsey, MN) and has spoken and written extensively about the band protection market. He is a past President of the International Glove Association and has served on the board of directors for over 10 years. He was a frequent lecturer at onsite safety and quality assurance seminars for industrial workers across the country and around the world and has lectured at several universities. Craig can be reached at (763) 450-0110.

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Idaho Waste Systems: Examining the Value Propositions

Darell Luther

A market study is important in pointing out the generally most evident value proposition—where you can save your customer money. However, it's also important to look beneath the surface and identify additional areas where you can create value for your potential client.

HAVE YOU EVER WATCHED HOME AND GARDEN TV (HGTV) WHERE A COUPLE moves from their small condo in the crowded city to a spacious beachfront property? It generally shows the before and after situation several months later. For our *Waste-by-Rail* readers, this analogy has some meaning. Over the past two months we've worked with Idaho Waste Systems (IWS) on developing and studying their potential waste origination markets through a high level market study. We gathered pertinent information on their current and potential future capabilities, researched markets to identify where we thought there may be some rail-waste opportunities, and offered the keys to the spacious beach property in the form of a somewhat in-depth market study with the caveat that they have to execute the market plan to earn their key. Unlike HGTV, we're not presenting the after situation several months later but in real time; so although not much has changed, significant activity is occurring.

The First Steps

Oftentimes, the hardest part of a market study is where to begin the implementation. IWS began logically by attending trade shows and conventions in order to jumpstart their approach. They marketed in the geographic areas where the study revealed that there are some price advantages to hauling waste by rail.

IWS also changed their approach to general solicitations by researching the inquiring company or municipality to gather market intelligence on their needs prior to responding to inquiries. They simultaneously quit responding to e-mail inquiries with direct e-mail responses. They now follow up via telephone gathering as much information about the solicitation as possible to help identify the opportunities to receive waste by rail and then formulate a more tailored response to the inquiry. This approach allows IWS to craft a better response that is more customer-orientated.

Have these approaches born fruit? Yes, but the fruit is still in the bud stage where the volume of inquiries and opportunities are just revealing themselves. IWS' market study has provided them with more knowledge of where the opportunities lie and their approach has been to aggressively pursue them. IWS is going down the right path to capitalize on their strategic geographic position and waste disposal capabilities by creating awareness in those markets that can economically and efficiently use their services.

Implementation of a Market Study

Due to confidentiality, we can't reveal the exact implementation strategy of IWS market study. However, we can share a general approach that has been successfully used and implemented by other waste companies.

Use the KISS Principle

After you complete a market study, you need to ask yourself what it means to you and, more importantly, your potential customers. By keeping it simple, ask yourself the first question your customer would ask of you, "What's in it for me?"

There isn't necessarily a pat answer to that question so it's up to you to conduct enough in-depth research to know where the value proposition is for your potential customer. Value propositions can be numerous but are generally classified as monetary savings, shift of downstream risk, and disposal site dependability and reliability.



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Value Proposition #1: Save Money

Monetary savings seem relatively simple on the surface. When we looked at the 11 origin locations for IWS, we calculated anticipated origin costs based on experience to obtain an estimated trans-load cost and then coupled that with the rail transportation freight, used competitive railcar rental rates and cycle times also based on experience, and added the desired disposal costs to arrive at a comparative cost number in the landfill. Our next step was to compare geographically local landfill costs for near-term disposal. We also made an educated guess about when certain landfill closures may occur so that we could strategically position IWS marketing efforts to offer an alternative disposal site. This gave us two markets to pursue: the near-term market where we could offer competitive savings and the long-term market where we could offer an alternative to the early planning process for landfill closure timelines.

Value Proposition #2: Shift Risk

There are many reasons a municipality or waste generator will want to shift risk. It may be environmental/political where a municipality isn't sure they're going to receive the necessary permits for airspace when faced with environmental rules and regulations or local opposition. Consideration for current and future insurance requirements, worker compensation liabilities and the need to reinvest capital that's not readily available are also other factors that waste generators may want to transfer risk on to independently owned landfills.

There are also incidences where States will form compacts with other

States to take contaminated waste under a future fee basis. In these cases it's generally a State with high rainfall or ones that receive a significant amount of moisture partnering with a State that is relatively arid. These compacts are often for a specific type of waste classification that may or may not fit a specific landfill classification. Generally, these States pay for the right to dispose of certain types of waste in compact States. This is another method of shifting risk and is more applicable on waste streams that lean to the hazardous nature.

Value Proposition #3: Landfill Dependability and Reliability

Landfill design and operation processes, handling of bulk wrapped waste, truck wash and transfers, rail operations design and monitoring, and ability to receive and handle the waste all took on new meaning in something we called landfill dependability and reliability. The market study initially encompassed the logistics costs to our client not the entire cost of the risk. Be sure to fully understand the value proposition if you're working to earn business. It's not always as it seems.

We were working on a project several years ago that encompassed moving a hazardous classification of waste from a generator to a landfill. In this case, the generator retained the waste disposal risk due to the nature of a final ruling on the cleanup. We did our market study and identified several landfills that could take the waste stream. Our client reviewed the list and then gave us a second set of criteria that eventually took precedence over the apparent economics of the waste by rail transfer. The second set of criteria was a measure of the client's long-term risk obligations that needed to be addressed.

Look Beneath the Surface

A market study is important in pointing out the generally most evident value proposition—where you can save your customer money. However, it's also important to look beneath the surface and identify additional areas where you can create value for your potential client. If you follow the value creation template of saving money, shifting risk and creating dependability and reliability, you will find customers waiting. | **WA**

Darell Luther is president of Forsyth, MT-based Tealinc Ltd., a rail transportation solutions and railcar leasing company. Darell's career includes positions as President of DTE Rail and DTE Transportation Services Inc., Fieldston Transportation Services LLC, managing director of coal and unit trains for Southern Pacific Railroad and directors positions in marketing, fleet management and integrated network management at Burlington Northern Railroad. Darell has more than 24 years of rail, truck, barge and vessel transportation experience concentrated in bulk commodity and containerized shipments. He can be reached at (406) 347-5237, via e-mail at darell@tealinc.com or visit www.tealinc.com.

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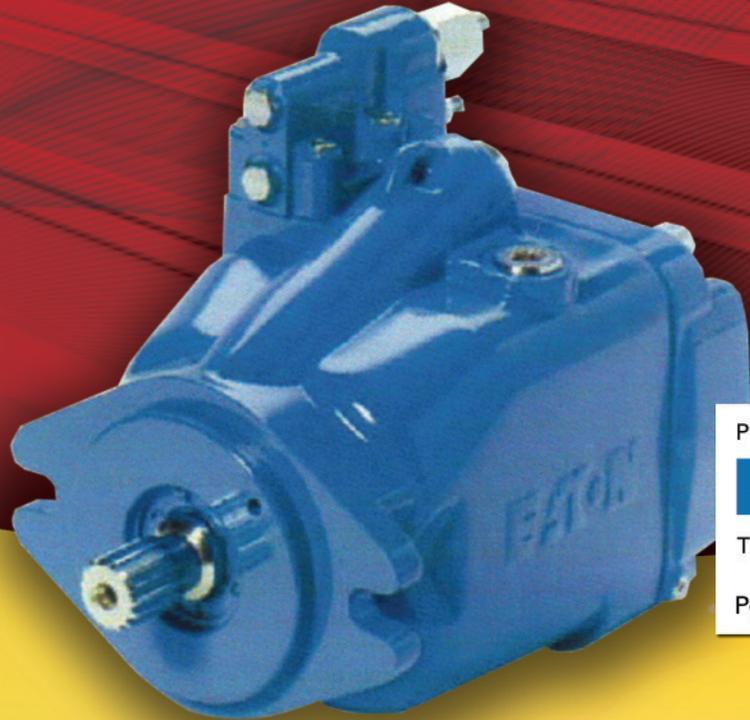
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- **Carbon Emissions:** Vehicles with under inflated tires require additional fuel to overcome increased rolling resistance. This additional fuel use adds billions of tons of carbon emissions to our atmosphere.
- **Prematurely Worn Tires:** Running tires underinflated leads to premature failure as well as additional waste in landfills.
- **Roadside Pollution and Air Particulates:** As under inflated tires begin to break down due to the added bend and flex caused by under inflation, tires become more susceptible to catastrophic failure and blowouts, resulting in the roadside tire debris commonly seen on highways.
- **Lost Raw Materials:** Tire makers use nonrenewable raw materials such as rubber and oil to create new tires. As tires are run with improper pressure, decreasing their lifespan, additional raw materials are required to make replacements. Further, commercial tires which are run under inflated tend to wear unevenly or have non repairable injuries, rendering them unviable for retreading.

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KIENE DIESEL ACCESSORIES, INC. (Addison, IL) has developed a new adapter for its K-1350 Wheel Grabber. The new “Extender” allows a technician to safely remove seized wheels from vehicles on a floor lift. The Kiene Wheel Grabber is a well-established tool for removing seized wheels from heavy duty tractors, trailers and buses, as well as Ford super-duty applications. It allows one technician to quickly and safely remove the most stubborn seized wheels. With the “Extender” in place, the vehicle does not have to be taken off the lift to remove a seized wheel. In addition to the new extension, Kiene is developing another Wheel Grabber adapter, which will remove seized brake drums.

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Waste Advantage Magazine's Recycling/Transfer Stations/Landfills (R/T/L) section has become a very important part of our readership. Our timely, relevant editorial in this section—products/services releases, statistics, short tips, etc.—provides you, our R/T/L professionals, with the useful information that you need when making that important purchasing decision. By making this important move, *Waste Advantage Magazine*, provides something for everyone in the waste and recycling industry and makes it the most complete one-stop-shop publication available today. We look forward to expanding our coverage of this segment of the industry and hearing your feedback.

Industry Trends

Trends Affecting Landfill Gas Energy in the United States

Swarupa Ganguli and Amanda Singleton

AS OF SEPTEMBER 2012, THE LANDFILL GAS (LFG) INDUSTRY NOW stands strong at more than 600 energy recovery projects in the U.S. These projects, operating in 48 of the 50 states, are estimated to have produced 15 billion kilowatt-hours (kWh) of electricity and deliver 52 trillion British Thermal Units (Btus) of energy in 2012.¹ Collectively, these projects provide enough energy to power or heat more than 1.8 million homes per year and reduce greenhouse gas emissions equivalent to the carbon sequestered annually by 22 million acres of pine or fir forests or carbon dioxide emissions from 241 million barrels of oil consumed.

Technology Trends and Emerging Technologies

With a substantial presence in the renewable energy marketplace and a long history of projects dating back to the late 1970s, the industry has matured to the point of well-demonstrated technologies, repeated successful demonstrations in a wide variety of sectors of our nation's economy and a trusted resource for a base-loaded, local renewable energy resource. This article explores some of the recent project trends and policy and financial drivers that are shaping new directions for the industry. Since 2011, the LFG energy industry has experienced a slowdown in direct-use projects, while electricity projects have been growing steadily and the use of LFG as an alternative vehicle fuel has shown promise. Table 1 summarizes the various revenue streams available to finance each type of LFG energy project.

Electricity

Energy recovery in the LFG industry continues to be dominated by electricity generation. Approximately two-thirds of projects in operation generate electricity via reciprocating engines, turbines or microturbines. This segment of the industry has continued to experience growth in recent years and, as of the end of September 2012, 191 megawatts (MW) in new LFG electric generating capacity have come online since 2011. This recent growth rate of 96 MW per year still demonstrates significant, but slightly lower growth when compared with 120 MW of new LFG generating capacity added per year during the period of 2005 to 2010.²

Several different markets and incentives with near-term deadlines have provided a continued demand for LFG electricity projects despite some of the recent downturns in power consumption. One market-driver is the state renewable portfolio standards (RPS). For example, the North Carolina RPS

began requiring utilities to provide a percentage of their power from renewable energy, including LFG, beginning in 2012 and ramping up the required percentage of renewable energy required gradually through 2021. Seven new LFG electricity projects and one expansion of an existing project have come online in that State since 2011, with a collective generating capacity of more than 22 MW.³ Several more projects are under construction or in the advanced planning stages in North Carolina to meet the growing demand for renewable energy. Figure 1, page 34, shows a recently completed small electricity project that powers onsite landfill equipment and is sold to the local grid.

Other driving incentives for LFG electricity in recent years include State and federal tax credits, grants and loans distributed as part of the American Resource Recovery Act, and utility green power purchase programs. Many of the tax credits driving short-term investment by private companies in LFG electricity projects included a series of near-term deadlines. The two most common federal tax credits affecting today's LFG electricity projects are the production tax credit (PTC) and the investment tax credit (ITC). The PTC provides a corporate tax credit of 1.1 cents/kWh for LFG for the first 10 years of operation of the project. The deadline for the PTC was recently extended allowing projects to qualify for the PTC if construction begins before January 1, 2014. The ITC provides an alternative crediting mechanism for projects to help provide initial capital for a project instead of crediting the project as the electricity is produced. The ITC provides a one-time grant of up to 30 percent of the construction and installation costs for the facility. The installation

schedule for projects receiving these awards is also more accelerated than the PTC program. Projects receiving the ITC must have already begun construction before the end of 2011 and be completed prior to the end of 2013. As of September 2012, the ITC program had provided over \$101 million in funding for 46 LFG electricity projects in 21 states.⁴

Alternative Vehicle Fuel

Since 2011, four new projects have come online that use LFG for vehicle fuel in fleet and other onsite vehicles.⁵ These projects convert LFG into compressed natural gas (CNG). Prior to 2011, several pilot-scale LFG-to-vehicle fuel projects were brought online, and the first commercial-scale LFG-to-liquefied natural gas (LNG) project was commissioned at the Altamont Landfill in California. Figure 2, page 34, shows a CNG fueling station at the recently completed CNG project at St. Landry Parish Landfill in Louisiana.

Potential Revenue Sources	Alternative Fuel	Electric	Direct-Use
Sale of electricity (2.5 – 7 cents/kWh)		✓	
Sale of Renewable Energy Certificates		✓	
Sale of Renewable Identification Number (RINs) Credits (\$7 to 10/MMBtu)	✓		
Premium pricing for renewables through RPS/RPG or voluntary green power markets		✓	
Tax credits or incentives		✓	
Clean Renewable Energy Bonds (CREBs)		✓	
Sale of Vehicle Fuel (\$2-3 per gallon)	✓		
Sale of LFG (\$1.50-4.00 per MMBtu)			✓
Greenhouse gas reduction credits	✓	✓	✓
Energy cost savings	✓	✓	✓

Table 1: Potential Sources of Revenue for LFG Energy Projects. Table courtesy of U.S. EPA LMOP.

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Figure 1: Small (0.195 MW) engine generator recently installed in Watauga County, NC. Photo courtesy of Watauga County, NC.



Figure 2: Fueling station for 250-gasoline gallon equivalent LFG-to-CNG project in St. Landry Parish, LA. Photo courtesy of St. Landry Parish, LA Solid Waste Disposal District.

The recent interest in alternative vehicle fuel projects is driven by three main factors. First, the stability of natural gas prices and updated estimates on long-term domestic natural gas supplies present an economic savings opportunity for waste companies and municipalities willing to transition from diesel to natural gas-fueled vehicles. According to the Department of Energy's Alternative Fuels Data Center, mid-2012 pricing for CNG averaged \$2.12 per gasoline gallon equivalent while diesel averaged \$4.13 per gallon.⁶ Secondly, emissions of particulate matter (PM) and nitrogen oxides (NOX) and overall engine noise levels are drastically reduced when switching from diesel to natural gas equipment. In 2007, the heavy-duty highway rule required a substantial reduction in sulfur content of diesel to reduce PM and NOX emissions from mobile sources. Natural gas-fueled vehicles provide an alternative mechanism

to meet the requirements of this rule, in lieu of using ultra low-sulfur diesel fuels, and achieve an even more substantial reduction in emissions of NOX and PM. Finally, renewable forms of natural gas used in transportation, such as LFG that has been upgraded to CNG or LNG, are eligible to participate in the renewable fuels market. This market was created by the Energy Policy Act of 2005 and expanded by the Energy Independence and Security Act in 2007 to require 36 billion gallons of renewable fuel by 2022. LFG that has been upgraded to transportation fuel directly or placed in a pipeline and designated to a commercial outlet for transportation use can qualify under this market and the volume of renewable natural gas is tracked by assigning renewable identification numbers.



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Direct-Use

The pace of direct-use projects—those projects that provide energy to either an onsite solid waste facility or a nearby industry, commercial establishment, or institution for space or process heat—has slowed dramatically in the last several years. Today, this segment of the LFG energy market provides 300 million standard cubic feet per day (mmscfd) of LFG to a wide variety of equipment and sectors of our economy.⁷ The LFG is used directly in boilers, kilns, dryers, space and process heaters, sludge incinerators, furnaces and for leachate evaporation. This equipment is located at primary, secondary and university institutions; automotive, chemical, food and pharmaceutical manufacturing plants; glass, ceramic and metal artisan studios; and biodiesel and ethanol production facilities.

Approximately half of the LFG consumed by the direct-use sector is upgraded from a nominal heating value of approximately 500 Btu per cubic foot (Btu/ft³) for raw LFG to a value of 900 to 1,000 Btu/ft³, approaching that of natural gas. This upgraded LFG is often injected into natural gas utility pipelines or in some cases the upgraded LFG is used to fuel more advanced electric generating equipment such as turbines, or fuel nearby industrial equipment. These projects are collectively referred to as high Btu projects. High Btu projects in which the cleaned gas is injected into the pipeline can provide flexibility for landfills without end users in close proximity and transport the gas further distances from the landfill where higher prices or more attractive renewable energy incentives might be realized.

Since 2011, the direct-use market segment has experienced modest growth of nearly 15 mmscfd, or 7.5 mmscfd per year. This is a sharp decline in the growth this segment realized between 2005 and 2010, when 175 new mmscfd of LFG was brought online, or an average of 29 mmscfd per year.⁸ The decline of this market is largely driven by the reduction in gas prices, making LFG less cost-competitive with industrial and commercial natural gas prices. The Energy Information Administration reports a spike in industrial natural gas prices of \$13.06 per thousand cubic feet in July 2008 compared with a low of \$3.90 per thousand cubic feet in October 2012.⁹ The general economic downturn also slowed the growth of new direct-use projects in recent years as corporations reduced new investments in equipment upgrades and renewable energy projects at their plants.

How LMOP and Your LFG Energy Project Can Work Together

EPA's Landfill Methane Outreach Program (LMOP) is a voluntary assistance program that encourages the recovery and beneficial use of LFG as an energy resource to reduce methane emissions from landfills. Since 1995, LMOP has assisted in developing more than 560 LFG energy projects, cumulatively reducing and avoiding emissions in the atmosphere by approximately 224 million metric tons of carbon dioxide equivalents (MMTCO₂E).¹⁰

LMOP estimates there are approximately 500 additional landfills that are candidates for developing LFG energy projects. Together, these landfills have a total electric generation capacity potential of 1,200 MW or LFG delivery potential of 107 trillion Btus per year. LMOP provides a variety of free materials and services to explore LFG energy project opportunities, many of which can be found at www.epa.gov/lmop. LMOP tools and services include:

- Direct project assistance
- Analyze landfill resource—LFG modeling
- Identify potential matches between landfills and end users—LMOP Locator
- Assess landfill and end user facilities
- Explore project possibilities—direct-use, electric, cogeneration, alternative fuels
- Initial economic feasibility analyses—LFG Cost
- Technical and outreach publications
- Project and candidate landfill database
- Network of 1,000+ partners
- Listservs announcing request for proposals and industry hot topics
- Support for ribbon cuttings and other public relations opportunities
- State training workshops and national conferences

Since 1995, the number of LFG energy projects has increased by 300 percent, from approximately 146 projects in 1995 to more than 600 projects today. The types of projects that have come online have changed over the years depending on the available incentives and the prices of natural gas and diesel fuel. There are still many opportunities across the country to use this energy resource and turn what would otherwise be a liability into an asset. | **WA**

Swarupa Ganguli is team leader for U.S. EPA LMOP. She can be reached at ganguli.swarupa@epa.gov.

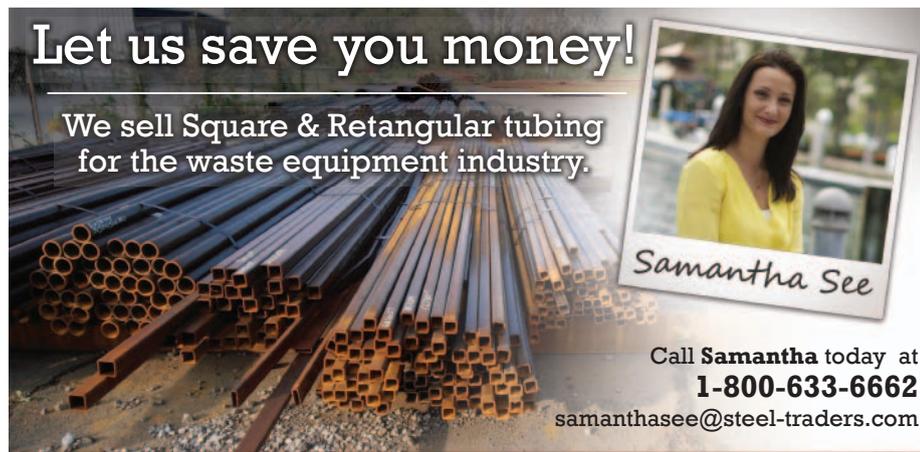
Amanda Singleton is an engineer with Eastern Research Group. She has supported technical assistance and outreach to landfills in the eastern U.S. for eight years. Amanda can be reached at amanda.singleton@erg.com.

Notes/References

1. U.S. Environmental Protection Agency, LMOP Landfill and LFG Energy Project Database, as of September 28, 2012.
2. Ibid.
3. Ibid.
4. U.S. Treasury Department. List of 1603 Awards, as of December 5, 2012. www.treasury.gov/initiatives/recovery/Pages/1603.aspx.
5. U.S. Environmental Protection Agency, LMOP Landfill and LFG Energy Project Database, as of September 28, 2012.
6. U.S. Department of Energy Alternative Fuels Data Center. National Average Price between September 28, 2012 and October 12, 2012. www.afdc.energy.gov/fuels/prices.html
7. U.S. Environmental Protection Agency, LMOP Landfill and LFG Energy Project Database, as of September 28, 2012.
8. Ibid.
9. U.S. Department of Energy Natural Gas Industrial Pricing. www.eia.gov/dnav/ng/hist/n3035us3m.htm.
10. U.S. Environmental Protection Agency, LMOP Landfill and LFG Energy Project Database, as of September 28, 2012.

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Compactors

Seven Essential Features to Consider When Choosing a Landfill Compactor

Chad Phares and Lane Blount

THE LANDFILL IS NORTH AMERICA'S MOST COMMON SOLUTION FOR handling the continuous and never ending flow of waste produced by our society. North America's largest living organisms are the "faces" of landfills. Landfills live 24 hours per day, nonstop, tirelessly with no regard for weather, holidays or vacations. Trucks back up, unload their waste, drive away and repeat the process multiple times per day. Waste flows come in from everywhere, day in and day out, their final destination to become part of the living landfill.

Managing waste flow is one of the most challenging jobs in North America. Landfill managers must minimize the impact of this waste on the available space in their landfills. The goal is to compact as much material in the smallest amount of air space resulting in maximum density. Landfill operations typically require a compactor to achieve these density goals. There are only a few manufacturers of landfill compactors in the world. Each manufacturer claims they offer the market features that contribute to achieving maximum compaction. These monster machines weigh between 25 and 60 tons, move at speeds up to 7 MPH and run 24 hours per day. It's common for landfill compactors to operate more than 2,000 hours each year. What features to choose as well as the size of machine required is usually based on the volume



Wheel/drum design. Image courtesy of Tana.

and type of waste accepted at the landfill each day. Choosing the right landfill compactor can be difficult, but can result in millions of dollars favorably hitting the bottom line. How does a landfill manager make the right choice? The following seven essentials are imperative to making the best decision.

#1: Wheel or Drum Design

Wheel and drum design are essential in choosing the right landfill compactor. It is commonly accepted that the correct optimized combination of the crushing teeth on the landfill compactor and the highest ground pressure will result in the highest compaction rates. The designs available on the market today are: 1) standard four wheel oscillating, 2) triangular four-wheel pattern and 3) full-width twin drum design.

The more crushing teeth engaging the surface per wheel/drum rotation, the higher compaction levels can be achieved. The number of crushing teeth per machine ranges from 80 to 220 depending on the weight classification of the landfill compactor. Once the decision is made regarding the weight class required for the landfill, choose a machine with the highest number of crushing teeth.

The second aspect of the importance of the wheel/drum design is the area



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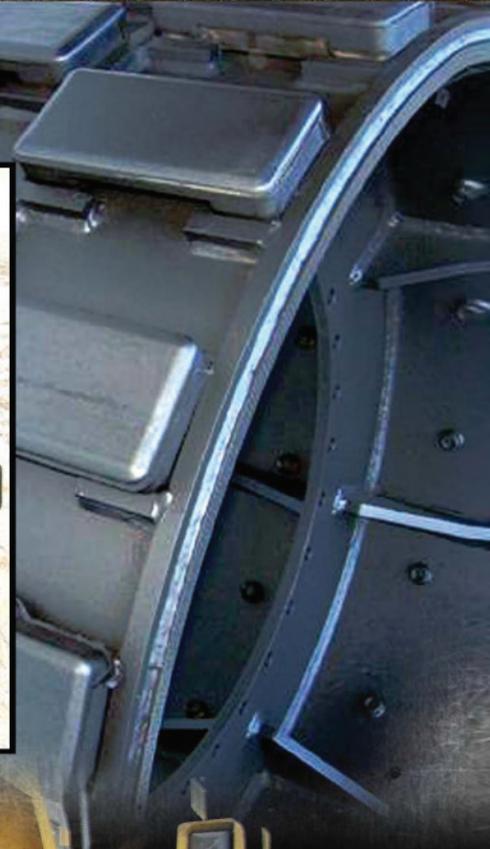
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coverage per pass. The size classification of the machine determines the area coverage to some extent, but the design differences between the three listed previously make the most difference. The full-width twin drum design covers 30 percent more area than the standard four-wheel design, and compacts the area twice as fast as the triangular four wheel pattern design.

#2: Frame Design

Another feature to consider when choosing a landfill compactor is an oscillating frame design or a rigid frame design. Oscillation in the frame allows one wheel to drop into voids or ride on high points, shifting the weight of the machine while distributing a maximum of 25 percent of the machine's weight to each wheel. A rigid frame design does not drop into voids, but spreads level layers of waste resulting in a smoother, densely compacted area. The triangular four-wheel pattern design rigid frames distribute a maximum of 33 percent of the machine's weight on the same mound of waste. The full-width drum design with rigid frame rides up on high points while distributing a minimum of 50 percent of the machine's weight on the mound of waste.

#3: Ground Clearance

Ground clearance is important in a landfill for a couple of reasons. Low ground clearance is a detriment to a landfill because it will cause the machine to dig out previously compacted waste which will work its way into the belly pans of the machine creating fire hazards and power train stoppages due to debris interruption. The landfill compactors available on the market today offer ground clearances between 19 and 35 inches. Higher ground clearance is better.

#4: Drive Systems

Two options of power train drive systems are offered on the market today.

One option is the "Power Shift Transmission" system. This system uses a power shift transmission, torque converters, transfer gearboxes, drive shafts and universal joints, differentials, disc brakes, clutch pedal and clutch, and brake pedal and controllers. The second option is the "Hydrostatic System", which eliminates all the above components in the "Power Shift Transmission" system and replaces them with pumps, final drives, final motors and more simplistic operational control systems. The hydrostatic system is designed for the quick change of directions required in a landfill operation and requires less preventative maintenance and costs less to repair or replace.

#5: Wheel Cleaning

Scraper bar systems offered on each machine keep the wheels clean during compaction. The effectiveness of a landfill compactor is greatly reduced if the waste builds up on the wheel or drum since it causes the effectiveness of the crushing teeth to be diminished. Having a scraper bar system that will eliminate the waste buildup is essential in being able to reach the highest compaction rates. All manufacturers of the four wheel designed compactors offer scraper bar attachments to clean their wheels. The problem with this design is after a period of time the attachments usually break, eliminating the ability to keep the wheels free from waste buildup. Some manufacturers market a "self-cleaning" cleat design, but their ability to consistently and in all types of waste keep the wheels clean has not been sufficiently proven. A third technology uses a continuous scraper bar system that covers the entire full width of the drum and cleans it moving forward or backward.

#6: Operator's Compartment

Key features of an operator's compartment or cabin not only include the sound levels and ergonomics of the inside of the cab, but also the structural design and location of the cabin on the landfill compactor. Most manufacturers offer similar ergonomic features inside the cab including adjustable seats, head rests, heated seats, radios, CD players, heat and A/C, joystick control and others.

Features that make the most impact are the comfort of the driver and the visibility of the waste being compacted. Most manufacturers' landfill compactor designs locate the cabin on the rear frame of the machine. This location is closer to the engine compartment; therefore, causing a higher dB (A) noise level. It also creates vision impairment for the operator to see the full blade at all times, as well as some of the waste being driven over. One manufacturer offers a front mounted cab that allows the operator continuous vision of the waste being pushed and isolates the operator from the engine reducing noise levels.

#7: Machine Intelligence

Finally, an important feature to consider is the technology offered with the machine. There are many types of technology offered in the market but, for landfill managers, the simple question is "what technology will put more favorable dollars to the bottom line?" The answer may not always be easy, but it should point to any technology that provides for higher compaction and lower operating costs. Each landfill compactor manufacturer offers technology they claim can achieve those goals. Machine intelligence and communication ability are two features that are important to consider.

The landfill manager's choice becomes easier applying these seven essential considerations when choosing their compactor. Making the correct choice on a compactor will enable them to become more successful. | **WA**

Chad Phares is Vice President of Humdingar Equipment, Ltd. (Lubbock TX). He can be reached at (806) 771-9944 or e-mail cbad@humdingarequipment.com.

Lane Blount is Regional Sales Manager for Tana North America, Ltd. and is based out of Cleveland, TX. He can be reached at (832) 594-2818 or e-mail lane@tana-na.com.

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Composting

First of Two Parts

Evaluating the Viability of Developing a Composting Facility

Steve Diddy

COMPOSTING, ORGANICS RECYCLING AND THE CONCEPT OF ZERO WASTE

has become so popular that I receive inquiries like this almost daily. Ten years ago the majority of the callers were from municipal governments that wanted to compost biosolids or better understand the issues involved around adding food waste to their yard waste composting operation. Today, there are more solid waste companies (haulers) and merchant facility developers who wish to compete for source separated organic waste streams that include food waste. Regardless of who calls, my answer to the question above is always, “Well, that depends...”

The garbage industry has long focused on metrics like \$/mile or \$/ton, so it is natural that, when they ask what seems like a simple question, they expect a simple (and rapid) answer. However, there are many different methods to produce a compost product, and even more variables to consider when designing a compost facility. All of which affect the bottom line.

If you are considering developing a commercial composting facility, there are three steps that you should follow in order to help you evaluate the viability of your opportunity:

1. Learn the biology and the business of composting
2. Qualify your opportunity
3. Dig into the details—conduct a pro forma analysis

Step 1: Learn the Biology and the Business of Composting

Composting is part (simple) biology and part business. You don't need to understand the biology part in scientific detail. You do, however, need to understand the role that feedstock mix, airflow, moisture, temperature and processing time play in facilitating the biological process (like a baker understands cooking). By controlling these variables per best management practices (BMPs), you will control nuisance odors and create a marketable product (see Figure 1).

Your understanding of the business of composting should start with learning the steps of the process, the regulatory requirements, the technology choices

and the local compost market (see Figure 2). For example, the compost process typically includes three process phases (primary, secondary and curing). In these phases there are generally regulations that concern the air and water leaving the process, the temperatures during the process and often the stability at the end of the process. There are three broad groups of process technologies: Aerated Static Piles (ASP), In-vessel and Windrow. Each process has its pros and cons, and any can be used in combination with the others.

You can learn much about the biology and business of composting by attending national and regional composting conferences, taking the Compost Facility Operator Training Courses offered by the U.S. Composting Council, visiting facilities and reading industry periodicals.

Step 2: Qualify the Opportunity

Step two is where you really need to roll up your sleeves and get into the details. This may include hiring qualified consultants as well as:

- Quantifying and characterizing feedstocks
- Site selection and site study
- Market evaluation

Quantify and Characterizing Feedstocks

Feedstocks are what you want to compost. The feedstocks are called food waste, yard waste, land clearing debris, construction debris, crop residue, pre-consumer, post-consumer, vegetative, protein, etc. Feedstocks have different densities, moisture contents, C/N ratios and levels of contamination. You will need to know the characteristics and quantity of each feedstock you expect to process per day (and account for peak-days or months based on seasonal variations—think grass and leaves).

Figures 3 to 6, below and page 44, are all called food waste and are presently being composted via commercial facilities. You can observe that their physical characteristics differ greatly and can imagine that the process required for one feedstock would differ from another (and also affect the cost of their

Best Management Practices Initial Mix
(Necessary for successful static composting)

Property	BMP Range
% Solids – by weight	39 – 45%
Density (settled)	< 900 lb/cy
Porosity	> 30% free air space
Carbon/Nitrogen	25 – 35:1 (ratio)
Mixing	Near homogenous

*A significant portion of the feedstock carbon must be bio-available.

Figure 1: What the industry trade organization, U.S. Composting Council and the waste industry, in general, believe are best management practices for standard values for the incoming feedstock mix.

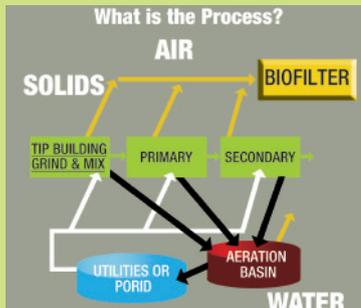


Figure 2: The process of composting and, in particular, the components that are the most important for good planning: the solids are the feedstocks, odor and VOC's are in the air, and water includes condensate/leachate and rainwater.



Figure 3: Residential curbside collected food waste and yard waste.



Figure 4: Post-consumer food waste from a federal prison.



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Figure 5
Food waste pre-consumer from a grocery.



Figure 6
Curbside collected food waste from high density residential.



Figure 7
Curbside collected yard waste



Figure 8
Yard waste.






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processing). They are a) residential curbside-collected food waste and yard waste, b) post-consumer prison waste, c) pre-consumer grocery store waste and d) source-separated food waste collected from urban multi-family buildings/apartments. **Figures 7 and 8** are examples of yard waste from municipal curbside collection programs.

Site Selection and Site Study

Needless to say I could write an entire article on finding the right site for locating a compost facility. I've heard it said that land with solid waste handling permits is the most valuable land in the country. Certainly, having enough land that is not too close to neighbors, not too far away from your feedstocks, and with the proper zoning and permitting is valuable land indeed.

Appropriate facility sites can be located in industrial areas, wastewater treatment plants, landfills, farms, mines, even abandoned factories. However, sites need to be researched for permitting purposes (zoning, traffic, flooding, etc.), odor studies and neighborhood acceptance.

Here is a little known fact: *The Right Choice of Process Technology is Site Specific*. That is the size and odor sensitivity of the site, the weather, the desired facility throughput, the facility process goals, capital budget, labor constraints, and projected tipping fees all contribute and narrow down the range of possible process designs and technology alternatives for any given opportunity. Therefore, choosing the process technology prior to selecting and evaluating the opportunity puts the cart a bit before the horse. There are pros and cons to each system type—and the appropriate technology for any given site depends on its analysis.

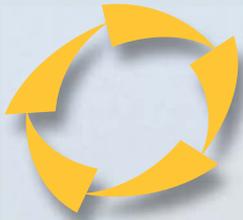
Market Evaluation

Depending on the quality of your product, the annual volume, your location and a host of other considerations (like length of the growing season), selling your product for the price stated in your pro forma can range from easy to difficult. It is essential to avoid creating the Brown-Mountain of unsold products. Evaluating market potential is often a good place to consider hiring qualified consultants.

Step 3: Pro Forma Analysis

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Appropriate Process Design and Process Technology Selection

Appropriate technology is a local decision. That is the size and odor sensitivity of the site, the desired facility throughput, the facility process goals, capital budget, labor constraints, and projected tipping fees all contribute and narrow down the range of possible process designs and technology alternatives for any given opportunity. Therefore, choosing the process technology prior to selecting and evaluating the opportunity puts the cart a bit before the horse. There are pros and cons to each system type—and the appropriate technology for any given site depends on its analysis. ECS offers both in-vessel and ASP compost process technologies:

- SV Composter (in-vessel with stationary vessels)
- CV Composter (in-vessel with containerized vessels)
- AC Composter (Fabric Covered ASP)
- ASP Systems (in several different configurations – both covered and uncovered)

Below are examples of four ECS compost process technologies; two ASP systems (covered and uncovered) and two In-vessel systems (stationary and containerized vessels):



Figure 9: A fabric covered ASP in a discrete pile configuration.



Figure 10: An organic covered in a bunker wall configuration.



Figure 11: A stationary in-vessel (tunnel) system.



Figure 12: A containerized in-vessel system.

at a proposed site. It requires assistance from a qualified and experienced compost process engineering firm; and civil engineering firm. The Analysis includes:

- Environmental Compliance Assessment (odors, air emissions, surface and groundwater)
- Feedstock Analysis (mass balance, mix recipes, lab analysis if necessary, consider pilot projects)
- Initial Process Design (review process, process technologies and operational alternatives)

- Initial Facility Design (drawings, layout, single line electrical, process and instrumentation diagram, material flow)
- OPEX and CAPEX Facility Cost Analysis (labor, power, fuel, water, sewer, equipment, staff skill and labor requirements)
- Revenue and Profit Models (land, design, permitting, equipment, tip fee, product revenue, carbon and pollution credits)

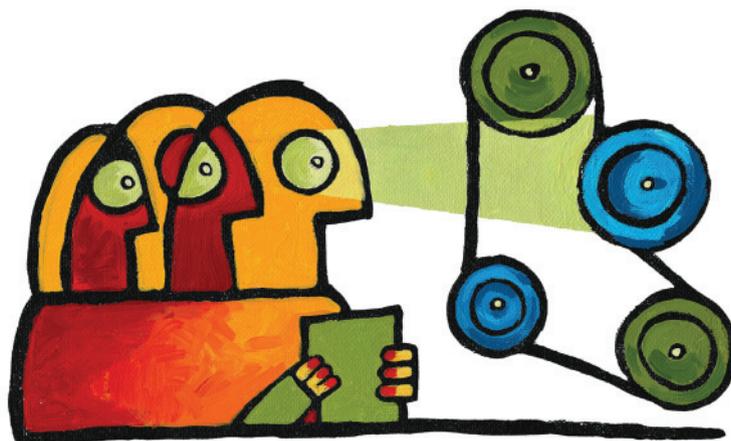
The outcome of the Pro Forma Analysis provides preliminary drawings in enough detail to obtain accurate construction estimates, begin permitting, and provide enough cost and revenue data on which to build an accurate business Pro Forma. Based on this solid data you can now make an informed business decision on the sustainability of your project.

Moving Onto the Next Step

After conducting a Pro Forma Analysis, those who find out that owning and operating a compost facility would not have met their goals are happy to figure this out during this preliminary planning stage. When they decide to continue with the detailed design and construction of their compost facility, they are able to do so with better planning and greater confidence. | **WA**

Part 2 of this article will focus on design considerations and how municipalities can put composting projects out to bid.

Steve Diddy has worked in the compost, recycling and solid waste industries (both public and private) since 1989. He joined Engineered Compost Systems (Seattle, WA) in 2001 and is their Director of Business Development. ECS is an engineering and manufacturing firm dedicated to providing appropriate compost design, technology and ongoing technical support to their clients. Their staff is comprised of compost experts; mechanical, electrical, and software engineers; project engineers; project/construction managers and supporting technical staff. Steve can be reached at (206) 634-2625, via e-mail at steve@compostsystems.com or visit the Web site at www.compostsystems.com.



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The **BC472RB** refuse compactor from **BOMAG** (Kewanee, IL) offers the performance and durability of the company's larger machines, but in a more compact package. Ideal for smaller landfills, the 52,900-pound compactor offers a sealed frame design, outstanding operator comfort, easy maintenance access and superior compaction capabilities. Featuring BOMAG's exclusive **PAKALL** wheel design, the BC472RB uses polygonal compaction rings. The front wheel contains 50 teeth, and the rear wheel has 40. The machine eliminates air voids by shredding and crushing waste, allowing landfill operators to achieve greater density, preserve valuable airspace and extend the lifespan of their landfills.

Powered by a 255-horsepower Deutz water-cooled diesel engine, the BC472RB hydrostatic drive efficiently transfers power and torque to the wheels, providing high pushing power while consuming low amounts of fuel. The BC472RB features a sealed frame and hubs, which protect major drive components and prevent debris from entering the engine compartment. The compactor has 23.6 inches of ground clearance and an articulating/oscillating center joint, helping to maintain greater wheel contact, control and maneuverability. Adjustable scraper bars and wire cutters keep the wheels free of debris to maintain traction and allow maximum tooth penetration.

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