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www.wasteadvantagemag.com August 2012 Vol.3, No.8

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Editor's Note



WE ARE HALFWAY THROUGH TRADE SHOW SEASON AND WASTECON 2012 IS JUST

around the corner. I hope everyone has stayed cool and safe during this interesting summer weather. Pretty soon, we'll all be making our way down to Washington, DC—the hub of all things regulatory. It should make for a fantastic show, especially we are already seeing a preview of a great conference program—from managing solid waste systems to sustainable transfer stations, there will be something for everyone. I am definitely looking forward to it and can imagine many of you are as well. Be sure to visit *Waste Advantage Magazine's* booth at 1340 and chat with us about not only the industry, but the magazine as well. We always like hearing from you when opportunities like this come around.

Speaking of excellent features, this month's issue highlights some great topics, including three important regulations issues coming up industry (page 19), leveraging emerging management system standards (page 24) and the benefits of public-private partnerships (page 30). Our spotlight focuses on Associated Refuse Haulers, a company that has set high standards for itself and its employees by being proactive in not only hiring practices, but also being involved in the community (page 14). Other topics in this issue cover the hard insurance market (page 34), how the fuel in the rail industry is affecting the waste industry (page 38) and examining the industry's safety trends (page 43). It is packed with valuable, timely information. We hope you enjoy it.

Also, check out our Web site at www.wasteadvantagemag.com for videos, featured products, online articles, the Marketplace and more. Please feel free to contact me with any questions, suggestions, comments or just to talk about the magazine and industry. WASTECON, here we come!

Best Regards,

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SONYA BHAKTA



On the Cover:

Associated Refuse Haulers' small rear load Isuzu designed with a recycle box behind the cab. This unit serves customers that elect to have driveway service. Photo courtesy of Associated Refuse Haulers (Newtown, CT).

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Photos courtesy of ALL4, OEM Sherbrooke and Wayne Engineering.





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Trash Talk



HTUF 2012 Conference to Provide Hands-on Tools for Fleets and Industry

In the past year, significant changes have taken place in the advanced truck marketplace. It can be a confusing roller coaster ride just trying to keep up. The **HTUF 2012** National Conference & Expo, rolling into Charlotte, NC this September 18 – 20 will provide a one-stop shop for fleet and industry professionals looking to make intelligent business decisions on vehicles, strategies and partners. HTUF 2012 will feature the latest real-world market demand data for hybrid and electric trucks, numerous technical sessions dedicated to fleet education, and hands-on tools for making the best business decisions for fleets. It will also provide policy updates and the latest funding and incentive information and guidance—there's over \$60 million available to help buy advanced trucks, right now! HTUF 2012 will give fleet professionals the knowledge and tools to navigate the advanced truck arena: technology trends, creative financing and business case calculators for hybrid and electric trucks. This two and a half day conference and expo will offer more than 50,000 square feet of technology exhibits and vehicle displays, networking opportunities and the first-ever advanced truck Ride and Drive on a professional speedway track.

For more information or to register, visit www.htuf2012.org.

Preco Electronics, Inc. Announces Team Expansion

PRECO ELECTRONICS™, INC. (Boise, ID) announces the addition of new team members to their engineering group and sales force. The latest members to join the sales team are Brenda McCrary, Southern Territory Sales Manager, Eddie Hargett, Eastern Territory Sales Manager, Bill Dubé, Construction Sales Manager and David Anderson, Central Territory Sales Manager. An ongoing

expansion, Preco Electronics is still seeking new team members to round out the Midwest, Western and Mountain Region Territories. The Engineering team has also seen expansion, with the addition of Jon Fix, Firmware Engineer, making it three new engineers added to the team in the past year. "Preco has dedicated itself to being the technology leader in heavy-duty safety tools. This has been evident in the continued investment in our engineering department," stated Dale Hessing, Preco Chief Technology Officer.

For more information, call (208) 323-7114 or visit www.previewradar.com.

Study: Non-Recycled Waste Is Key to America's Energy Strategy

The **AMERICAN CHEMISTRY COUNCIL** (ACC) (Washington, DC) and University of Texas at Austin released a new study reaffirming the value of everyday waste as a clean, abundant, affordable source of domestic energy. The study, completed by Michael Webber, Ph.D, and his team of university researchers, demonstrated that fuel engineered from non-recycled plastics and other materials could successfully power a cement kiln located in Texas. Dr. Webber's research reaffirms the benefits of energy from waste. In the case of the fuel developed and used in the study, the energy content surpassed that of some forms of coal. Dr. Webber's team found that if only 5 percent of unusable materials from recycling facilities were diverted from landfills to energy recovery, it would generate enough energy to power approximately 700,000 American homes annually. At the same time, the reductions in carbon emissions would be equivalent to removing one million cars from U.S. roads.

For more information about the "From Chemistry to Energy" campaign, visit www.ChemistryToEnergy.com.

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22 – 24: 7th Annual Georgia Environmental Conference

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Savannah, GA
www.georgiaenr.com

23 – 25: Florida League of Cities' 86th Annual Conference

Westin Diplomat
Hollywood, FL
www.floridaleagueofcities.com

26 – 29: APWA International Public Works Congress & Exposition

Anaheim Convention Center
Anaheim, CA
www.apwa.net

27 – 29: Resource Recycling Conference

Hilton Austin
Austin, TX
www.resource-recycling.com/rr_conference/index.html

30: 2012 EREF Fall Classic Golf Tournament

Panther Trail Course at Canongate
The Woodlands, TX
www.erefndn.org

SEPTEMBER 2012

11 – 12: 2012 NSWMA Southeast Annual Conference

Renaissance World Golf Village Resort
St. Augustine, FL
www.environmentalistseveryday.org

13 – 14: PennFuture 2012 Clean Energy Conference

Doubletree Hotel
Philadelphia, PA
www.pennfuture.org/CleanEnergyHub

16 – 18: Waste-to-Fuels Conference & Trade Show

The Mystic Marriott Hotel & Spa
Groton, CT
www.waste-to-fuels.org

17 – 19: The IWSA World Solid Waste Congress 2012

Palazzo dei Congressi
Florence, Italy
www.iswa2012.org

18 – 19: 2012 NSWMA Heartland Annual Conference

Quartz Mountain Resort
Lone Wolf, OK
www.environmentalistseveryday.org

18 – 20: Hybrid, Electric, and Advanced Truck Users Forum (HTUF) 2012

Charlotte Convention Center
Charlotte, NC
www.htuf2012.org

25 – 26: 2012 NSWMA South Central Annual Conference

Hyatt Regency Hill Country Resort
San Antonio, TX
www.environmentalistseveryday.org

30 – October 3: 2012 Global Waste Management Symposium

Arizona Grand Resort
Phoenix, AZ
www.wastesymposium.com

OCTOBER 2012

1 – 3: 2012 Iowa Recycling and Solid Waste Management Conference

Coralville Marriott Hotel and Conference Center
Coralville, IA
www.iowaconference.org

2 – 3: 2012 NSWMA Mid-Atlantic Annual Conference

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Government Gossip



SWANA Testifies on Congressional Recycling Legislation

SWANA's Executive Director and CEO, John Skinner, Ph.D. testified before the U.S. House of Representatives Energy and Commerce Committee Subcommittee on Environment and Economy regarding the draft legislation, Increasing Manufacturing Competitiveness Through Improved Recycling Act of 2012. Skinner told the committee that SWANA agrees that the manufacturing sector can increase its competitiveness, reduce its energy costs and emission levels, and improve landfill diversion through an increase in the use of recyclable materials in its manufacturing processes. The legislation calls for EPA, in consultation with the Departments of Energy and Commerce, to conduct surveys and develop a report on the amounts of various materials actually diverted by various collection systems, the amounts recycled by manufacturers, and the amounts disposed of by landfills. Skinner said that the report would provide detailed and useful information and pledged SWANA's support to help the Agency conduct these surveys, but the Association questioned the time frame and budget allocated for this task. SWANA also recommended that the proposed bill include incentives that could significantly increase participation rates in the voluntary surveys.

For more information, visit www.swana.org.

EPA Greenhouse Gas Permitting Requirements Maintain Focus on Largest Emitters/Steps to Streamline Process

EPA announces that it will not revise greenhouse gas (GHG) permitting thresholds under the Clean Air Act. The final rule is part of EPA's common-sense, phased-in approach to GHG permitting under the Clean Air Act, announced in 2010 and recently upheld by the U.S. Court of Appeals for the

D.C. Circuit. The final rule maintains a focus on the nation's largest emitters that account for nearly 70 percent of the total GHG pollution from stationary sources, while shielding smaller emitters from permitting requirements. EPA is also finalizing a provision that allows companies to set plant-wide emissions limits for GHGs, streamlining the permitting process, increasing flexibilities and reducing permitting burdens on state and local authorities and large industrial emitters. After consulting with the States and evaluating the phase-in process, EPA believes that current conditions do not suggest that EPA should lower the permitting thresholds. Therefore, EPA will not include additional, smaller sources in the permitting program at this time.

The final rule affirms that new facilities with GHG emissions of at least 100,000 tons per year (tpy) carbon dioxide equivalent (CO₂e) will continue to be required to obtain Prevention of Significant Deterioration (PSD) permits. Existing facilities that emit 100,000 tpy of CO₂e and make changes increasing the GHG emissions by at least 75,000 tpy of CO₂e, must also obtain PSD permits. Facilities that must obtain a PSD permit, to include other regulated pollutants, must also address GHG emission increases of 75,000 tpy or more of CO₂e. New and existing sources with GHG emissions above 100,000 tpy CO₂e must also obtain operating permits. The GHG Tailoring Rule will continue to address a group of six greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

For more information, visit www.epa.gov/nsr.

Local Solid Waste Haulers Help Consumers Recycle Unwanted Electronic Waste

NSWMA's Illinois Chapter is working with area municipalities throughout the Chicagoland area spearheading an effort to help consumers responsibly dispose of unwanted electronics in accordance with the IL Electronic Products Recycling and Reuse Act that went into effect in January of this year. The law establishes a statewide system for recycling and/or reusing discarded electronic items, or "e-waste," from residences by requiring electronic manufacturers to participate in the management of discarded and unwanted electronic products. "Under the 2012 law, mixing e-waste with other waste intended for disposal at a landfill is prohibited," said Bob Pfister, Chair of the NSWMA-IL. A downloadable fact sheet on the Illinois E-Waste law and a full list of e-waste recycling drop-off locations is available through the NSWMA-IL Web site at www.illinoisgarbagefacts.com.

For more information, contact Peggy Macenas at (800) 679-6269 or e-mail peggym@nswma.org.

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Refuse Haulers (Newtown, CT) has been in business since August 1982. The company was started by Patrick Caruso and his wife, Joanne, who both had the desire to provide the best possible service using the residential cart system. Now, Associated Refuse Haulers employs a staff of 16 and a fleet of 18 vehicles, including automated side loaders, front-end loaders, roll-offs, a rear loader and container carriers, and they handle residential, commercial, industrial and agricultural institutions. They service Fairfield County, New Haven County and Litchfield County in Connecticut by collecting municipal solid waste, C&D, food waste, stable waste and recyclables, which are collected both single-stream and source separated.

Staying Strong

Although the state of the economy has greatly affected the anticipated growth projections, Associated Refuse Haulers has adapted by controlling their costs, hiring and training the best people that they can find while educating customers on ways to reduce waste volumes. One particular challenge is that Connecticut is one of the most heavily taxed in the union, with the largest tax increase recently in the State's history. In addition, Fairfield County is one of the most expensive counties to live in. "This toxic mix has caused many businesses to close, and many people to leave the State," says Caruso. However, he doesn't let these facts affect the company's ongoing business. "We offer various sized carts and pricing to



Associated Refuse Haulers' large side loader is their ASL for all curbside collection and condo units that elect curbside cart service. Photos courtesy of Associated Refuse Haulers.

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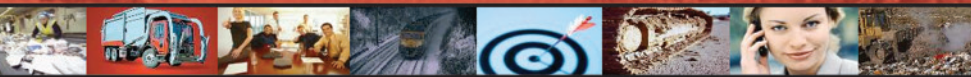
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Associated Refuse Haulers: Setting the Standard

accommodate an ever changing home environment. The same is true for our commercial customers." Caruso is quick to point out that they also have a very proactive regional regulatory agency that provides them with valuable information on recycling and other waste disposal issues. In turn, Associated Refuse Haulers sends out an introduction newsletter to new customers explaining the waste system as well as what is required in the region for waste disposal.

When it comes to employees, the company strives to set a high standard by offering in-depth training for new staff, which involves a two to three step process. Starting with a weekly ride, the new employee will ride in the passenger seat to observe what is entailed in order to make sure he or she is comfortable with the assignment. The following week, the new employee will drive with a supervisor in the passenger seat. Finally, the employee will follow the route with any questions and answers he/she may have. By this time, the employee and supervisor should have little to no interaction.

Proud of their low turnover record, Associated Refuse Haulers makes a great effort to only hire employees with a clean driver's record, great memory, clean appearance, as well as a polite and courteous attitude. "The type of individual you would feel comfortable trusting with a valuable piece of equipment as well as our livelihood—our customers," stresses Caruso. The company also strives to keep up with safety issues by constantly gathering information from various associations that they are affiliated with on the local, State and federal level. Caruso points out that the National Solid Waste Management Associations' (NSWMA) *Safety Monday* is always a great tool.

Not only do they take pride in their employees, but Associated Refuse Haulers is also proud to be very community-oriented, supporting all types of youth groups as well as many community-based events. "We supply waste removal services to all of the special sports events in our town of Newtown. We also purchase advertising space in the local sports fundraising publications and programs," says Caruso. "In addition, we donate containers for our rotary sponsored 'Make a Difference Day' and carts for Newtown Babe Ruth Baseball. We also donate containers and service for Pop Warner, PTA fundraisers, local golf tournaments and other local charitable events."

Keeping Up with Challenges

No stranger to ongoing challenges, Associated Refuse Haulers has dealt with keeping up with regulations and mandates by federal, State and local governments, a dwindling qualified labor pool, more expensive and complicated equipment, higher operating costs, severe weather damage and a changing population "Our population is getting older and require special services such as smaller carts, backdoor service, etc.," says Caruso. "We have joined the NSWMA to keep informed of upcoming laws, regulations and safety requirements. We also have an extensive pre-hire screening program which involves background checks and past employment references." The company trains drivers to their high expectations as well and



Associated Refuse Haulers' small roll-off lifting a container.

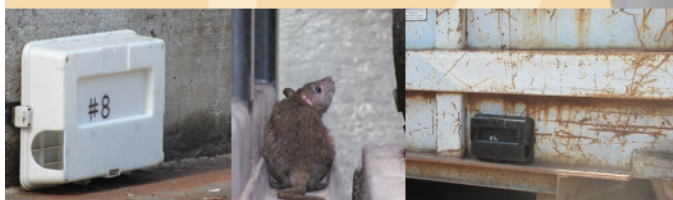
rewards them accordingly. Expectations include being safe, no property damage, no customer complaints and great customer feedback. However, the rewards are worth it since employees are benefitted with a great work environment, special perks such as holiday bonuses, year-end bonuses and company parties.

In addition, the employees operate the most modern equipment with the best options possible, such as onboard computer systems, which have been purchased in order to monitor and record all activity with the ultimate goal of not having any customer complaints.

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Associated Refuse Haulers' FEL lifting a container.

Associated Refuse Haulers: Setting the Standard

Making Their Mark

Not only has Associate Refuse Haulers aggressively took on their challenges, but it is also this attitude that has earned the company an A+ rating from the Better Business Bureau and the Newtown Economic Development Commission Certificate of Recognition, as well as being honored with Newtown's Business of the Year Award in 2011. However, all the great success has not gone to Caruso's head; he is determined to aggressively confront any test that is thrown their way.


"The challenges we face today are the economy, governmental regulations and mandates, and a dwindling qualified labor force. I believe that the industry's number one challenge is government regulations. Whether it is flow control, disposal surcharges, container enclosures, route restrictions, hours of service and other mandated programs, we haulers have to abide with the limited tools we have. Our best defense for this is to educate as many people as possible. After all, we are 'Environmentalists Everyday.'"

On the Horizon

Caruso stresses that Associated Refuse Haulers' current goal is to have an integrated system using technology to enhance the collection method in the most efficient manner, such as on-board computers and routing software, as well as RFID recording. In addition, the company plans to expand more into recycling and organics by providing collection and process services for new market items.

Says Caruso, "We have been blessed by the opportunity to be part of a wonderful industry as well as being able to take advantage of new technologies. We are not the producers of trash, only the transporter. At the same time, we are charged with the task of finding the means of reducing the volume of trash, reclaiming any item of value, and managing employees in the most safe and economical way possible. You can say we are environmentalists everyday conducting the greatest show on earth." | **WA**

For more information on Associated Refuse Haulers, contact Patrick Caruso at (203) 426-8870 or (203) 459-4900, or e-mail pat@associatedrefuse.com.



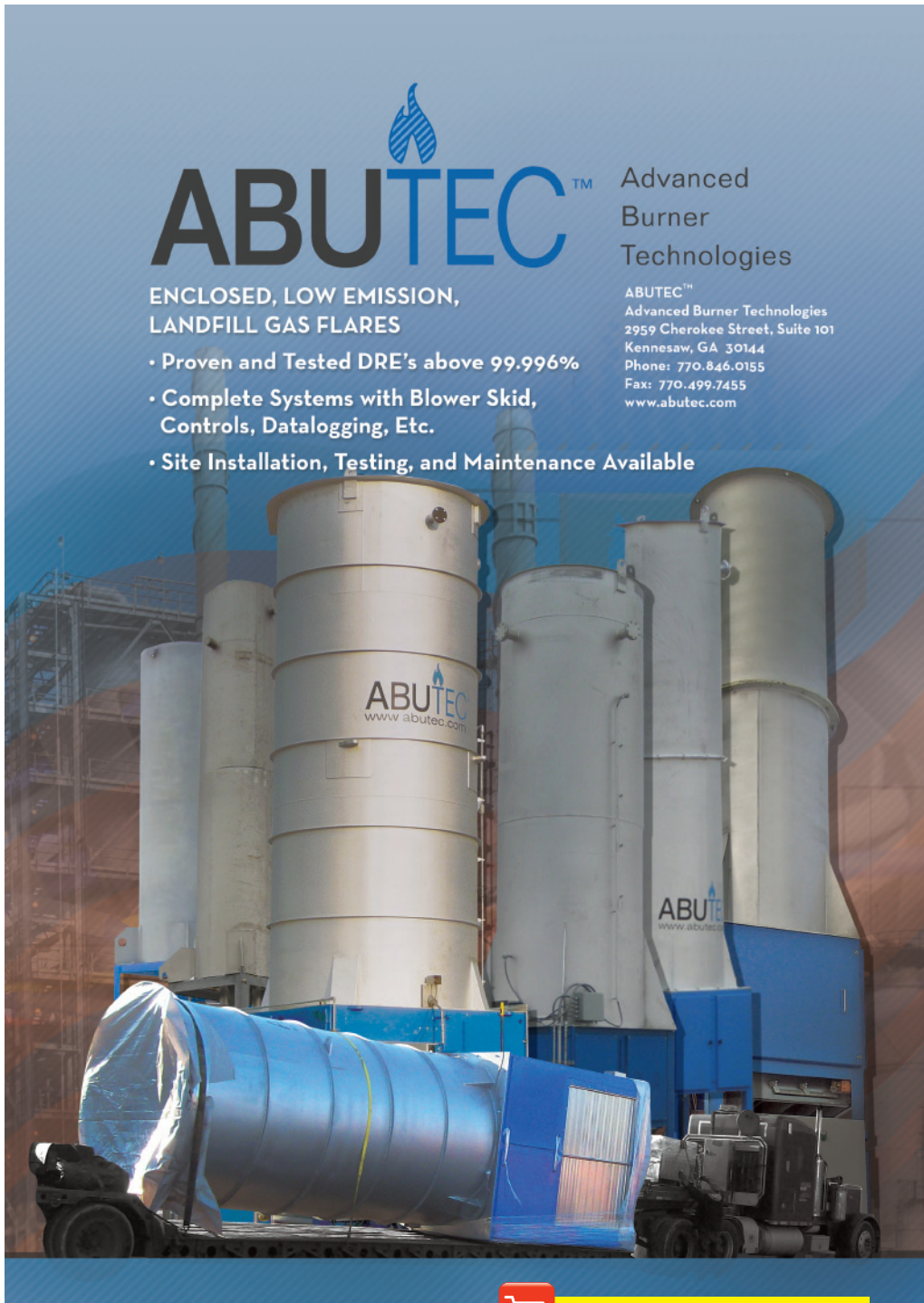
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Three Important Issues

Dan Holland

With a reliable and custom summary of environmental regulations that addresses ONLY THOSE REGULATIONS THAT HAVE THE POTENTIAL TO IMPACT YOU AND YOUR BUSINESS, you can address issues upfront and aggressively, resulting in more time available to run your business effectively and without environmental compliance issues.

TRACKING ENVIRONMENTAL REGULATIONS CAN

often be a backburner chore for environmental managers, especially environmental managers in the waste industry where daily environmental compliance can be more than an 8 to 5 job. Picture this, it's 5:01 pm and you made it through the day meeting all of your environmental compliance obligations, but you still need to check the Federal Register and your State Web site for environmental notices that could be applicable to you. You look at the Federal Register notices, see that it includes a page and a half of notices, and decide that you will follow up with it tomorrow. Except that the next day brings chaos and before you know it you have multiple days of notices to review. If this scenario mirrors any of your recent weeks, you may have missed these three important air issues.

Air Regulations for RICE Units

How many of you have reciprocating internal combustion engines, or RICE units at your facility? These RICE units serve a variety of roles, including emergency and limited-use purposes. Are you aware that these RICE units are subject to federal New Source Performance Standards (NSPS) and Maximum Achievable Control Technology (MACT) standards under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations? If you are under the impression that your facility is too small, your operations are too minor or your RICE unit must be too old to fall under these two regulatory programs, you could be seriously mistaken. A summary of some key RICE unit NSPS and MACT applicability criteria are presented below.

The NSPS requirements apply to compression ignition (CI) and spark ignition (SI) RICE units, 40 CFR Part 60 Subpart IIII and JJJJ, respectively. The CI NSPS apply to owners and operators of RICE units as follows:

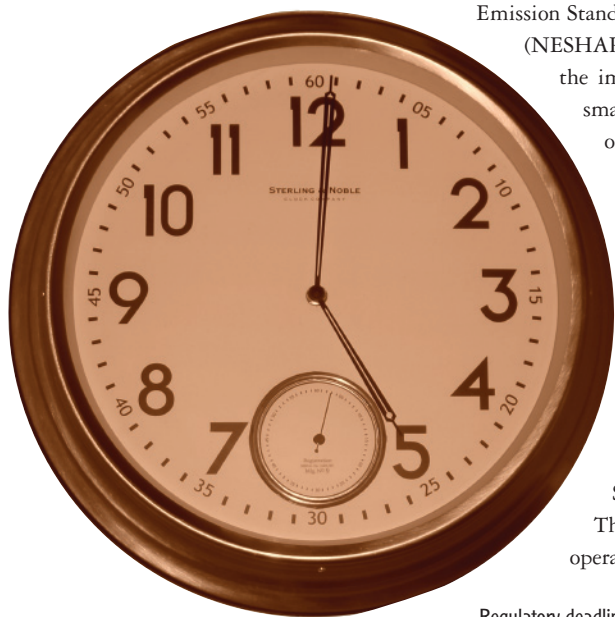
- CI RICE units ordered after July 11, 2005 and manufactured after April 1, 2006 (except that fire pump engines have a manufacture date of July 1, 2006).
- CI RICE units modified/reconstructed after July 11, 2005.

The SI NSPS apply to owners and operators of RICE units as follows:

- Greater than or equal to 500 hp SI RICE units ordered after June 12, 2006 and manufactured on/after July 1, 2007, except for lean burn SI RICE units greater than or equal to 500 and less than 1,350 hp which have on/after January 1, 2008 manufacture dates.
- Less than 500 hp SI RICE units ordered after June 12, 2006 and which have on/after July 1, 2008 manufacture dates.
- Emergency use RICE units equal to or greater than 130 hp ordered after June 12, 2006 and manufactured prior to January 1, 2009.
- Emergency use RICE units greater than 25 and less than 130 hp ordered after June 12, 2006 and manufactured on/after January 1, 2009.
- SI RICE units modified/reconstructed after June 12, 2006.

MACT standards apply to facilities that are "major" sources (i.e., if your facility emits more than 25 tons per year of hazardous air pollutants [HAPs] or 10 tons per year of any single HAP) as well as sources that are classified as "area sources" (sources that emit at levels less than the major source HAP level). The RICE MACT at 40 CFR 63 Subpart ZZZZ will apply to existing, new and reconstructed units (both SI and CI) as follows:

- At major sources, RICE units greater than 500 hp qualify as existing if constructed before December 19, 2002, qualify as new if construction occurred on/after December 19, 2002 and qualify as reconstructed if reconstruction occurred after December 19, 2002.
- At major sources, RICE units less than or equal to 500 hp qualify as existing if constructed before June 12, 2006, qualify as new if construction occurred on/after June 12, 2006 and qualify as reconstructed if reconstruction occurred after June 12, 2006.



Regulatory deadlines keeping you busy?
Photos courtesy of ALL4.

Three Important Issues



Generators like these will soon be subject to Federal air regulations.

- At area sources all RICE units qualify as existing if constructed before June 12, 2006, qualify as new if construction occurred on/after June 12, 2006 and qualify as reconstructed if reconstruction occurred after June 12, 2006.

Existing emergency engines meeting certain criteria and located at residential, institutional or commercial area sources are exempt from the RICE MACT. Additionally, at major HAP sources, certain types of lean burn SI RICE units, limited use RICE units and landfill gas/digester gas RICE units are exempt from the RICE MACT.

If you find your RICE unit subject to either the NSPS and/or the MACT, be aware that there are monitoring, recordkeeping, notification and various compliance requirements—emission testing, fuel requirements, engine use recordkeeping, retrofit/engine rebuilding—that apply to you beginning as soon as May 3, 2013 for CI RICE units and October 19, 2013 for SI RICE units. The RICE NSPS and MACT are regulations that potentially warrant your attention over the next several months.

NHSM Definition and Waste Recycling

We can agree that the RICE MACT and NSPS are examples of regulations that you need to stay informed about. What about the pending regulatory definition of “non-hazardous secondary material” (NHSM)? The existing definition as well as a pending revision to the definition, which are contained in the Resource Conservation and Recovery Act (RCRA) regulations at 40 CFR 241.3, are especially important to those in the waste recycling business that provide materials for generating alternate fuels used by combustion units or that supply ingredients that are used in a combustion unit (e.g., in the cement making process alternate sources of raw materials may be processed in a kiln where combustion takes place).

Although the pending NHSM definitions will not affect facilities until September 2013 at the earliest, the ramifications of not qualifying an alternate fuel as a NHSM are significant. If an alternate fuel does not qualify as a NHSM, the combustion unit using the fuel will be regulated under a set of restrictive regulations for Commercial and Industrial Solid Waste Incinerator (CISWI) units as opposed to less restrictive regulations for commercial boilers (i.e., Boiler MACT emission units). Many industrial combustion units will not be able to meet the CISWI emission limits and would likely eliminate the use of alternate fuels that did not qualify as a NHSM. So what is involved in ensuring that a NHSM determination can be provided?

First, it is important to note that the end user ultimately holds the responsibility for ensuring that an alternate fuel fired or an alternate raw material used as an ingredient in a combustion unit meets the definition of a NHSM. Under the current and proposed NHSM definitions, a facility that uses an alternate fuel that contains a material that has been discarded, must ensure that the material has been “processed,” has meaningful heat content, has been managed properly and has contaminant levels that are less than those in traditional fuels. In order to ensure that these regulatory requirements are met, a legitimacy criteria demonstration must be prepared.

So what could the waste industry’s obligations be for supporting a NHSM legitimacy criteria demonstration? As a supplier of materials used for alternate fuels or as a direct supplier of an alternate fuel, you minimally could be asked to provide information about how a discarded material is processed. For example, is the material shredded and sized to design specifications? Is the source of the material consistent? It may also be necessary for you to provide analytical data concerning the contaminant levels and heat content levels of your material. It may be necessary to perform multiple analyses in order to demonstrate that you have consistent data (and for budgetary purposes, count on spending about \$500 per analysis to obtain contaminant and heating value information). At the end of the day, you could be expected to provide a complete legitimacy criteria demonstration for a specific end user. A legitimacy criteria demonstration could easily cost between \$10,000 and \$12,500, plus analytical costs. Consequently, it will be very important to track the regulatory progress of the NHSM and to determine just what your obligations could ultimately be to the end user.

When is a Gas a Solid Waste?

Finally, there is a possible regulatory action that could have a significant impact on landfills providing landfill gas for combustion purposes. This possible regulatory action links back to the Boiler MACT and CISWI rules proposed in December 2011. Specifically, the action involves how U.S. EPA would treat byproduct gases that are not “contained” and that are combusted. In a seemingly illogical twist, uncontained gases could be regulated as a solid waste. Examples of these uncontained gases include landfill gases that are flared or landfill gases that are sent to a third party for generating heat or power.

Based on recent discussions between EPA and the North Carolina Department of Environment and Natural Resources (DENR), the DENR has not received assurance from EPA that combustion of landfill gases is

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Three Important Issues



Materials to be processed with biomass into a green fuel.

exempt from the restrictive regulations under the CISWI rules. Although EPA has assured various industrial stakeholder groups that it has every intention of exempting uncontained gases from being classified as "solid wastes," the proof will be certain when the proposed NHSM rule is published (the Boiler MACT, CISWI rule and NHSM definition have been at the Office of Management and Budget for more than six weeks now so it is likely that there are still discussions being held about the scope of these rules).

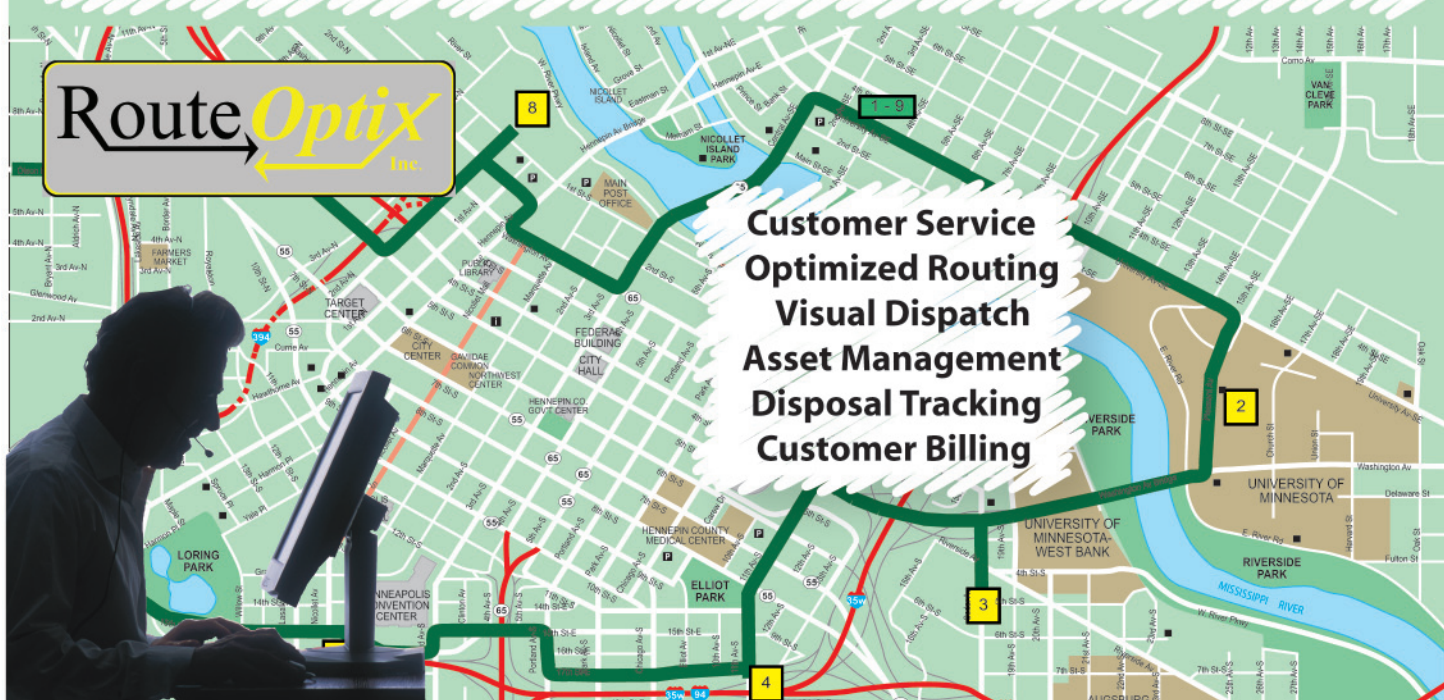

It is important to note that the scope of the three regulations covered in this article is representative of early July 2012. Promulgation of pending rules, EPA guidance and even stakeholder litigation could result in a different interpretation of the information presented.

The waste and recycling industries have always presented opportunities for the innovative reuse of materials that benefit the generator, the end user, entrepreneurs and arguably the environment. However, the opportunities that are present can be significantly diminished by being caught

unprepared for these three regulations and possibly others. Fortunately there are tools that can provide customized and succinct monthly summaries about changes in environmental regulations across all media and at all levels: federal, State and local. With a reliable and custom summary of environmental regulations that addresses only those regulations that have the potential to impact you and your business, you can address issues upfront and aggressively, resulting in more time available to run your business effectively and without environmental compliance issues. **WA**

Dan Holland is a founding partner and principal air quality consultant with ALL4 (Kimberton, PA) and an EnviroReviewTM consultant. His career spans almost 30 years during which time he has provided air permitting and air dispersion services to a variety of industrial clients throughout the U.S. Most recently, he has focused on NHSM determinations and other beneficial reuse projects. Dan can be reached at (610) 933-5246, ext. 15, via e-mail at dbolland@all4inc.com or visit www.all4inc.com.

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Leveraging Emerging Management System Standards to Create Improved EHS and Sustainability Performance

Susan Mazzarella, LEED AP and Harmony Scofield

Management systems can strengthen business advantage by **PROVIDING BETTER DATA ACCURACY AND TRANSPARENCY**, and provide increased opportunities for cost avoidance and cost savings, while also creating opportunities for improving profit margin.

MANAGEMENT SYSTEMS ARE BECOMING MORE

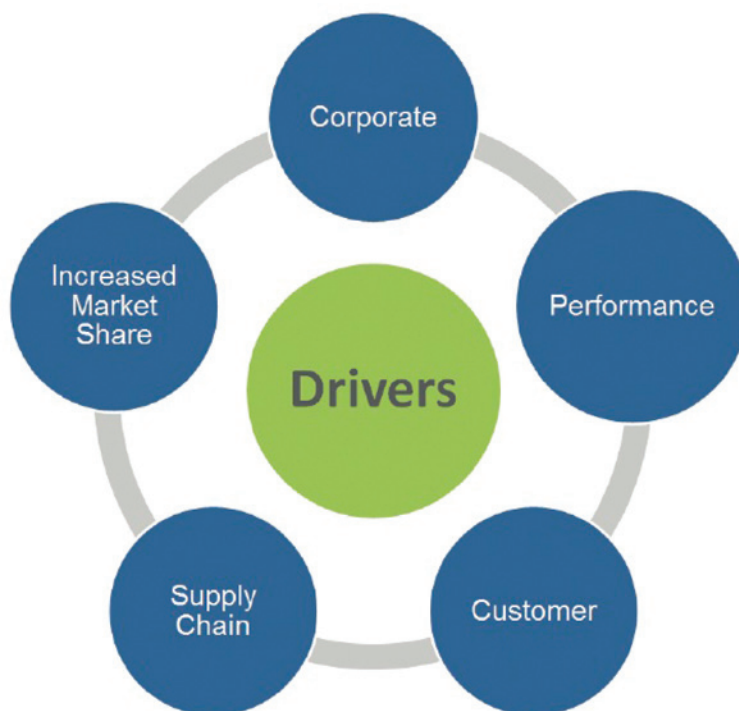
common in business as companies seek reputable ways to demonstrate responsibility to the international community. The International Organization for Standardization (ISO) continues to develop and improve international standards for environment, health and safety (EHS), security and many other business processes. Understanding these new and emerging standards can be key in developing your own management systems to maximize business efficiency, improve profit/cost ratios, reduce environmental and energy impact, and improve your organization's reputation in the business community. Certifying your organization to one or more standards can improve credibility, both internally and externally, and demonstrate your commitment to performing above conformance level and becoming an industry leader in EHS and related issues.

This article will discuss some of the benefits, drivers

and challenges of establishing a management systems approach in your business. We'll provide an overview of some of the newer EHS and related management systems, as well as some of the advantages of developing a management system in the waste management industry to track and improve such factors as overall environmental footprint, safety and health concerns, or energy usage and management. In addition, we'll discuss how a customized integrated management system—comprising elements of two or more standards—can maximize benefits as it decreases time and resource requirements.

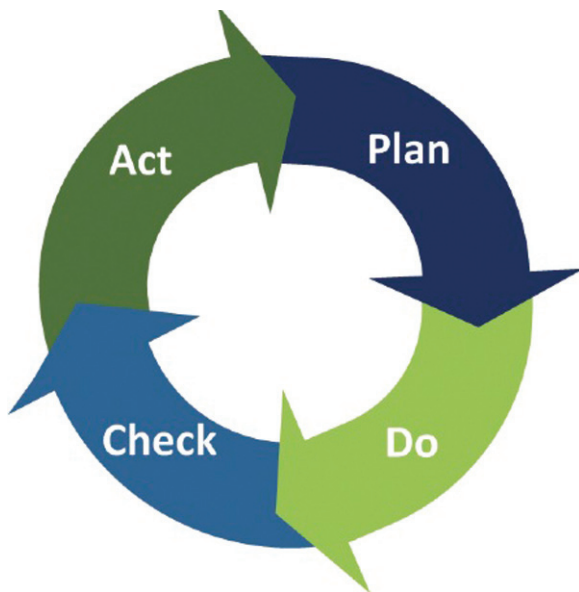
What is a Management System?

A management system is a framework of processes and procedures that help ensure that an organization can fulfill all tasks required to achieve its objectives. This framework includes responsibility/accountability for



What's driving management system certification?

Images courtesy of EORM.



Continual improvement through the Plan, Do, Check, Act process is integral to management system success.

tasks and processes, a schedule for activities to be completed, an auditing tool and a corrective action process. The system supports improved company performance through a process of continuous improvement, most often described as "Plan, Do, Check, Act." Management systems align with existing company goals and provide measurable results to report to internal and external stakeholders

Management Systems Drivers

Companies are driven to develop a management system or seek certification to international standards for many reasons, both internal and external. External drivers include customer and stakeholder expectations, as well as supply chain demands. As more companies seek to improve their sustainability and social responsibility and decrease their environmental impact, large companies are requiring more rigorous standards up and down their supply chains. This may already be a factor in how your organization does business; demonstrating conformance to a standard may be an attractive feature to customers and other stakeholders. Some companies see the benefit to performance, as streamlining processes and procedures can lead to reduced costs and improved profit and efficiency. The time spent developing a management system can quickly show measurable results to process efficiency and a return on investment. Increased performance may then lead to increased market share, which can be a powerful driver for management and stakeholders. Finally, corporate and upper management may make the internal decision that the company, subsidiary or specific sites will conform or be certified to a standard, so management decisions can be a driver as well.

Key Benefits of a Management System

Companies can realize many benefits from developing a management system, including:

First Steps to Implementing a Management System

Getting started can be the most challenging part of developing and implementing a management system. For waste and recycling companies, here are some first questions to ask and steps to take as you begin the process:

- 1. What are others doing?:** Benchmarking against competitors, customers and suppliers can help your organization determine which management systems standards are important.
- 2. What's important internally?:** Get internal stakeholders engagement to determine how management systems standards align with other organizational goals.
- 3. What's our focus? What system is right for our business?:** Select the management system or systems that you want to implement.
- 4. Where are we now?:** Conduct a Gap Assessment against the selected management system(s) standards.
- 5. What needs to happen before we can be certified?:** Develop an Action Plan of activities that need to occur to meet the intent of the selected standards.



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- Sustainable, organized, replicable risk management approach
- Improved EHS performance and communication
- EHS goals that align with the company's missions, visions and policies
- Efficient use of resources
- Proactive response to stakeholder interest (employee, stockholders, customers)
- Cost avoidance/cost savings
- International recognition

Overview of Common Management System Standards

These most widely used management standards have excellent application for any organization dealing in solid waste or recycling. EHS management systems can enable companies to better manage their overall environmental footprint,

while focusing on the most important safety and health issues facing employees. Companies can track energy usage and resources, health and safety and ergonomics plans, and overall waste generation through the management system, and provide evidence of continual improvement year over year in these areas, while maximizing efficiency for day-to-day operations.

Quality: ISO 9001

The world's most established quality framework, ISO 9001 is used by approximately 1,064,000 organizations in 178 countries worldwide. ISO 9001 sets the standard not only for quality management systems, but also management systems in general. This standard is suitable for any organization looking to improve the way it is operated and managed, regardless of size or sector.

Benchmarking: Who's Getting Certified?

Intel

The world's largest semiconductor manufacturer is certified companywide to ISO 14001 and OHSAS 18001.

Johnson & Johnson

J&J has 99 percent of all manufacturing sites certified to ISO 14001, with 30 percent of sites also certified to OHSAS 18001.

Ford

This auto manufacturer has all manufacturing facilities and product development functions certified to ISO 14001. Additionally, preferred "Q1" suppliers of production parts are required to certify their facilities.

Your Name Here

You don't have to be one of the world's largest companies to get the benefits of certification. Small companies and even individual sites of larger organizations can develop and certify their management systems.

Environmental: ISO 14001:2004

ISO 14001, the Environmental Management System, is a management tool enabling an organization of any size or type to:

- Identify and control the environmental impact of its activities, products or services
- Improve its environmental performance continually
- Implement a systematic approach to setting, achieving and demonstrating achievement of environmental objectives and targets

Occupational Health and Safety: OHSAS 18001:2007

The Occupational Health and Safety Management System provides a framework to:

- Consistently identify and control health and safety risks
- Reduce the potential for accidents
- Aid legislative compliance
- Improve overall performance

This standard can be adopted by any organization wishing to implement a formal procedure to reduce the risks associated with health and safety in the working environment for employees, customers and the general public.

Implementation and Ongoing Challenges

Many challenges can arise when developing and implementing a management standard. Finding time and internal resources to dedicate to the process is one of the biggest challenges. Additionally, it can be challenging to put together a qualified team who has expertise in the area of the standard. Once the process is in motion, demonstrating return on investment to your management team or stakeholders can be a challenge, as the initial outlay of resources may overshadow the immediate return. Once a program is in place, finding new ways to continually improve performance can also become a challenge.

Detailed Overview:

ISO 50001 Energy Management System

ISO 50001 is a framework for organizations to manage energy use—both energy sources and energy efficiency. Most organizations have energy as a significant environmental aspect, so this is highly applicable in most industries, including industrial, commercial, institutional and governmental facilities. Key benefits include:

- Savings on energy bills
- Sustainable use of finite energy resources
- Framework to evaluate and prioritize energy efficiency improvements
- Reduction in GHG emissions
- Transparency in energy use

In addition, there are numerous supply chain benefits, including improved accuracy associated with Scope 1 and Scope 2 GHG emission quantification. This can create increased opportunity for cost savings and margin benefits to companies who choose to record and report on this data.

The ISO 50001 structure is comparable to most of the other ISO standards, and aligns well with ISO 14001. The continual improvement process follows a "Plan, Do, Check, Act" framework. For energy management, this leads to specific tasks and processes in each stage, as follows:

- *Plan*
 - Conduct an energy review to establish baseline energy usage
 - Establish energy performance indicators
 - Establish objectives, targets and action plans necessary to deliver results to improve energy performance and the organization's energy policy
- *Do*
 - Implement the energy management action plans
- *Check*
 - Monitor and measure processes and the key indicators that determine energy performance against the energy policy and objectives
 - Report the results
- *Act*
 - Take actions to continually improve energy performance and the Energy Management System (EnMS)

EHS Management System Standards

Other Emerging Standards

Companies in the waste management and recycling industries may find value in incorporating these new standards into existing management systems, or developing a system using the new standards. Energy management, greenhouse gases and business continuity may be of specific interest to larger companies employing fleets or multiple facilities. Companies of any size can benefit from additional focus on reducing energy and managing carbon and environmental footprint, both in saved resources and in reputation—"green" or sustainable companies are in high demand among consumers and stakeholders.

ISO 14006: Guidelines for Incorporating Eco-Design

Although not intended for certification, ISO 14006 provides guidelines to assist organizations in continually improving their management of eco-design as part of an environmental management system (EMS). It is intended for organizations that have already implemented an EMS in accordance with ISO 14001, but can also help in integrating eco-design in other management systems.

ISO 14044: Life Cycle Assessment

ISO 14044:2006 specifies requirements and provides guidelines for life cycle assessment (LCA) and can assist in:

- Identifying opportunities to improve environmental performance
- Providing information to decision-makers for strategic planning, priority setting, product or process design/redesign

ISO 14001: Environmental Management System

OHSAS 18001: Occupational Health & Safety Management System

ISO 9001: Quality Management System

RC 14001: Responsible Care Management System

ISO 14006: Guidelines for Incorporating Eco-Design

ISO 14044: Life Cycle Assessment

ISO 14064: Greenhouse Gas Emissions

ISO 22301: Societal Security – Business Continuity

ISO 26000: Guidance on Social Responsibility

ISO 28001: Security Management

-
- Selection of relevant environmental indicators
 - Marketing (e.g., eco-labeling scheme, environmental claims, environmental product declaration)

ISO 14064: Greenhouse Gases

ISO 14064-1:2006 specifies principles and requirements at the organization level for quantification and reporting of greenhouse gas (GHG) emissions and removals. This standard includes requirements for the design, development, management, reporting and verification of an organization's GHG inventory.



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ISO 22301: Societal Security – Business Continuity

This new standard for 2012 focuses specifically on business continuity—protecting your organization in the event of business interruption. The standard specifies requirements to develop and manage a documented system to “protect against, reduce the likelihood of occurrence, prepare for, respond to and recover from disruptive incidents,” according to the abstract on the www.iso.org Web site. This system could support an already developed emergency management system, or assist companies in developing emergency management, disaster recovery and business continuity programs if these are not already in place.

ISO 26000: Social Responsibility

ISO 26000 aims to be a first step in helping organizations achieve the benefits of operating in a socially responsible manner. It is not intended for certification, but could be incorporated into another management system as part of an integrated management system approach. This standard provides guidance on:

- Concepts, terms and definitions related to social responsibility
- Background, trends and characteristics of social responsibility
- Principles and practices relating to social responsibility
- The seven core subjects: human rights, labor practices, environment, fair operating practices, consumer issues, and community involvement and development
- Integrating, implementing and promoting socially responsible behavior throughout the organization and, through its policies and practices, within its sphere of influence
- Identifying and engaging with stakeholders
- Communicating commitments, performance and other information related to social responsibility

ISO 28000: Supply Chain Security

ISO 28000 is the specification for security management systems for the supply chain. This standard details the requirements for a security management system, including those aspects critical to security assurance of the supply chain, including transporting these goods along the supply chain. Organizations can seek certification/registration by an accredited third-party Certification Body, or make a self-determination and self-declaration of conformance. There are associated legislative and regulatory codes that address some of the requirements in ISO 28000:2007.

Create Your Own!

Now that we’ve discussed some of the options for individual management systems, here are some ideas for creating an integrated management system: combining multiple standards to develop a customized program. These integrated systems can help avoid duplicating efforts as you begin to document aspects of EHS programs, and are a good way to ensure that the company focuses on the areas with the most opportunity for continual improvement and return on investment. Take a look at a few examples of combining multiple management systems to create one integrated system:

- Sustainable Building Management System
 - ISO 14001
 - Leadership in Energy and Environmental Design (LEED)
 - ISO 26000 and the Global Reporting Initiative (GRI)
- Product Compliance Management System

- ISO 9001
- ISO 14001
- International product compliance regulations (e.g. RoHS, WEEE, REACH)

What’s Best for Your Organization? What’s Next?

The first step in getting started with a management system is to determine which of these standards have relevance for your organization. As your team investigates the various options, ask yourselves:

- Does this system align with our significant aspects/hazards, objectives and targets?
- Does it align with our corporate goals?
- Does it align with customer/stakeholder expectations?
- Does it align with employee interest?

Once you have determined the best system or integrated system, you can begin the process as outlined in the specific standards you have chosen, using the “Plan, Do, Check, Act” model as a framework.

Creating Improved EHS and Sustainability Performance

Though the initial resources to develop a system may not be insignificant, the benefits that the organization will enjoy year after year make a management system an attractive option for companies looking to improve environmental, health and safety and sustainability management and reporting. Management systems can strengthen business advantage by providing better data accuracy and transparency, and provide increased opportunities for cost avoidance and cost savings, while also creating opportunities for improving profit margin. The process engages other business partners and can align your business with your supply chain. The framework for identifying and prioritizing aspects and hazards helps the company align and focus on the most important opportunities for improvement. Using recognized standards as a model for your EHS and sustainability process improvement can also increase confidence in the organization, facilitate ease of replication for other business partners or locations, strengthen the organization’s commitment to improvement and increase transparency of overall operations. Developing integrated management systems can benefit the company even more, because these build on existing systems rather than creating new ones, so processes and documents that apply to one system will also apply to the others. | **WA**

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For more information on ISO standards, visit www.iso.org.

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Public-Private Partnerships: Working Together For Better Performance, Efficiency and Service

Will Flower, John Trujillo and Aaron Lawhead

Given the capabilities, strengths and expertise on both sides, THE OPPORTUNITY EXISTS FOR THE PUBLIC AND PRIVATE SECTOR TO PARTNER and create a system in which everyone benefits.

PRIVATIZATION OF PUBLIC SERVICES OCCURS AT

all levels of government within the U.S. Over the past three decades, there has been an ongoing trend that has seen more and more governmental services being delivered through public-private partnerships. Some examples of services that have been privatized include airport operation, mass transit systems, data processing, vehicle maintenance, water and wastewater utilities, and the operation of prisons.

Waste collection, recycling and disposal services are others that are commonly privatized. Today, well over half of the cities in the U.S. contract all or part of their refuse collection and disposal services with companies. This number has nearly doubled from about 30 percent in 1991. Since the economic downturn began in 2007, more municipalities have been reviewing privatization as a way to deliver quality recycling and solid waste collection services to customers while controlling costs.

Common Concerns

The rationale behind privatization varies greatly. Some municipal managers point to the cost savings and the desire to reduce risks associated with providing waste management services. Others may opt for privatization as a way to avoid capital expenditures associated with landfill expansions and the development of new, high-tech recycling centers. Still others see privatization as a way to create new revenue through franchise fees.

The extent of privatization programs also varies dramatically from municipality to municipality. While some cities opt for complete privatization of all waste collection, recycling and disposal services, others select specific aspects such as only the collection of residential waste. Still

other cities and towns, only privatize support functions such as fleet maintenance or billing. Not everyone is a fan of privatization. Some of the more common concerns with public-private partnerships include the impact to public employees, transparency after privatization, concern over the control of public assets and the ability of government to effectively maintain control of services through a contract or agreement.

Managed Competition

For those municipalities not in favor of privatization, but who want to ensure that their costs are lower and the quality of services are improved, we have seen the growth of a competitive process referred to as "managed competition." The theory behind the process is to compare public sector costs with private sector costs to determine who can best provide services to customers at the lowest cost without compromising service quality. The concept of managed competition was pioneered by the City of Phoenix, Arizona in 1979 in response to severe economic conditions.

The growth of managed competition is attributable to the advantages not provided by a pure privatization effort. Whereas profit drives business, the goal of managed competition is to encourage competition and offer an open and flexible process that attracts the greatest quantity and quality of bidders. Additionally, managed competition allows the process to focus directly upon the quality of customer service.

Managed competition is complex and if not properly managed, issues with customer service could occur. Also, because different companies may be providing service to customers, the potential exists for a lack of consistency across the different service areas within a given municipality.

Making Public/Private Partnerships a Success

Regardless of the services that are privatized, it is critical to know that every successful public-private partnership requires a clear understanding of the roles



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and responsibilities of the partnering organizations. It is also critical to note that government's responsibilities and involvement do not go away with privatization. Indeed, government has the ultimate responsibility for protecting the public health and the environment. Experience has proven that privatization requires increased contractual oversight, management and regulatory responsibility by government. Additionally, government remains responsible for the planning activities associated with successful, long-term management of solid waste.

The job of the private sector is to fulfill the terms of the contract and deliver quality-assured, cost-effective services. The investment of capital to purchase collection vehicles, hiring of staff and construction of facilities is the risk the private sector accepts while working to ensure environmentally sound collection and disposal of society's waste.

The private sector also plays a vital role in the planning process by providing advice, expertise and insight to professional planners. However, ultimately, the single most important responsibility of waste collection service providers is to respect the "customer." The goal should always be to fulfill the terms of the contract and provide customers with quality services.

Clear Expectations

In addition to each partner understanding its particular responsibilities, successful public-private relationships require a clear understanding of the

roles and expectations of the other partner. This "setting of expectations" should occur long before a vendor is selected.

Solid waste collection can involve an array of different services. Therefore, municipal officials must first conduct a thorough evaluation and review of the options available for solid waste services. Next, the municipality must develop well-designed scope of work that defines the expectations, roles and responsibilities in a Request for Proposal (RFP) or Request for Bid (RFB) document. Additionally, the RFP or RFB should:

- Explain the qualifications required for submitting a proposal or a bid
- Define the services that are required
- Identify the evaluation criteria that will be used to review the responses
- Identify who from the municipality will be involved in the review and evaluation process
- Provide a schedule or calendar for the RFP or RFB process

By following a well-defined and formal process, the municipality can retain ownership and control of it. Unfortunately, poorly defined scopes of work and ambiguity within an RFP or RFB can result in significant problems down the road. As a matter of fact, there appears to be more problems in this phase than anywhere else in the public/private process.

To ensure proper transparency and allow the municipality to effectively measure and monitor the performance of the selected partner, it is important to address requirements for sharing data in the RFP or RFB. Municipalities must spell out the schedule for implementing contractual requirements and be able to impose financial penalties when operational and/or reporting requirements are not met.

Once the scope of service is defined, public officials need to clearly define minimum service-level requirements. This includes such matters as frequency of collection, permitted hours of operation, insurance and bonding requirements, health and safety restrictions, permissible service complaint levels, daily reports and other basic service parameters. The municipality may also wish to include provisions for service continuity following natural disasters such as large storms (hurricanes, tornadoes, floods, snow storms, etc.). Leaving room for interpretation only leads to confusion and frustration later in the relationship.

The municipality also must be fair and practical during negotiations. It should be noted that price cannot be the only factor that government considers when evaluating a vendor's proposal. Factors such as the vendor's past experience, including customer service, financial condition and the ability to fulfill the terms of the contract also must be evaluated and taken into consideration during the procurement process.

Finally, once a contract is signed, both sides need to work diligently to be fair throughout the life of the contract. Make no mistake—the hard work for both the contractor and the municipal officials commences following vendor selection.

Structuring a Public-Private Partnership

There is no single best way to structure the contracting of solid waste and recycling collection services. However, in any contracting decision, the twin goals of service quality and competitive cost should guide the design of the bidding process and the delineation of contract details. Ultimately, long-term success of contracting depends on de-politicizing the contracting decision as much as possible, using clear quantitative and qualitative performance standards and clearly spelling out the responsibilities of the public and private sectors.

Win-Win Relationships

Successful public-private partnerships are often referred to as "win-win"

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relationships. Examining the “wins,” we see that the public sector benefits when it is able to provide quality services at lower costs, increase efficiency/effectiveness, create a cost-conscious environment and increase public confidence.

The private sectors’ “wins” are often measured by profitability—that is, the return that a company realizes on invested capital. Routing density, purchasing power, the length of contract and specific requirements for insurance, equipment, staffing, billing and reporting are other factors that can affect profitability. Good general managers of waste collection companies diligently work to ensure that quality services required by the contract are being delivered with the utmost care and efficiency to ensure a well-deserved profit. Carelessness or a lack of attention to the delivery of quality service can result in financial hardship and a damaged reputation.

Throughout the U.S. there are many examples of “win-win” relationships. The public and private sector has proven their ability to provide cost-effective solid waste services. Subsequently, municipalities have saved millions of taxpayer dollars without adversely impacting the quality of service to residents.

In the end, environmentally sound solid waste management is a service for which local government is responsible. Providing service that exceeds the highest expectations of the customer in a cost-effective manner is the responsibility that lies with the service provider. Government is there to protect public health, which means ensuring that the job gets done right.

Given the capabilities, strengths and expertise on both sides, the opportunity exists for the public and private sector to partner and create a system in which everyone benefits—a true win-win relationship.

As General George S. Patton once said, “Never tell people how to do things. Tell them what you want to achieve, and they will surprise you with their ingenuity.” That is the way of the 21st century—to achieve great things not through regulatory command and control, but rather through government planning and setting innovative and realistic goals and objectives for quality public service and then working in cooperation with the private sector to develop ingenious ways to achieve, and hopefully exceed, those goals. | **WA**

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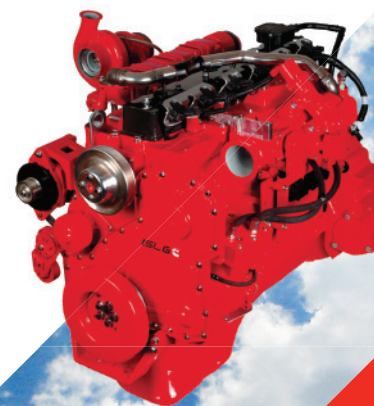
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Hard Times In Insurance

Nathan Brainard

As a hard market insurance market becomes a reality, CARRIERS HAVE BEGUN TO TIGHTEN THEIR UNDERWRITING GUIDELINES, becoming more selective on which companies they offer terms to while at the same time increasing their rates.

SEVERAL MONTHS AGO WE PUBLISHED AN ARTICLE indicating a hard insurance market was looming (*Waste Advantage Magazine*, December 2011). Hopefully, the message was heard and companies took heed as that indication has started to become a reality. As a basic description, a hard market comes about when carriers begin to tighten their underwriting guidelines, becoming more selective on which companies they offer terms to while at the same time increasing their rates. Furthermore, the competitive nature that has existed for the past few years has decreased as fewer carriers are interested in specific classes of business, in this case, waste collection, processing and recycling.

By the Numbers

Per OSHA, the waste industry is among the most hazardous in the nation, ranking 7th highest in worker fatality rate. The number of collection worker deaths increased in 2010 by 30 percent, and while the official 2011 Bureau of Labor Statistics (BLS) data for the waste industry has not yet been released, informal indications are that there was a slight decrease in collection and landfill worker fatalities, but an overall increase in recycling facility deaths. The BLS has released numbers for all industries as a whole, but industry-specific data will most likely not come out until late August of this year. In 2011, the NSWMA was aware of 46 worker fatalities. This includes 10 fatalities at recycling facilities and two deaths at a California composting facility.

This data is not lost on carriers servicing our industry. In fact, the same way the BLS and OSHA track these injuries, so do the insurance carriers. Additionally, they keep their finger very close to the pulse of what other carriers are doing in specific market segments. Underwriters are aware that there is less and less competition for the waste and recycling industries. Don't get me wrong, there are still multiple carriers out there interested in these classes of business, but the playing field is a fraction of what it was four or five years ago, and it is fair to speculate that this is one factor in rate increases.

Loss Ratios

Over the past five years, we have seen some of the most tenured industry insurance carriers back out of the industry due to adverse loss ratios. We saw a number of "new carriers" try to enter the marketplace without truly understanding the industry. They bit onto the lure of large trucks and large premiums without ever getting to really know our industry. They tried to buy business with low rates thinking they could do cash flow underwriting (this is when a carrier writes business

and uses incoming premiums to pay incurred claims hoping to eventually hit and surpass the breakeven point and turn a profit). It is extremely risky and rarely works, especially in an industry where losses can be so substantial.

When a collection truck moving at a fair rate of speed hits a private passenger vehicle, the resulting damage is typically catastrophic to the private passenger vehicle while the collection vehicle many times suffers minimal damage. Situations like this have driven carrier loss ratios in the wrong direction and are ultimately responsible for the withdrawal of many of the long-term carriers. This same scenario is also the reason why many "new" carriers stay far away from the industry, or why "industry programs" sometimes go through insurance carrier changes. Insurance carriers are in this to make a profit and they can only take so many losses before throwing in the towel. A prime example of this adverse loss ratio is the current death toll involving refuse collection vehicles in 2012. As of June 14, according to David Biderman, NSWMA's Safety Director, there have been at least 42 third-party fatal accidents involving the solid waste industry. This is a staggering number as we are less than half way through the calendar year.

Worker-Related Injuries and Accidents

It is not just our vehicles that pose a problem. The daily physical demands on employees in the industry cannot be overlooked. Worker's compensation rates from Florida to California are on the rise. We are seeing rate increases from 8.9 percent to 40 percent or more depending on the classification code and State. Because of the physical nature of the job, employees of the waste and recycling industries are exposed to all kinds of injuries from strains and lacerations to respiratory and other types of infections. The primary worker-related injuries/accidents we are seeing thus far in 2012 seem to revolve around two main operational procedures; Lock Out/Tag Out (LOTO) and Backing of Vehicles and Equipment. Theoretically, these should be areas where no accidents are taking place, but because many workers are trying to get their jobs done faster so they can move on to the next project, corners are cut and safety guidelines and procedures are ignored. It is amazing how often it is determined during the subsequent investigation that management is "talking" safety, but supervisors are not "walking" safety. Every employee feels the pressure of getting the job done and meeting deadlines; however, ignoring safety-related matters not only impacts specific companies, but also the industry as a whole. If a company is truly serious about their

safety culture and enforcement of safety practices it needs to be exemplified from ownership down.

Unfortunately, occupations in higher risk tiers are the first to see large increases. It should not come as a surprise that the primary industry classification code 9403—Garbage, Ash and Refuse Collection—is in the aforementioned highest tier. While experience modifiers do play a factor in a company's worker's comp rates, the overall performance of the industry is a much more relevant item. While a single carrier might sustain many losses and another only a few for a specific industry, the data for all losses is ultimately shared, compiled, analyzed and used to determine what will happen with the rate by classification code for the coming year. This is broken down on a State-by-State basis; however, the overall data as mentioned is used to make this determination. This specifically pertains to NCCI (National Council on Compensation Insurance) based States; however, many monopolistic and non-NCCI States also use this data to determine rating structures for their coming year.

Equipment and Property

As for equipment and property, those rates are also on the rise. Recently, one of the largest players for Inland Marine/Contractors Equipment insurance for the industry started pulling back and then several months later announced they were no longer interested in operations with landfill or recycling operations at all. They had gotten inundated with claims from landfill fires, theft from landfills, facilities and yards. Ultimately, it boiled down to another example of adverse loss ratio.

For physical structures such as offices and facility buildings you can thank mother nature. Last year was the single worst year for losses incurred by insurance and reinsurance carriers since they began tracking that data over 100 years ago. The earthquakes in Japan and New Zealand, flooding in the Central U.S. as well as all of the tornadoes have given carriers an underwriting premium deficit on property policies and they are now looking to recoup the losses.

Distribution

The most common reaction we hear is, "Well nothing happened in my State? Why are we getting the rate increases?" The simple answer is risk distribution. Carriers look to distribute the allocation of policies over a large geographic area to spread out their risk. The hope is that North Carolina might manage to avoid being hit by a hurricane, but there is no guarantee, so they offer policies in a landlocked state like South Dakota that should be relatively incident free in an effort to hedge their bets. If North Carolina does, in fact, get hit, they have premium from other states to apply and offset those losses. When these claims occur, everyone, whether in the affected State or not, feels the increase (though those in the affected State feel a much larger brunt of the increase and justifiably so).

So what can you do to minimize your premium increases? This is going to be a case-by-case basis as we are not all conducting the same operations; however, there are three items currently considered "hot buttons" by underwriters.

Integrity Testing

While the pricing varies depending on the company being used to perform the actual test it is money well spent. This test can help you determine if the potential employee will steal from you, file a fictitious claim or is prone to lying or drug use. Many of them can also determine if a potential hire will leave for another job paying \$0.25 more per hour after you have spent thousands of dollars on training that, ultimately, helps you reduce turnover and training expenses.

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Safety Culture

There are many things encompassed here, but the overall message is proper training and documentation of that training. If you hire an employee and the training consists of filling out paperwork and then putting them behind the wheel or in the yard, your program stinks. Carriers not only want to see a formal training program lasting several days or weeks (depending on the job), but they also want to see ongoing training, as well as regular updates to company safety protocols based on real-life experiences within the company and industry alike.

Another key item related to safety is the verification and review of Motor Vehicle Reports (MVRs). Whenever you are hiring someone for a driving position you should be pulling a copy of the MVR and checking to see what, if any, infractions they have. Furthermore, each company should have internal guidelines separate from those of the insurance carrier that they adhere to. All carriers have driver guidelines that must be met in terms of points on a license and infractions. Ideally, a company will have their own guidelines that are at least as restrictive as those from the carrier, or even better, a bit more restrictive thus showing their commitment to hiring safe drivers to put behind the wheel of their vehicles.

Lastly, there are a number of resources out there waste and recycling companies can take advantage of. For example, members of the NSWMA receive a weekly newsletter entitled *Safety Monday* that brings an industry-specific topic to the desk of the company's representative for presentation to the workforce in addition to other industry specific related services.

Maintenance Program

If your drivers are doing their vehicle pre- and post-trip inspections in three minutes, they are not doing it properly. Management may like how fast they can get it done, but wouldn't they like it better if it took 15 minutes and they did a thorough job? The more thorough the inspection, the more likely they are to find a real maintenance issue (such as worn tires, deficient brakes, broken strobe lights, etc.), which could ultimately prevent an accident.

Obtain Available Services

There are a number of resources out there to obtain these services, and some of the more savvy insurance agencies are now providing these services either in-house, or they have aligned themselves with partner providers to assist their clients at reduced rates. As we have recommended in the past, find an agent who specializes in the industry. The Waste and Recycling sectors are not vanilla operations like restaurants. They are high hazard industries that need the attention of someone with industry expertise who can be a trusted advisor to your company. Unfortunately, company owners can work a lifetime to build their company, but one knucklehead can bring it all crashing down if there is an uncovered claim. | **WA**

Nathan Brainard is Vice President, Environmental Division, at Insurance Office of America (IOA) (Longwood, FL) and a member of the NSWMA Safety Committee. Nathan has been with IOA for seven years and specializes in Environmental Insurance with an emphasis on insurance for the Waste, Recycling, Remediation and Demolition industries. He can be reached at (407) 998-5287 or via e-mail at nathan.brainard@ioausa.com.

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Fuel in the Rail Industry

Darell Luther

As more waste commodities require longer haul distances for disposal, reprocessing or recycling the continued RAIL FUEL GAINS WILL TRANSLATE INTO MORE ECONOMICAL TRANSPORT OPTIONS that are also environmentally friendly.

“ONE TON OF FREIGHT, NEARLY 500 MILES ON ONE

gallon of fuel,” as advertised on television by a major Class I Railroad catches one’s attention. Fuel is an important component of any bulk transporter’s cost and in an industry that moves billions of tons of freight annually, it’s even more important. In 2011, freight railroads, consisting of nine (U.S., Canada and Mexico) Class I railroads and approximately 500 plus regional and shortline railroads, generated more than \$50 billion in freight revenues.

Railroads are classified based on their operating revenues; freight railroads are categorized into three segments: Class I with annual operating revenues above \$346 million, Class II with revenues in the range of approximately \$27.8 million to \$346 million and Class III (generally called shortlines) for those that fall under the \$27.8 million range.

The fuel use of these combined railroads is an astronomical number. Class I railroads reported locomotive fuel consumption in 2009 for transporting freight (excludes transporting maintenance of way and passenger cars) of 3.192 billion gallons. This equates to an average of hauling one ton of freight 480 miles on one gallon of fuel. That’s up from 436 ton-miles in 2007 and 457 ton-miles in 2008. The advertised rate on television of “nearly 500 miles on one gallon of fuel” reflects more fuel-efficient and hybrid locomotive replacements and unit train efficiencies driving even more efficiency out of each ton mile of freight.

As more waste commodities require longer haul distances for disposal, reprocessing or recycling, the continued rail fuel gains will translate into more economical transport options that are also environmentally friendly.

Table A:
EP 290 (Sub-No. 5) (2012-3). All Inclusive Index of Railroad Input Costs.**

LINE NO.	INDEX COMPONENT	2010 WEIGHT	SECOND QUARTER 2012 FORECAST	THIRD QUARTER 2012 FORECAST
1	LABOR	33.3%	385.8	391.4
2	FUEL	18.0%	409.4	353.4
3	MATERIALS AND SUPPLIES	5.0%	274.01	274.8
4	EQUIPMENT RENTS	6.2%	204.8	205.8
5	DEPRECIATION	12.8%	211.4	211.7
6	INTEREST	2.9%	90.6	90.6
7	OTHER ITEMS ²	21.8%	218.8	221.6
8	WEIGHTED AVERAGE	100.0%	305.9	298.5
9	LINKED INDEX ³		296.6	289.4
10	PRELIMINARY RAIL COST ADJUSTMENT FACTOR ⁴		120.6	117.7
11	FORECAST ERROR ADJUSTMENT ⁵		-0.022	-0.006
12	RCAF (UNADJUSTED) (LINE 10 + LINE 11)		1.184	1.171
13	RCAF (ADJUSTED)		0.520	0.513
14	RCAF-5		0.492	0.485

Table courtesy of AAR.



History of fuel prices applied to rail. Image courtesy of Darell Luther.

Fuel Index

Fuel is extremely important in the railroad industry as a major cost component. Fuel represents the second highest line item cost to railroads at 18 percent of overall railroad input costs. Labor is the highest single line item cost at 33.3 percent of overall railroad input costs. Labor and fuel are the two major inputs to an index of railroad expenses called the Railroad Cost Recovery Factor developed by the Association of American Railroads (AAR) and approved by the Surface Transportation Board (STB), a first generation regulation governance body put in place after the demise of the Interstate Commerce Commission in 1995. The STB is responsible for calculating the index of railroad input prices and the method of computing the rail cost adjustment factors in Railroad Cost Recover Procedures (see Table A).

Fuel Application to Freight Rates

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Fuel in the Rail Industry

adjust their rates and tailor service to meet shipper needs and their own revenue requirements. Not only did railroads have the flexibility to disengage from costly assets that weren't generating returns such as under-used branch lines, but they also had the ability to apply selective pricing.

It wasn't until the early 2000s that Class I railroads faced with rapidly expanding fuel costs segregated the cost of fuel from other cost components and implemented a fuel surcharge. At first, these fuel surcharges were generally charged as a percentage of the freight tariff or contractual agreement. Over time, they grew to take on many forms and by the early 2000s, most all Class II and Class III railroads had also implemented fuel surcharges.

A regulatory proceeding engaged the STB on January 25, 2007 to standardize fuel surcharges across railroads and ruled that, among other things, computing rail fuel surcharges as a percentage of a base rate is an unreasonable business practice because rail rates do not accurately reflect the additional cost of fuel used in individual movements. Railroads (in the U.S.) had until April 26, 2007 to comply with the STB ruling. While standardization of the fuel surcharge process pleased many shippers that moved commodities across various railroads, the continuous increases in fuel surcharges did not.

Current Fuel Surcharge Methodology

The standardization by the STB of fuel surcharge methodology went on to require that railroads use the U.S. Average Retail On-Highway Diesel Fuel (HDF) as reported by the U.S. Department of Energy Web site as an index in calculating fuel surcharges. These HDF prices are then used as the basis for fuel surcharge billing. Currently, the HDF is used to index fuel price changes

and are applied to shipments either through a mileage-based program or a percentage-of-revenue-based program.

Recent Rail Fuel Legal Issues

Despite the standardization of methodology by the STB, many shippers still believed that railroads were using fuel surcharges to unilaterally increase freight rates with no bearing on actual railroad fuel costs. Shippers representing large American corporations in the chemicals, agriculture, automotive and public utility industries filed original lawsuits in 2007 combining a total of 18 similar lawsuits. Earlier this year, those suits were combined into a Multi District Litigation (MDL) against the four largest U.S. railroads comprised of the BNSF Railway, Union Pacific Railroad, Norfolk Southern Railway and CSX Transportation.

This MDL is certified as essentially a class action lawsuit and includes all direct purchasers of rate unregulated rail freight transportation services and applies to fuel surcharges that were applied from mid-2003 to 2008.

It Bears Watching

Although the waste industry uses rail to an extent, it is generally a small percentage of the transport options used by this industry; however, class action suits tend to run the gambit of the industrial sector to which they are applied. There's somewhat of a tsunami effect going on here, does an industry that is heavily fuel dependent, as is the waste industry, stand by and watch hoping to reap the rewards of adjusted fuel surcharge indexes or participate, hoping the tsunami wave isn't directed to the truck side (waste collection, etc.) of the industry thus having a direct effect on those companies that also use fuel surcharges as part of their pricing methods?

In either case, one can expect at the end of the day that rates will be adjusted to compensate for any fuel surcharge revenue generation differentials a win or loss will cause. | **WA**

Darell Luther is president of Forsyth, MT-based Tealinc Ltd., a rail transportation solutions and railcar leasing company. He can be reached at (406) 347-5237, via e-mail at darell@tealinc.com or visit www.tealinc.com.

***The Railroad Cost Recovery Factor is a forecast index of U.S. railroad expenses that is developed by the Association of American Railroads (AAR) and approved by the Board. It is published quarterly. The Board's predecessor, the Interstate Commerce Commission (ICC), outlined the procedures for calculating the all-inclusive index of railroad input prices and the method for computing the rail cost adjustment factor in Railroad Cost Recovery Procedures, 1 I.C.C.2d 207 served in 1984. 49 U.S.C. 10708 directed the board to publish both an unadjusted RCAF and Productivity-adjusted RCAF. The Board also decided to publish a second productivity-adjusted RCAF called the RCAF-5. Consequently, three indices are now filed with the Board by the AAR, the RCAF (Unadjusted), the RCAF (Adjusted) and the RCAF-5. The RCAF (Adjusted) reflects national average productivity changes as originally developed and applied by the ICC and is currently based on a five-year moving average measure of productivity. The RCAF-5 reflects national average productivity changes as if a five-year moving average measure of productivity had been applied consistently from the productivity adjustment's inception in 1989. For complete details and end notes, visit www.aar.org/~media/aar/RailCostIndexes/STB-RCAF-2012-Q3-decision.aspx.*



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Embracing Your Inner City Dog

John Wayhart

The three Ps of ZAC: **PREDICT – PREVENT – PROSPER**

GROWING UP IN THE CITY, I WAS ALWAYS AMAZED

when I would see a city dog stroll by. You know the ones that didn't have a permanent home and were often a source of amusement for neighborhood kids playing in the street. For some reason, those dogs never got hit by the bus, always sniffed around and located some source of food in the alley, and had that dogcatcher radar. They were what you call survivors—taking nothing for granted, reliable and consistently learning from their surroundings. Fast forward 20 years later and I find myself in the insurance and risk management world surrounded with the very same city dog concept in the workplace.

The workplace city dog has many similarities, but is somewhat different. The city dog in the workplace is an employee who is continually present, but doesn't make many waves. He or she does their job and doesn't complain, and they always find ways to provide for the organization. Like the city dogs that consistently avoid the cars, trucks and dogcatchers, these employees are prepared and never injured on the job. Is it luck or the 3 P's of a Zero Accident Culture (ZAC)—predict, prevent, prosper?



Predict

To generate a ZAC, you need to put on the psychic hat and predict where future incidents may occur. In other words, predict where the dogcatchers or heavy traffic might be within your organization or industry. If the city dog steps into a high traffic area and is surrounded by cars moving 45 mph and screeching to a halt, you can surely bet the dog will never go down that route again. That experience will help determine future actions and predict when or how an incident can occur. Another way to appropriately predict what can and should not happen incident-wise within the worksite is to seek out the city dog employees within your firm—the ones who are consistently prepared, reliable and knowledgeable of their surroundings. Here are some of the qualities of a city dog:

- Never had a work-related injury or a “lost time day”
- Resourceful, quiet and does not bring a lot of attention to themselves
- Experienced, dependable and never rushed
- Always on the job and prepared for work

Five Critical Steps of an Injury Review Process (IRP)

1. REITERATE:

Explain the importance of the IRP to all existing and new employees.

2. REPORT:

Timely (day of) recording of all facts related to the work injury.

3. PURSUIT OF ROOT CAUSE:

Understand the incident's root causation.

4. DOCUMENT LESSON LEARNED:

Use incident for training and teaching.

5. COMMUNICATE LESSON LEARNED TO ALL:

Respect the fact that something bad happened and honor the lesson learned so it does not happen again.

Embracing Your Inner City Dog

- Often overlooked when it comes time to celebrate success

Do you know who the “city dogs” are within your waste and recycling company?

Prevent

Just like the prediction phase, one of the tenets of creating and building a ZAC is the ability to learn from loss and take the necessary steps and procedures to prevent a similar situation in the future. If performed well, an incident investigation, injury review process, supervisor accident investigation or whatever your company may refer to it as, is an essential component of this notion. Understanding exactly what may have happened or the “root cause” of someone being injured at work or in your industry and then communicating the lessons learned to all employees to prevent reoccurrence is done flawlessly at waste companies that demand excellence.

Studies continue to show that “accident” investigations that are relentless in determining the root cause of loss are able to achieve tremendous success in the following areas:

- Reduction in the frequency of loss
- Increase in operational effectiveness
- Reduction of workers’ compensation costs
- Reduction in malingering or fraudulent claims
- Employer of choice

If your company is not doing an injury review process or simply going through the motions, I suggest you look into this high ROI technique that will immediately begin to show results throughout your operations (see Five Critical Steps of an Injury Review Process sidebar, page 41).

Prosper

Consider highlighting, interviewing and recognizing your pack of city dogs and role modeling their behavior and best practices to the rest of employees. City dogs are often overlooked as they are consistent and never showboat, but they are truly the backbone of a company’s success.

I once had the pleasure of interviewing someone who I thought to be a city dog in the waste and recycling industry. I asked him what the company could be doing better in regards to safety. He noted that the company should be taking much more time in the hiring process to evaluate who would be the most qualified and beneficial employees for the business and then take the due diligence in training them right the first time. Untrained people get injured, hurt the product and damage the company. When asked if anyone has ever talked to him about the operations and safety expectations of the company, he looked at me and said, “I always wondered when someone was going to start asking questions or gaining feedback of those who work in the field.”

Allow your organization to prosper by predicting and preventing incidents and furthermore identifying the city dogs at your waste and recycling facility. The effort and rewards are priceless. | **WA**

John Wayburt is a Senior Vice President at Assurance (Schaumburg, IL). With more than 29 years in the insurance and risk management industry, his expertise lies in providing solutions for a wide range of businesses including the waste and recycling industry. In the 1989, John trademarked the Zero Accident Culture® and continues to teach, coach and mentor this process to help drive down the cost of risk to improve operational effectiveness and financial results. This successful approach to insurance and risk advocacy is indeed a market differentiator. John can be reached at (847) 463-7161 or at jwayburt@assuranceagency.com.

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Examining the Waste Industry's Safety Trends

Sonya Bhakta

Workers want to be safe, and the most important ways their employers can assist them in achieving that goal is by DEMONSTRATING THAT MANAGEMENT GENUINELY SHARES THE SAME OBJECTIVE and is committed to attaining that together.

THEY SAY THE TIME SPENT IN COLLEGE IS SOME

of the best years of your life. So when I was completing my Bachelor's in Management at the University of Tulsa (2008 – 2011), I was determined to maximize my college experience. After all, a well-respected freshman professor of mine routinely reminded us to enjoy our time in college, because once we graduate, he said, all we have to look forward to is death. While such a statement is quite dramatic, I knew I must take advantage of every bold opportunity that came my way to enhance my university experience. So, while working in a team of four assigned to write a comprehensive case study of Waste Management, Inc. during my senior year, I found myself captivated with the dynamics of the \$52 billion industry.

Prior to this classroom project, I was no different than any other ordinary citizen who lacked a particular interest in examining the lifecycle of trash, and the men and women who put their lives at risk to keep our country clean. But all of that changed in a telephone interview call with David Biderman, Safety Director and General Counsel of the National Solid Wastes Management Association. He informed me that solid waste industry workers face some of the highest occupational injury and illness rates in the U.S. More specifically, he noted that public sector employees (those employed by municipalities) sustain workplace injuries and illnesses at a much higher rate than their private sector peers (those employed by for-profit entities). Since little research had been conducted to examine this crucial dilemma that is impacting the entire industry,

I started a scientific study to gain insight into this problem that if identified, could lead to reduction in workplace injury/illness rates.

Examining Safety Issues

As I begin to seek support from the industry, I was quick to learn that the private sector was not eager to shed light on this issue. My efforts to secure their participation was fruitless, I was, however, able to gain cooperation from three municipalities who permitted access to their sum of 190 frontline workers. While the confidentiality agreement prohibits my ability to disclose the names of municipalities or their agents, I can however share their characteristics, as illustrated in **Figure 1**.

The frontline workers, primarily collections, were asked to complete an anonymous survey that examined issues pertaining to safety culture, safety climate, injury and illness rates, reporting procedures and safety compliance behavior. Prior to the completion of a seven-page survey, participants were asked to sign a separate sheet of paper advising them of the purpose of the study, their rights as participants, how their responses will be used and contact information of primary researcher. Aggregate responses to key items in the survey, which were administered between June and August of 2011, include:

- 92 percent report that they strive to maintain a good safety record
- 69 percent feel that their organization genuinely cares about their safety

City	Population	Market Share	Organizational Hierarchy
A	48,850	100%	Flat
B	603,403	20%	Flat
C	649,121	100%	Tall

Figure 1
Profile of participating municipalities.
Figures courtesy of Sonya Bhakta.

Frequency of Safety Training

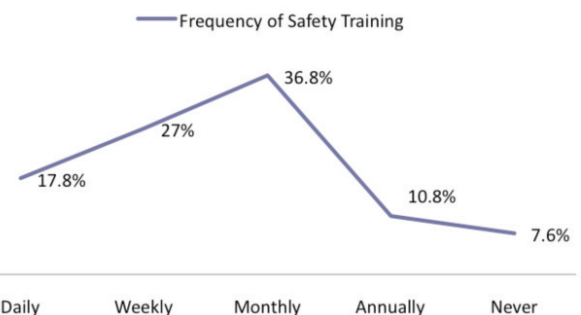


Figure 2
Frequency of safety training.

City	Onsite Safety Advocate?	Frequency of Safety Training	Materials Utilized to Aid Safety Training	Training Delivered By
A	No	Weekly	NSWMA materials in combination with city-wide safety manual	Direct supervisors
B	No	Annually	City-wide safety manual	City safety specialists
C	Yes	When Feasible	City-wide safety manual	Onsite safety director

Figure 3
Safety training program at glance.

- 64 percent report that they received sufficient safety training at the start of their employment
- 56 percent report that their management places a strong emphasis on workplace health and safety
- 41 percent report that they feel pressured to jeopardize their safety in order to complete their tasks on time, while another 41 percent disagreed with the statement
- 41 percent report that they barely have time to take a bathroom break during their shift
- 50 percent report that they have to eat while they work in order to stay on schedule
- 34 percent report that they are rewarded for following safety procedures
- 54 percent report that they always practice lockout/tagout when disabling machinery
- 89 percent report that they use all the necessary safety equipment to do their job
- 87 percent report that they always wear PPE (personal protective equipment) when on the job

Participants were then asked to define causes of most injuries at their workplace, with an option to select as many of the choices below as applicable. Their responses were:

- Human error: 59 percent
- Working too quickly: 40 percent
- Old equipment: 30 percent
- Poor management: 17 percent
- Insufficient equipment: 17 percent
- Inattentive motorists on the road: 12 percent
- Inadequate safety training: 11 percent
- Other: 1 percent

Participants were also asked to recall their number of workplace injuries and illnesses within the past year, and a subsequent number of health care visits and leave of absence. Their responses include:

- 31 percent report that they sustained between one and four workplace injuries or illnesses at their present job within past year that resulted in one day or more of absence
- 26 percent report that they made at least one or more healthcare visit in the past year as a result of workplace injury or illness

- 100 percent of those who sustained workplace injury or illness reported their incidents to their supervisor
- 66 percent of those who sustained workplace injury or illness were paid for by workers' compensation
- 30 percent took at least one day or more leave of absence as a result of workplace injuries or illnesses
- An average leave of absence as a result of workplace injury or illness was 9.6 days, an estimate based on the information provided by the respondents
- The longest leave of absence was 165 days as a result of workplace injury or illness

Safety Training

Participants were also asked to specify the frequency of safety training offered at their organizations. As we look at **Figure 2**, average safety training for most organizations was at least once a month—a frequency that is consistent with that of most private organizations. Surprisingly, 17.8 percent respondents reported that they receive safety training daily. Examples of this could be associating safety message postings or simple words by their leadership, like “be safe” might have been perceived as if they were receiving training daily. Another plausible explanation might be that face-to-face contact with a safety advocate in the organization on a daily basis who reminds them of safety tips daily. Having reviewed safety training programs at all three sites, none are offering training daily, and all three offer training at least once a year. Thus, a possible explanation for respondents stating that they never have safety training (7.6 percent) might be that their relationship with their employer might be less than one year, or that the quality of the safety training is inadequate.

After examining safety training program at all three sites, it appears that City A uses NSWMA safety materials as its primary resources in combination with city recommended safety guidelines. The other two sites, as shown in **Figure 3**, however, are lacking industry specific safety training materials, which are more relevant and specific to tasks carried out by frontline workers daily. Thus, it is recommended that municipalities like B and C consider either producing their safety training materials for their workers, or purchase them from any one of the vendors servicing the industry.

Discussion of Results

It is vital to note that more than 90 percent of participants have expressed their

DEMOGRAPHICS

In looking at the demographics and their response patterns, few noteworthy observations are made. First, it is no surprise that the solid waste is a predominantly male dominated industry, see **Figure A**. The workforce is pretty well educated, as evidenced by **Figure B**, illustrating that 76 percent have at least high education or higher. The level of industry experience, **Figure C**, shows that at least fourth of participants have been on the job for less than two years, and this group especially should be the target of safety education.

The age distribution and the level of experience also present some specific safety challenges. At least 24 percent of employees are over the age of 50, see **Figure D**. Many have expressed in oral interviews that they are slowing down with increase in age and workload. This in itself presents a specific safety challenge in how to assist older workers in conducting their job safely. Also, with the fact that many of the workers being over the age of 50, the data suggests that this population of workers require more time off when occupational injuries/illnesses do occur.

Gender

■ Male ■ Female ■ No Response

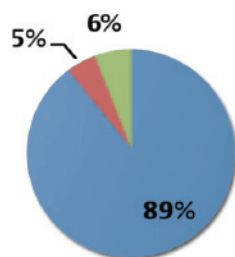


Figure A
Gender distribution.

Level of Education

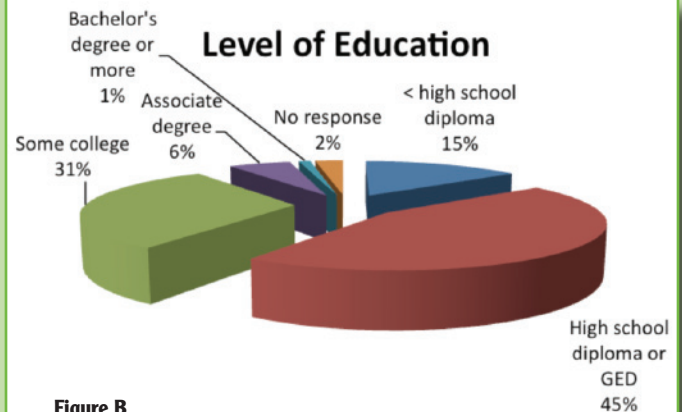


Figure B
Level of education.

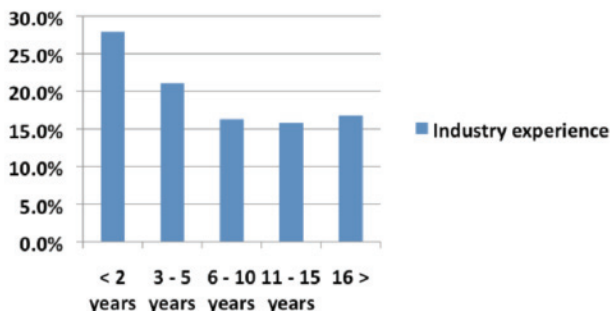


Figure C
Level of industry experience.

Age Distribution

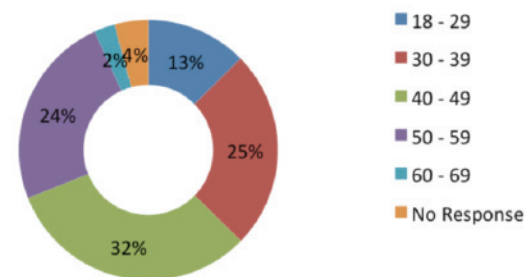


Figure D
Age distribution.

desire to engage in safer practices, regardless of where they work, characteristics of the leaders to report to or the climate in which they operate. The most important item having a positive impact on the injuries and illnesses rate is the quality of organizational culture and how it views safety. It is important to note that simply complying with safety procedures such as wearing PPE, doing lockout/tagout and following traffic rules and regulations is not in itself sufficient enough to produce lower workplace injuries/illnesses rates.

Organizational structure seems to have a great impact on safety. Organizations with multiple layers of management (two or more), particularly in situations where senior management is physically removed from frontline workers (i.e., management offices are housed at different location than collection facilities) have exhibited higher workplace injury/illness rates. Additionally, in organizations where ethnic and cultural incompatibility exists between the top management and the frontline workers seem to increase injuries/illnesses

rate. It cannot be emphasized enough that organizational structure and management's approach to frontline workers and how they relate to them in terms of interpersonal relationships has a great impact on safety.

Furthermore, it is imperative that companies not put in place programs that compromise safety. Incentive programs such as allowing workers to leave early upon completion of their tasks may in fact have an adverse impact when promoting safety. Data based on City B that has incentive program in place reveals that such reward system has actually resulted in self-imposed pressure in which workers compromise their safety to complete their 10-hour shifts in seven hours or less so that they can go home early. It is noteworthy to mention that City B had workplace injuries/illnesses rate of 39 percent during the calendar year of 2010, the highest rate when compared with other cities participating in the study.

Examining the Waste Industry's Safety Trends

Municipality	Solid Waste Division Injury Rate
A	20%
B	39%
C	28%
Note: These rates are determined based on data provided by management at all three municipalities.	

Figure 4
Official 2010 workplace injuries/illnesses rate.

Concluding Remarks

In summary, workers want to be safe, and the most important ways their employers can assist them in achieving that goal is by demonstrating that the management genuinely shares the same objective and is committed to attaining that together. It is essential for management to foster a culture in which employees can share their ideas and engage in a dialogue on improving safety numbers. Simply delivering safety training, enforcing safety rules and expecting employee compliance will not alone result in reduction of workplace injuries and illnesses. Organizational culture in which employees are allowed to flourish, promoted from within, held accountable for mishaps,

and a culture where mistakes are perceived as an opportunity to improve safety environment rather than simply engaging in write-ups are crucial practices managers can engage in to reduce workplace incidents rate (see Figure 4). It is absolutely essential to stress that management by fear, as precisely managed by municipality C is counterproductive. Leadership team at the municipality C has a positive intent, but the execution method is unsuitable.

Further research is needed to truly understand factors responsible for workplace injuries or illnesses rate in the public sector. As a researcher, it is a particular interest of mine to collect and compare private sector data with public workers to understand if there's consensus on what they identify as causes for workplace injuries and illnesses. I am especially interested in learning if safety rewards system implemented by many private companies has resulted in underreporting of workplace injuries and illnesses rate, influence unions have on reporting patterns, as well as leadership styles and its impact on safety numbers.

I'd like to express my most sincere appreciation to Dr. Brad Brummel of the University of Tulsa for his tremendous support and guidance on this study. I'd also like to thank David Biderman of NSWMA and David Utterback of NIOSH for mentoring me and supporting my research. Lastly, I am incredibly thankful to leaders and employees at all three municipalities for participating in my study. | **WA**

Sonya Bbakta is currently pursuing an MBA at the Pittsburg State University with emphasis on International Business. Her interest is in development of leadership, helping that leadership to improve its business and to make a better work environment for their employees. For comments or to receive a copy of the survey used in this study, e-mail sonya-bbakta@utulsa.edu.



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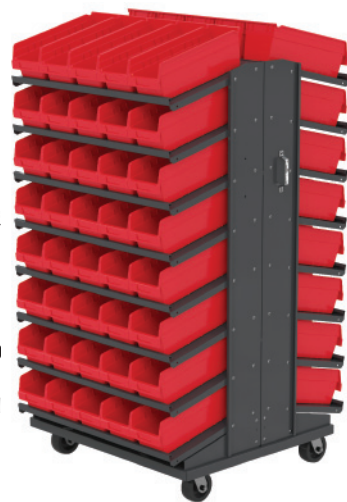


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The new systems, which include Single-Sided, Double-Sided and Mobile options, continue Akro-Mils' tradition of providing heavy-duty pick racks constructed of 16-gauge steel that offer convenient, high-density storage. The 18" Deep Pick Racks have a weight capacity of more than 100 lbs. per shelf when secured to a wall or floor. The single-sided rack has a total capacity of 900 lbs. and the double-sided rack has an 1,800 lb. capacity. The double-sided rack, when used with the optional heavy-duty Mobile Kit, also has an 1,800-lb. weight capacity. Akro-Mils 18" Deep Pick Racks are available separately or packaged with industry-leading Shelf Bins, and innovative new products such as ShelfMax® 6" Hig Bins, Indicator® Two-Toned Bins, AkroDrawers® and System Bins™. Akro-Mils pick racks improve workspace organization and efficiency in a variety of settings—from industrial to healthcare.

FOR MORE INFORMATION, CALL (800) 253-2467 OR VISIT WWW.AKRO-MILS.COM.



RUDCO (Vineland, NJ) is your one-stop source for your waste handling and recycling solution equipment needs. Rudco designs, develops, manufactures, assembles and distributes its high quality equipment from three manufacturing facilities. These facilities are strategically located along eastern seaboard to service the most densely populated areas and to capitalize on the competitive advantages provided by shipping cost dynamics.

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ACCURIDE CORPORATION (Evansville, IN) announces the introduction of Accu-Armor™, the newest aluminum wheel product offering from its Accuride® Wheels business unit. Accu-Armor aluminum wheels undergo a proprietary, multi-step, post-production treatment process that texturizes, anodizes and seals the surface without changing or compromising the wheels' original form, fit or function. As a result of this process, premium Accu-Armor aluminum wheels are highly resistant to scratching and scuffing, filiform corrosion, high- and low-pH chemicals commonly used in truck washes, and common chemicals used in de-icing road surfaces. Accu-Armor aluminum wheels are also proven to be durable under extended exposure to heat and UV light, and will not chalk or fade. They are easy to clean and require very little maintenance, while featuring an attractive, distinctive appearance. The unique combination of characteristics and benefits makes Accu-Armor aluminum wheels ideal for use by transit buses, tanker fleets, fire trucks, owner-operators, and vocational fleets such as cement mixers, gravel haulers, dump trucks, and refuse/recycling trucks that require lightweight wheels that can handle the pressure and demands of operating in harsh environments, but that also look good and are easy to clean.

FOR MORE INFORMATION, CALL (800) 823-8332 OR VISIT WWW.ACCURIDECORP.COM.



WAYNE ENGINEERING (Cedar Falls, IA) announced the introduction of its new line of fuel-efficient refuse collection vehicles at the 2012 Waste Expo. The new refuse trucks feature Eaton's Power on Demand (POD) hydraulic system, which directs the exact amount of required hydraulic fluid as it is needed. In addition, the system operates at full power in the idle RPM range. The result is a decrease in wasted energy and a savings of 3 to 7 gallons of diesel fuel per day (depending on the model).

Wayne Engineering offers the new POD hydraulic system on its Titan "Eco Force" front loader, Curbtender "G4" automated side loader, and Phoenix commercial rear loader. Eaton and Wayne Engineering spent the last two years developing the new technology, which is powered by tandem piston pumps. Engineers from Eaton expect the lower operating temperatures and piston pump design to increase the service life of the new hydraulic system over traditional gear pump designs.

FOR MORE INFORMATION, CALL (888) 669-2963 OR VISIT WWW.WAYNEUSA.COM.

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Recycling

Things to Evaluate When Considering a Recycling Retro-fit

Jeremie Bourgeois, Eng.

AS A RECYCLING PLANT MANUFACTURER, WE RECEIVE VARIOUS TYPES

of calls from different recyclers for more information on our products and services. We also receive inquiries on the recycling markets tendencies. One of the most frequently asked questions is: can my current installation be retro-fitted? Every situation has its differences, regardless of the material that is to be processed. There are a few elements that must be analyzed in order to determine the feasibility of a retro-fit. The following is a brief list of the points you need to evaluate prior to determine whether a retro-fit is the right decision for you and your company.

Retro-Fit or New Installation?

There are several advantages in considering a retro-fit as opposed to a completely new installation. A retro-fit allows the maximum of existing equipment to be reused or reallocated; therefore, reducing the amount of required investment. Since the retro-fit is normally done in phases, it allows for a maximum amount of continuity in your operations and minimizes the work stoppage and down time.

What is the Projected Outcome?

A retro-fit can be requested for many different reasons:

- To increase the processing capacity, to automate certain sorting procedures
- To adapt equipment for the sorting of different materials
- To replace or move existing equipment and optimize production
- To add a new processing line in the existing installation, etc.

It is imperative to determine the desired outcome in order to find the correct solution. Then, a plan can be determined that will meet your needs. A typical example would be a desired increase capacity of 15 to 25 tons per hour.

What Reference Documents are Available?

A retro-fit is designed to reuse the maximum amount of existing machinery and equipment. It is therefore essential to have the most amount of information possible on the existing installation:

- Are there plans available for the equipment?
- Do you have the plans for the foundation and structure of the building?
-



Infeed conveyor retrofit for C&D.
Photos courtesy of OEM Sherbrooke.



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- Are the lighting and the fire systems visible on these plans? If so, are they in paper or electronic format?
- Are the plans legible and up to date?

Even if all these things are available, an onsite inspection is usually required to simplify the work at hand. This is needed simply because either the plans are not up to date or they do not exist (in some cases, the engineer or architect can be called to send a copy where needed). If an onsite reading needs to be taken, it can be done either by hand (tape measure and laser level) or with 3d scanners. A 3d scan allows you to accurately measure all of the equipment and the building. Once the scan has been performed, the file is then transferred to a computer where we can process all the virtual measurements. Regardless of the way the measurements are taken, it is very important that the plant is as clean as possible with as little accumulated debris. The technician will use his time much more effectively this way.

In What Condition is the Existing Equipment?

When planning a retro-fit, an assessment of all of the existing equipment is necessary to ensure that they can be used efficiently in the new layout. If not, is it possible to repair or to modify them so they can be reused? It is of the utmost importance to verify the structural integrity of the equipment, as well as the mechanical and electrical components. If a longer conveyor is needed, verify that the motor has sufficient power to handle the new length. The same question needs to be answered when there is a change in the processing capacity. This would be the perfect time to fix damaged conveyors, replace worn rubber stars mounted on shafts for all star screens (these are widely used in the industry to screen the fines out) and do a complete maintenance on all of the equipment.

What Are the Different Limitations? (Building, Electricity)

Once you have evaluated your requirements and your existing installation, determine your best solution. It is here that you must use your formidable abilities to get into the minute details to propose the most feasible and optimal answer. The main limitations are usually because of accessibility to the equipment and its components. Can the cranes get access to the equipment that needs to be moved? Does some equipment need to be modified to get access to other pieces of equipment that need to be changed or modified? Is there enough clearance to accomplish all of these tasks? Try to avoid modifying the existing structure (opening walls, pits and foundations) because this would require other specialists and it can become quite cost prohibitive.

While a feasible solution is being found, address the electrical supply and control concerns. Do you have enough electrical supply? How will the new machines interact (if adding to an existing plant) with the new equipment? In certain cases a new control panel will be added for the new equipment and communication will be established with the old panel. In other circumstances, the whole panel will have to be replaced, which will raise the cost of the retro-fit.

Finally, figure out how the equipment will be handled and stored before during and after the retro-fit. Who is responsible for the disposal of the equipment that will no longer be used? Where will we store the equipment that is to be reused? Where will the new equipment be stored until it is ready to be installed? Try to move things around the least amount possible and coordinate with the plant operator.

Can Normal Operations Continue During the Retro-fit?

Yes they can. This is the number one concern of most plant operators. The materials still come in whether you are operating or not. Down-time can be minimized in order to allow the plant to operate to a certain extent during the retro-fit. It can be planned in a number of phases and it can be planned during the night or weekend so as to disturb production the least amount possible. Coordination and communication are the key elements to a smooth transition. The retro-fit will certainly impact your operations and at some point they will have to be completely stopped if only to safely hook up the electricity. It is also possible that after the installation is done some impromptu stops are required to fine-tune the line. This happens quite frequently when two panels are hooked together and the communication between the two must be harmonized.

Some Examples of Retro-fits

A very popular example of a retro-fit is the addition of an optical sorter to replace a manual sorting conveyor. Each plastic has its distinct properties so determine which ones are to be sorted optically. In 95 percent of cases, PET, HDPE (colored and clear) and mixed plastic are sorted. The optical sorting technology is able to sort PP (Polypropylene, which has a higher reselling value when separated from the #3-7 mixed plastics) separately and aseptic and metal containers.

Another very popular example of a retro-fit is adding a bag-opener at the beginning of the recycling process. The bags are mechanically opened, therefore eliminating the need to have manpower at a station that can be easily automated. The bag openers are easily integrated into existing systems. They come with their own control panel so they just need to be



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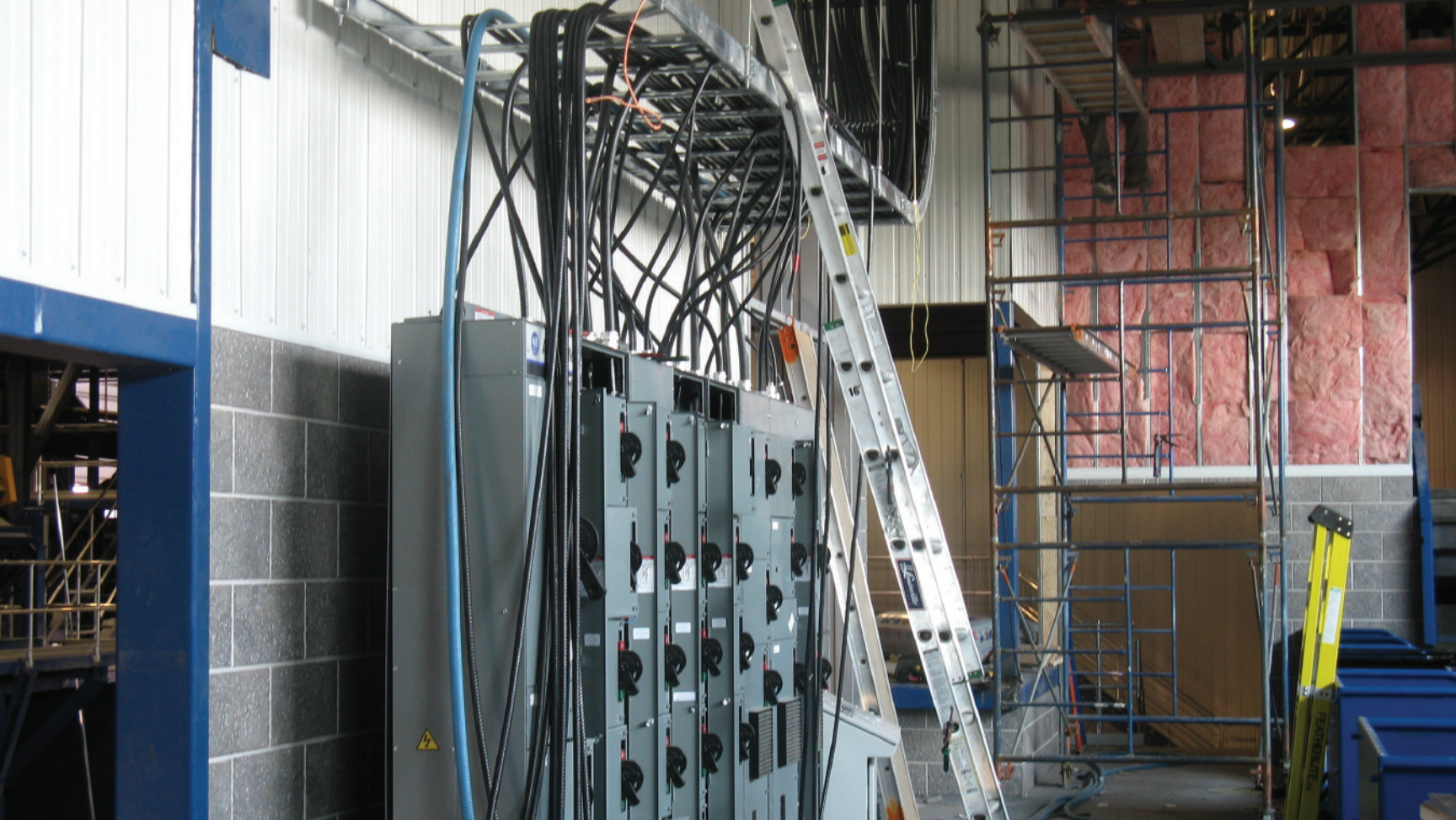
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hooked up to the existing communication system. This procedure can usually be done over a weekend if its placement is easily accessible (usually at the beginning of the chain).

Every Retro-fit is Unique

Each retro-fit is unique and each solution is distinct. A new installation is a lot easier for the manufacturer and the installation crew, but a retro-fit is more cost-effective and time-sensitive for the operator. A retro-fit is much less expensive and requires much less down-time, which makes it much more advantageous when feasible. | **WA**

Jeremie Bourgeois is a mechanical engineer for OEM Sherbrooke (Sherbrooke, QC) After graduating in 2005 from the University of Sherbrooke, he worked at Cascades and Norampac as maintenance and project manager prior to working with Sherbrooke OEM. Jeremie joined Sherbrooke OEM's team in 2007, starting as an estimator/project manager and now is in charge of the marketing and business development. He can be reached at (819) 563-7374, ext. 242, via e-mail at jbougeois@sherbrooke-oem.com or visit the Web site at www.oem-sherbrooke.com.

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Federal Funding Resources

Department of Agriculture and Department of Commerce

THE U.S. DEPARTMENT OF AGRICULTURE HAS A COUPLE OF PROGRAMS that are worth looking at for those facilities that are interested in funding renewable energy projects.

Rural Utility Service Loans and Grants

The U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) offers low-interest loans and grants to fund renewable energy development in rural areas of the country. Essentially, any type of renewable energy source is eligible, as well as the associated electrical distribution and/or transmission facilities required to interconnect the project. The project must serve either the consumers of an existing RUS system or other rural areas with populations less than 2,500 (if the project is served by an

electric utility other than a RUS borrower). Although most applications submitted to date have come from rural electric cooperatives, the program is not restricted to this segment. A wide range of potential applicants are eligible. USDA publishes a Notice of Funding Availability in the Federal Register to announce when applications are accepted. For more information, visit www.usda.gov/rus/electric.

Rural Business Opportunity Grants

This grant program could be applicable to a landfill gas energy project located in a rural area determined by USDA to have exceptional needs. USDA also offers grants that promote sustainable economic development in rural communities with exceptional needs. Typically, the grants go toward paying the costs of providing economic planning for rural communities, technical assistance for rural businesses, or training for rural entrepreneurs or economic development officials. This grant program could be applicable to a landfill gas energy project located in a rural area determined by USDA to have exceptional needs.

To be eligible for a Rural Business Opportunity Grant, applicants may be public bodies, nonprofit corporations, Indian tribes on Federal or State reservations and other Federally recognized tribal groups, and cooperatives with members that are primarily rural residents. Applicants must have significant expertise in the activities they propose to carry out with the grant funds and financial strength to ensure that they can accomplish the objectives of the proposed grant. Applicants must be able to show that the funding will result in economic development of a rural area (defined as any area other than a city or town that has a population greater than 50,000 inhabitants and adjacent areas).

Projects eligible for Rural Business Opportunity Grant funding compete based on certain grant selection criteria. Priority points are awarded to those projects that best meet these criteria and are ranked from the highest to the lowest scoring. The criteria include:

- The sustainability and quality of the economic activity expected as a result of the project
- The extent to which the project makes use of other funding sources
- The current economic conditions in the service area
- The project's usefulness as a new "best practice"

Grant funds may not be used for:

- Duplicating current services or replacing or substituting previously provided services
- Covering the costs of preparing the application
- Covering costs incurred prior to the effective date of the grant
- Funding political activities
- Acquiring real estate



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- Constructing or developing buildings

The maximum grant for a project serving a single state is \$50,000, and the maximum grant for a project serving two or more states is \$150,000.

Economic Development Administration Public Works Program

In addition to the USDA, the U.S. Department of Commerce offers a program that is also beneficial to those looking to fund their project.

The Economic Development Administration (EDA) provides direct grants, on a cost-share basis, generally funding 50 percent of the project cost. The EDA's Public Works Program helps communities in economic decline revitalize, expand and upgrade their facilities. These changes help attract new industry, encourage business expansion, diversify local economies, and generate long-term private sector jobs and investments. The program seeks to redevelop existing facilities, whenever possible. EDA supports these types of projects because they promote sustainable economic development by taking advantage of available infrastructure and markets.

The Public Works Program supports locally developed projects that encourage long-term economic self-sufficiency and global competitiveness. Projects that have been funded in the past include: water and sewer facilities upgrades; technology-related infrastructure development; diversification of natural resource dependent economies efforts; commercialization and deployment of innovative technologies; business/industrial development; and the demolition, renovation, and construction of publicly owned facilities.

Although the EDA's Public Works Program has not yet funded a landfill gas energy project, such projects are eligible if they meet EDA's investment criteria.

The following types of applicants are eligible for funding: economic development districts; states, cities or other political subdivisions of a state or consortium of political subdivisions; Indian tribes; colleges and universities; public or private non-profit organizations; and associations acting in cooperation with officials of a political subdivision of a state. Projects must be located in an area that exhibits economic distress at the time that the application is submitted. Economic distress is determined based on the level of unemployment, per capita income or special need. Projects outside these areas will be considered if they directly benefit the distressed area.

Generally, EDA investment assistance may not exceed 50 percent of the project cost. Projects may receive an additional amount that shall not exceed 30 percent, based on the relative needs of the region in which the project will be located, as determined by EDA.

EDA conducts a preliminary review of all projects before requesting that a full application be completed. All projects must meet the criteria as explained in EDA's Regulations at 13 CFR Chapter 3 and in the Agency's annual Notice of Funds Availability published in the Federal Register. Pre-application forms and requirements can be found at www.eda.gov/InvestmentsGrants/Application.xml. | **WA**

For more information, visit www.epa.gov/lmop/publications-tools/funding-guide/federal-resources/index.html.

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Transfer Stations

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Transfer Station Safety Issues

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practices help ensure transfer stations are safe places. Transfer stations should be designed and operated for the safety of employees, customers and even persons illegally trespassing when the facility is closed. Designers need to consider that people might trespass on facility grounds during operating hours or after the facility is closed for the night. Most State regulations require security and access control measures such as fences and gates that can be closed and locked after hours. Signs should be posted around the perimeter, with warnings about potential risks due to falls and contact with waste. Signs should be posted in multiple languages in jurisdictions with high percentages of non-English-speaking residents.

Federal Occupational Safety and Health Administration (OSHA) regulations require facilities to provide safe working conditions for all employees. Although regulations specific to waste transfer stations do not currently exist, general OSHA regulations apply as they would to any other constructed facility. State, tribal and local workplace safety regulations, which can be more stringent than federal regulations, also might apply. Some state, tribal or local governments might require a facility's development permit to directly address employee and customer safety. State and tribal solid waste regulations, for instance, often require development of operating plans and contingency plans to address basic health and safety issues. Transfer station safety issues are the facility operator's responsibility. A facility must take



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steps to eliminate or reduce risk of injury from many sources, including the following.

Exposure to Potentially Hazardous Equipment

Transfer station employees work in close proximity to a variety of hazards, including equipment with moving parts, such as conveyor belts, push blades, balers and compactors. Facility operators should develop an employee equipment orientation program and establish safety programs to minimize the risk of injury from station equipment. Using locks or tags that prevent equipment from operating until they are removed (lockout/tagout systems). For example, effectively minimize hazards associated with transfer station equipment. Transfer station operators must implement and strictly enforce rules requiring children and pets to remain in the vehicle at all times. Posting signs and applying brightly colored paint or tape to hazards can alert customers to potential dangers.


Personal Protective Equipment



Transfer station employees coming in close contact with waste and heavy machinery should

wear appropriate personal protective equipment. Common pieces of protective gear include hard hats, protective eye goggles, dust masks, steel tipped boots and protective gloves. If working in close proximity to loud machinery, hearing protection should be used as well. Check state and local codes and regulations to see if any personal protective equipment standards exist. Ensure that all facility employees are using the appropriate equipment and are properly maintaining it.

Exposure to Extreme Temperatures

Facilities located in areas of extreme weather must account for potential impacts to employees from prolonged exposure to heat or cold. Heat exhaustion and heat stroke are addressed with proper facility operations, including good ventilation inside buildings, access to water and shade, and periodic work breaks. Cold weather is addressed by proper clothing, protection from wind and precipitation, and access to warming areas. Extreme temperatures typically should not pose problems for customers because their exposure times are much less than those of facility workers.



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Traffic

Controlled, safe traffic flows in and around the facility are critical to ensuring employee and customer safety. Ideally, a transfer station is designed so traffic from large waste-collecting vehicles is kept separate from self-haulers, who typically use cars and pickup trucks. Facility designers should consider:

- Directing traffic flow in a one-way loop through the main transfer building and around the entire site. Facilities with one-way traffic flow have buildings (and sometimes entire sites) with separate entrances and exits. The transfer trailers, in particular, are difficult to maneuver and require gentle slopes and sufficient turning radii. Ideally, these trailers should not have to back up.
- Arranging buildings and roads on the site to eliminate or minimize intersections, the need to back up vehicles and sharp turns.
- Providing space for vehicles to queue when the incoming traffic flow is greater than the facility's tipping area can accommodate. Sufficient queuing areas should be located after the scale house and before the tipping area. This is in addition to and separate from any queuing area required before the scale house to prevent traffic from backing up onto public roads.
- Providing easily understood and highly visible signs, pavement markings, and directions from transfer station staff to indicate proper traffic flow.
- Providing bright lighting, both artificial and natural, inside buildings. Using light-colored interior finishes that are easy to keep clean is also very helpful. When entering a building on a bright day, drivers' eyes need time to adjust to the building's darker interior. This adjustment period can be dangerous. Good interior lighting and light-colored surfaces can reduce the contrast and shorten adjustment time.
- Providing an area for self-haulers to unload separately from large trucks. Typically, self-haulers must manually unload the back of a pickup truck, car or trailer. This process takes longer than the automated dumping of commercial waste collection vehicles and potentially exposes the driver to other traffic. It is often a good idea to provide staff to assist the public with safe unloading practices.
- Requiring facility staff to wear bright or conspicuous clothing. Personnel working in the tipping area especially must wear high visibility clothing at all times.
- Installing backup alarms on all moving facility equipment and training all vehicle operators in proper equipment operations safety. Backup alarms must be maintained in proper working condition at all times. Cameras and monitors can also be installed as an additional precaution.

Falls

Accidental falls are another concern for facility employees and customers, especially in facilities with pits or direct dump designs where the drop at the edge of the tipping area might be 5 to 15 feet deep. Facilities with flat tipping areas offer greater safety in terms of reducing the height of falls, but they present their own hazards. These include standing and walking on floor surfaces that could be slick from recent waste material and being close to station operating equipment that removes waste after each load is dumped. Depending on the station design (pit or flat floor), a number of safety measures should be considered to reduce the risk of falls:

- For direct gravity loading of containers by citizens, a moderate grade separation will reduce the fall distance. For example, some facilities place

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rolloff boxes 8 feet below grade to facilitate easy loading of waste into the container (so the top of the rolloff box is even with the surrounding ground). This approach, however, creates an 8-foot fall hazard into an empty rolloff box. Alternatively, the rolloff box can be set about 5 feet below grade, with the sides extending about 3 feet above the floor. This height allows for relatively easy lifting over the box's edge, yet is high enough to reduce the chance of accidental falls.

- For pit-type operations, the pit depth can be tapered to accommodate commercial unloading at the deep end (typically 8 to 12 feet) and public unloading at the shallow end (3 to 6 feet).
- Safety barriers, such as chains or ropes, can be placed around the pit edges at the end of the day or during cleaning periods to prevent falls. These barriers, however, should be removed during normal operating hours as they are a trip hazard and can interfere with the unloading of waste.
- Substantial wheel stops can be installed on the facility floor to prevent vehicles from backing into a pit or bin. Some curbs are removable to facilitate cleaning.
- Locating wheel stops a good distance from the edge of the unloading zone ensures that self-haul customers will not find themselves dangerously close to a ledge or the operating zone for station equipment.
- To prevent falls due to slipping, the floor should be cleaned regularly

and designed with a skid-resistant surface. Designers need to provide sufficient slope in floors and pavements so that they drain readily and eliminate standing water. This is especially crucial in cold climate areas where icing can cause an additional fall hazard. Because of transfer stations' large size and volume and the constant flow of vehicles, it is impractical to design and operate them as heated facilities.

- Use of colored floor coatings (such as bright red or yellow) in special hazard zones (including the area immediately next to a pit) can give customers a strong visual cue.
- Designing unloading stalls for self-haul customers with a generous width (at least 12 feet when possible) maximizes the separation between adjacent unloading operations and reduces the likelihood of injury from activity in the next stall. For commercial customers, stall widths of at least 15 feet are needed to provide a similar safety cushion. This is particularly necessary where self-haul and commercial stalls are located side-by-side.
- If backing movements are required, design the facility so vehicles back in from the driver's side (i.e., left to right) to increase visibility.

Next month, we'll cover noise, air quality and hazardous waste precautions. | **WA**

— From www.epa.gov/osw/nonhaz/municipal/pubs/r02002.pdf.

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WasteAdvantage Magazine August 2012 63

Resource Spotlight

EPA's WasteWise Program

WASTEWISE HELPS ORGANIZATIONS AND BUSINESSES

reduce waste and practice sustainable materials management through the prevention and recycling of municipal solid waste (common household and business waste) and select industrial materials. Launched in 1994, WasteWise has become a mainstay in environmental stewardship and continues to evolve to address tomorrow's environmental needs.

Organizations can join WasteWise as a partner, endorser or both. Partners demonstrate how they reduce waste, practice environmental stewardship, and incorporate sustainable materials management into their waste-handling processes. Endorsers promote enrollment in WasteWise as part of a comprehensive approach to help their stakeholders realize the economic benefits to reducing waste. All U.S. businesses, local governments and non-profit organizations can join WasteWise. WasteWise partners range from small local governments and nonprofit organizations to large, multinational corporations.

The WasteWise Endorser Program engages state and local government agencies, trade associations, non-profit organizations and businesses to help educate their members and constituents about the benefits of reducing solid waste.

Benefits of Joining

By joining the WasteWise program, partners or endorsers receive:

- The opportunity to receive WasteWise Awards that recognize outstanding achievements
- Public recognition in WasteWise publications, case studies, meetings and a Web site listing
- An Annual Climate Profile describing greenhouse gas reduction
- Reduced purchasing and waste disposal costs
- Outreach and educational materials

Reporting

The WasteWise Data Management System is a data management and reporting system for WasteWise partners to collect, organize, analyze and report their municipal solid waste information. WasteWise partners may log onto the WasteWise Data Management System to view and edit organization information, track waste reduction activities, and generate summary reports, including the WasteWise Climate Profile report.

Resources Available

WasteWise partners can use the resources below to develop and sustain a waste reduction program:

- *Plan Your WasteWise Program:* Tools and recommendations for planning an effective waste reduction program.
- *Measure Your Progress:* Data sources and calculators to determine the environmental and economic benefits of your waste reduction program.
- *Report Results:* Baseline (for new partners) and annual (for all partners) data reporting forms, instructions and sample forms.
- *Announce Your Achievements:* Sample press releases, articles and WasteWise logo guidelines.
- *Get Expert Help:* Free, tailored technical assistance from the information specialists at the WasteWise Helpline. Answers to questions frequently asked of the Helpline.

Technical assistance resources for the development and implementation of organizational solid waste reduction programs include:

- *Publications and Forms:* Contains forms, the Online Resource Directory, industry sector pages, success stories and annual reports.
- *Industry Sector Resources:* Contains additional resources, organized by industry sector.
- *Waste Prevention:* Provides background information, sample waste prevention goals and results, and links for more information.
- *Recycling:* Provides background information, sample recycling goals and results, and links for more information.
- *Buy/Manufacture Recycled:* Provides background information, sample buy/manufacture recycled goals and results, and links for more information.
- *WasteWise Updates:* Find new waste reduction ideas in WasteWise's technical assistance periodical.
- *General Links:* Offers resources about waste prevention, recycling, recycled products and other environmental information. | **WA**

For more information, visit www.epa.gov/epawaste/conserve/smm/wastewise/index.htm. To join WasteWise as a partner, register at <http://my.re-trac.com/NewWasteWisePartner.pm>. To join WasteWise as an endorser, register at <http://my.re-trac.com/NewWasteWiseEndorser.pm>.





The Model G278-30-400 Grinder with Feed Roller Assembly is the largest and the latest generation of **WARREN & BAERG's** (Dinuba, CA) high-production, virtually dust free round bale grinders. While the G278-30-400 Grinder model is designed specifically for round bales, it also handles square and mid-size bales as well.

With their new Feed Roller Assembly system, it makes it possible to effectively process round bales in excess of 20 tons per hour, in a much cleaner environment than the traditional tub grinder. The Feed Roller Assembly eliminates material slugs eliminating amp draw spikes increasing production output through better use of power.

Many of their new customers are switching from a tub grinder to their Horizontal Grinding Systems to reduce or eliminate their dust problems as well as reduce their 1 to 6 percent material losses. The Grinder can be either a high volume pre-grinder or a one-step single grinder system. Warren & Baerg Grinders provide easy mechanical loading, which is less labor intensive and has lower maintenance costs.

The Warren & Baerg Grinding Systems consists of a bale feed conveyor with hood, Feed Roller Assembly, Grinder, Screens, and either an air discharge chute or takeaway conveyor system depending on customer specific needs and grind size. The Bale Feed Systems can also be semi-automatic to fit application needs. The grinder is electrically powered with two 200 horsepower motors and lower horsepower motors on the conveyors. On lower tonnage applications, the grinder can be sized with lower horsepower motors.

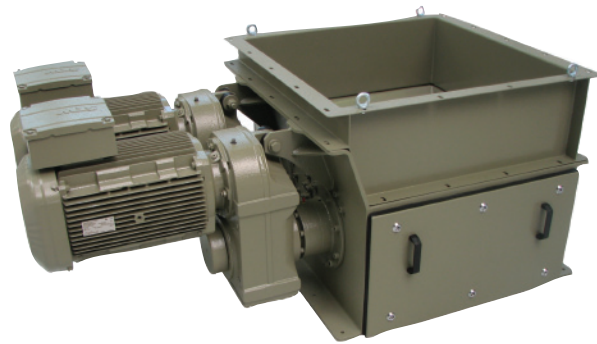
FOR MORE INFORMATION, CALL (559) 591-6790 OR VISIT WWW.WARRENBAERG.COM.



A new tracked feeder from **MCCLOSKEY INTERNATIONAL** (Peterborough, ON) is enhancing the process of stockpiling of materials that can traditionally cause blockages in conventional stackers. The TF80 will facilitate the handling and stockpiling of large wood waste, bark, compost and topsoil, all of which can be directly fed into the hopper with large loaders and excavators. Powered by a 100Hp (75KW) Kubota engine, the TF80 offers Track or Wheel Mobility and features hydraulic folding for easy transport, resulting in fast onsite setup time—as little as five minutes.

In addition to the large feed hopper (up to 23.0 cubic yards or 17.3 m³), the TF80 features a 1200mm (48") wide heavy duty 80' long conveyor and a 1200mm (48") wide heavy duty feeder. In combination, the TF80 is a robust mobile stockpiling conveyor for use across a number of industries and a highly efficient and productive solution for a variety of applications. As with all McCloskey equipment, the TF80 has excellent access for maintenance with its open access engine bay, saving time and reducing costs. With additional options like an Aggregate Hopper or Shredder, as well as its high-level standard safety features, the TF80 is the natural solution for stockpiling organic materials.

FOR MORE INFORMATION, CALL (877) 876-6635 OR VISIT WWW.MCCLOSKEYINTERNATIONAL.COM.



VECOPLAN (High Point, NC) introduces their new VNZ 80 XL dual shaft shredder. Known for their single shaft, ram fed, rotary shredders, Vecoplan incorporated two rotors and eliminated the ram in their new VNZ 80 XL. But unlike conventional "pierce and tear" dual shaft shredders, the VNZ 80 XL still delivers the numerous advantages inherent to Vecoplan shredders. Plus, the absence of a feed ram provides the VNZ 80 XL with the smallest footprint available on a machine of this performance level.

The VNZ 80 XL continues to produce the consistent shredded particle size that customers expect from a Vecoplan shredder, with the ability to change and control the particle size through quickly and easily changed screens. The two rotors built into the machine are Vecoplan's patented Torsion Point™ "U" rotors. Rotating at low speeds and high torques, the cutting rotors produce high throughputs at low noise levels and are virtually jam free. Like Vecoplan single shaft shredders, the cutting inserts on the VNZ 80 XL's rotors are easy to access, are bolt-on so they can be quickly rotated to four points before they need to be changed, and are inexpensive to change when necessary, thereby providing the simple and economical maintenance Vecoplan built its reputation on.

Other features shared by Vecoplan single shaft shredders and the VNZ 80 XL dual shaft shredder, include the ability to shred a wide variety of materials and true dump and run operation. Fed from the top via a hopper, entire containers of plastic waste, wood processing scrap, medical waste, paper, cardboard or almost any type of waste can be dumped into the hopper and processed with no further operator interaction.

FOR MORE INFORMATION, CALL (336) 861-6070 OR VISIT WWW.VECOPLAN.COM.



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MSS INC. (Nashville, TN), manufacturing optical sorting equipment, introduces a new high-resolution color camera sorting system for small particle applications, such as shredded and granulated materials—the L-VIS™. The L-VIS is designed for color-sorting applications such as shredded electronic scrap to extract high-value commodities (printed circuit boards, copper, etc). It provides excellent separation accuracy (up to 98 percent) and is available with a proprietary shape identification software algorithm specifically designed for sorting wires. The L-VIS can also automatically sort plastic granulates, pellets and flakes by color. Even the smallest particles can be accurately identified and sorted. A corresponding high-resolution air jet array provides the fastest, most accurate ejection possible. An all-metal detector for ferrous, non-ferrous and stainless steel can be added for further sorting applications. The L-VIS can be easily configured by the operator via a touchscreen interface and is offered in three sizes: 800mm (32"), 1200mm (48") and 1600mm (64").

FOR FURTHER INFORMATION, CALL (615) 781-2669 OR VISIT WWW.MAGSEP.COM.



The **ISCRAP APP** is the leading mobile and online directory for users to find scrap yards in their area, along with information like prices, container requests and more. A free application for iPhone and Android, available for all mobile and online browsers, the iScrap App has revolutionized the way the scrap yards constantly connect to their customers, even on the go. Since its release in April 2011 and the online version launched in October 2011, the iScrap App has had over 65,000 downloads and more than 1.5 million page views.

Created by Tom Buechel, who owns a scrap yard himself, the iScrap App is built for scrappers and scrap yards by one of their own. The iScrap App gives scrap yards the ability to list their materials and prices, container request service, pictures sent of materials, directions to their location and the basic information all listed in one spot. Scrappers can use the iScrap App to find yards in a 50-mile radius around their location and get most of the information needed from the scrap yard at their fingertips. Also having a strong social presence, the iScrap App recently launched its online forum to connect those in the scrap metal industry.

FOR MORE INFORMATION, CONTACT TOM BUECHEL AT (855) ISCRAPP (472-7277), E-MAIL INFO@ISCRAPAPP.COM OR VISIT WWW.ISCRAPAPP.COM.

The **GEM™2000** Portable Landfill Gas Analyzer from **LANDTEC** (Colton, CA) is designed for analyzing Landfill Gas (LFG) composition and calculating flow. The GEM™2000 combines the capabilities of the now discontinued GA-90 for monitoring gas migration probes and the GEM-500 for monitoring gas extraction systems. The GEM™2000 is certified Intrinsically Safe and offers improved speed and accuracy. It also measures and displays Btu content, temperature (with optional Temperature Probe) relative and atmospheric pressures as well as CH₄ LEL (Lower Explosive Limit). It:

- Measures percentage CH₄, CO₂ and O₂ volume, static pressure and differential pressure
- Calculates balance gas, flow (SCFM) and calorific value (KW or BTU)
- Displays percentage LEL of CH₄, and user-defined comments
- Records site and well conditions
- Extended operation (10 to 14 hrs use from one charge)
- Certified intrinsically safe for landfill use
- Dual Mode Two instruments in one (GA and GEM mode)

Benefits include:

- Designed specifically for use on landfills to monitor landfill gas (LFG) extraction systems, flares and migration control systems.
- No need to take more than one instrument to site.
- Can be used for routine sub-surface migration monitoring of landfill site perimeter probes.
- Measures gas composition, pressure and flow in gas extraction systems.
- The user is able to set up comments and questions to record information at site and at each sample point.
- Ensures consistent collection of data for better analysis.
- Allows balancing of gas extraction systems.

FOR MORE INFORMATION, CALL 800-LANDTEC OR VISIT WWW.CES-LANDTEC.COM.





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