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FOCUS: SOLID WASTE Mining project hunts treasure in old landfills



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Electronics recycling industry consolidation trend heats up

by MARK HENRICKS mhenricks@americanrecycler.com

A consolidation trend among electronics recycling companies has spurred several notable acquisitions recently, with more likely to follow. This year, Arrow Electronics, a \$21 billion sales electronics distribution company headquartered in Inverness, Colorado, acquired Asset Recovery Corporation, a \$20 million sales electronics recycler based in St. Paul, and TechTurn, a \$50 million sales Austin, Texas recycler. Avnet Inc., a \$26 billion sales electronics distributor based in Phoenix, acquired Austin-based Round2 Inc., a \$40 million e-recycling firm.

Those are just some of the larger and more recent consolidations. There are still more than 1,500 firms in the electronics recycling field, and it remains highly fragmented, with most firms generating less than \$1 million per year in sales. The number of firms is likely to decline, experts say, thanks to the confluence of several powerful forces on the erecycling field.

Acquisitions are hot right now, in part, because corporations are sitting on lots of cash that isn't earning much because interest rates are low, and with business and consumer activity still soft it's often easier and faster to buy companies than to grow internally, said Dave Karnofel, managing director of business development at New York investment banking firm BCMS Capital Advisors.

"The capital in the hands of companies today is probably greater than it's been in

the past 25 years," Karnofel said. "That capital has created pent-up demand for large companies trying to expand their business." Another element in the scenario is the ability to borrow money for acquisitions at very low interest rates, he added.

Acquirers are looking at e-recycling because of the growing number of states that bar disposal of electronic waste in landfills or otherwise encourage recycling, said Andy Lipman, managing principal at Westport, Connecticut, investment banking firm Intersection LLC. In particular, he points to regulations requiring large manufacturers of computers and other electronic devices to take responsibility for where their products wind up.

"All these guys have to find service providers to recover the e-waste stream," Lipman said. "These very large companies prefer to do business with larger businesses that have stronger balance sheets and multiple locations. That's a primary driver."

What acquirers want

When acquirers go shopping, they're looking for companies with significant geographic reach. "Having a footprint that covers the large MSAs is important," Lipman said. Different states have See ELECTRONICS, Page 4

NJ State Senate passes fracking waste k

The New Jersey State Senate passed legislation to ban the processing and treatment of waste from hydraulic fracturing, also known as fracking. Environment New Jersey and allies built support for the Senate bill (S253) after passage in the Assembly. The legislation, sponsored by Sen. Bob Gordon (D-38) and Sen. Jen Beck (R-12), passed by a bipartisan landslide margin of 30-5, and gained momentum with the disclosure that fracking waste was already being shipped to New Jersey.

"Toxic waste from fracking should not be allowed anywhere near New Jersey's waterways," said Doug O'Malley, interim director of Environment New Jersey. "The New Jersey Senate chose drinking water over gas drillers today, and we urge Governor Christie to sign this bill into law."

Fracking is a gas drilling technique that involves pumping a mix of chemicals, sand and water down a well at such high pressure that it cracks open gasbearing rock formations. When the process is complete, wastewater – often laced with toxics like benzene, heavy metals, and even radioactive material – flows back to the surface.

While fracking has yet to commence in New Jersey, the gas drilling boom in Pennsylvania has already produced more than 1.3 billion gallons of contaminated wastewater. Chemical companies – including DuPont – have started to bring some of that waste into New Jersey.

Environment New Jersey cited documented cases of fracking waste polluting water in Pennsylvania, including:

•In 2009, after fracking wastewater was discharged from sewage treatment plants into the Monongahela River, the state advised 325,000 people in and around Pittsburgh not to use their tap water for more than a week.

•In Clearfield County, Pennsylvania, drilling operations spilled 35,000 gallons of wastewater, some of which reached a stream that feeds the Susquehanna River. Environment New Jersey and its allies have worked to build public support for the frack waste ban – with citizen activists writing letters to the editor, emailing and calling their legislators.

The Senate's vote marks a growing chorus of states voicing deep concern over the issue. Earlier this year, Vermont banned the processing of fracking wastewater (and fracking itself), and New York's Assembly voted to regulate the wastewater like other hazardous wastes.

The state's actions fills a vacuum as oil and gas waste is exempt from the nation's hazardous waste laws, explained John Rumpler, senior attorney for Environment New Jersey.

"Fracking has been an unmitigated disaster for the environment and our health – poisoning waters, making families sick and turning forests into industrial zones," Rumpler said. "Today's vote will help keep Jersey drinking water safe from dirty drilling waste."



E-waste has been the fastest growing segment of the waste stream in recent years.

Page A2, August 2012

Equipment company expands



Herbold Meckesheim USA has moved its headquarters to a larger facility it recently built in a new rail-accessible office park in North Smithfield, Rhode Island.

In spite of the recession, the supplier of plastics recycling equipment has experienced a growing customer base.

Herbold built its reputation on sturdy, durable granulators for the inhouse recycling efforts of manufacturers of plastic products, and this still represents a major share of the company's business. But over the last 10 years, Herbold has developed many new machines that primarily serve independent processors of recycled plastic. Its product line has dramatically swelled to include debalers, separation tanks, friction washers, hydrocyclones, dryers, compactors and the world's first wraparound label remover for the recycling of post-consumer polyester (PET) bottles. Growing demand from customers all across North America necessitated a major expansion – the move triples the company's floor space to approximately 15,000 sq.ft.

Georgia Recycler's Association creates secondary metals compliance guide

The Georgia Recyclers Association has provided a 2012 Secondary Metals Compliance Guide.

The guide has been updated to reflect the amendments made to Georgia law during the 2012 General Assembly. It also includes a general summary of other laws relevant to the purchase of Regulated Metal Property in Georgia. The changes to the law became effective on July 1, 2012.

The Association encourages widespread distribution of this guide so that all Georgia recyclers and interested stakeholders better understand Georgia laws that impact secondary metals recyclers regarding the purchase and sale of regulated metal property.

For a current version of the compliance guide, view this article on www.AmericanRecycler.com.

Getting married is very much like going to a restaurant with friends. You order what you want, then when you see what the other fellow has, you wish you had ordered that.

"We're buying our 8th piece of Al-jon equipment to help us keep up with growth."

"After working with one 580CL for a year, we learned that having customers set up for a baler increased our production substantially," reports Don.

"Customer demand led to our purchase of a second 580. Even with the efficiency of one machine, we couldn't keep up with requests from new customers. When they discovered how efficient we were, they kept giving us more business. That's why we're buying a third 580," says Don.

"We tried another brand once," explains Lynn. "It cost a fortune for parts. Their service department was horrible and no one was helpful or cared about anything. Needless to say, we gathered our wits, embraced our Al-jon tradition and never looked back."

Over the past 16 years, Cascade has purchased eight Al-jon machines, which helped grow the business. "We never thought we would achieve what we have," states Lynn. "They have always gone over and above to make sure we had what we needed. If we have achieved some measure of success it was, in part, because of our relationship with the folks at Al-jon."

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Lynn & Don Roemer Owners, Cascade Metal Recycling Grant's Pass, Oregon

NDA awards 2012 scholarships

The National Demolition Association presented college scholarships to 6 deserving students at the 39th Annual National Demolition Association Convention in Las Vegas. The NDA has recognized exemplary students with scholarships for more than 10 years.

The Bill and Wanda Baker Scholarship was presented to Nicholas Miller of Quakertown, Pennsylvania, a 2012 graduate of Quakertown Community Senior High School. The Patrick H. O'Rourke Scholarship was given to Pamela Kirkpatrick of Hatfield, Pennsylvania, a student at Messiah College. Both scholarships' sponsors are Haines & Kibblehouse, Inc., Skippack, Pennsylvania.

The National Demolition Association Scholarship was awarded to two members of the 2012 graduating class. Amber Lee of Summerville, South Carolina, was sponsored by NASDI, LLC, Waltham, Massachusetts, and will graduate from Can Bay High School. Margaret Keating Olesen of Unionville, Connecticut was sponsored by Manafort Brothers Inc., Plainville, Connecticut. She will graduate from Phillips Exeter Academy.

Northeastern University School of Law student, Monica Passeno of Boston, Massachusetts, received the National Demolition Association Southern California Chapter Scholarship and was sponsored by Bierlein Companies, Midland, Michigan. Western Carolina University student, Casey Swoope of Monroe, North Carolina, received the Sims Adams Scholarship. Her sponsor was Environmental Holdings Group, LLC, Morrisville, North Carolina.

Republic Services invests millions to upgrade St. Louis recycling facilities

Republic Services, headquartered in Phoenix, Arizona, is investing nearly \$19 million to upgrade two of their recycling centers in North St. Louis County and South St. Louis County, Missouri.

The enhancements to the recycling centers include the addition of state-of-theart technology that will be the first-of-itskind in Missouri. The new technology will make the sorting process more efficient, enabling Republic Services to triple its recycling capacity to as much as 30 tons per hour. This is the single largest recycling technology investment of its kind in Missouri history.

The company expects to hire up to 20 new local employees when the renovations are complete.

According to Siemens' annual Green City Index in 2011, St. Louis recycles only 3 percent of its waste, compared with the 27 city index average of 26 percent. Based

Backhus now part of Eggersmann

Eggersmann Anlagenbau, specialists in waste-treatment plants, has taken over operations of Backhus GmbH, Edewecht.

In taking over the commercial operations of Backhus, Eggersmann Anlagenbau adds a dynamic decomposition process to its fermentation and static decomposition systems. Backhus will remain the name under which internationally recognized plant will be marketed. The operations of the two partners will continue largely unchanged. on Republic's experience in other communities, the company believes the St. Louis region can recycle more.

"We believe that if residents simply add a designated recycling bin in their kitchen – the place where most people decide whether to recycle an item or throw it away – that the amount of material people would recycle would increase by at least 50 percent," Tim Trost, area president of Republic said.

Sorted recyclables from Republic Services are sent to manufacturers to use in new products, helping keep production costs down and consumer goods, like toilet paper, affordable.

"I think the investment is great for the overall quality of life in St. Louis County. In 2008 county executive Dooley asked us to make sure every household had a single-stream recycling bin. That program is proving to be very successful over time," said Dr. Dolores J. Gunn, director, Saint Louis County Department of Health. "When homeowners were provided single stream recycling bins, the recycling rate in St. Louis County jumped 900 percent. That's 47,000 tons of garbage, or 49 percent of all waste, that is not going into landfills. We are making dramatic strides and I believe increasing recycling will only continue to improve the great quality of life we have here in our community."

Automated recycling is working for Alton too. Republic began pick-up service there April 2. The result was a 47 percent increase in recycling in the month of April 2012, compared to April 2011. That increase translates to more than 100 tons of recyclables collected from residents in the first month.

Veolia sells US waste business

Star Atlantic Waste Holdings II, L.P., a Highstar Capital portfolio company, has reached an agreement to purchase Veolia ES Solid Waste, Inc. from Veolia Environmental Services North America Corp.

Star Atlantic will combine its existing investments in Advanced Disposal Services, Inc. and Interstate Waste Services, Inc. with the acquired Veolia operations. The combined business, which will operate as Advanced Disposal Services, will be the largest privately owned environmental services business in the United States. It will have operations in 20 states and have annual revenues of approximately \$1.4 billion, a fleet of over 3,000 trucks, 47 landfills, 92 transfer stations and 5,450 employees.

The transaction is subject to customary regulatory approvals and is expected to close this fall.

Star Atlantic has obtained committed financing from Deutsche Bank Securities, Inc., Macquarie Capital, UBS Investment Bank and Barclays.



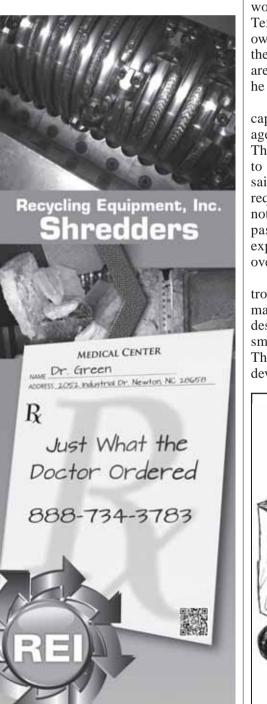
WTSA raises cargo rates

Container lines in the U.S.-Asia trade adopted a round of dry cargo rate increases that took effect on July 1.

Member lines in the Westbound Transpacific Stabilization Agreement (WTSA) are increasing to rates of \$50 per 40' container (FEU) from California ports and \$100 per FEU for all other intermodal and all-water shipments, with proportionate increases for other equipment sizes and cargo otherwise rated.

WTSA executive administrator Brian M. Conrad said the relatively modest increases are part of an ongoing incremental strategy throughout 2012 to restore rates to compensatory levels that will adequately meet service demand, attract container equipment into the trade and reverse steep declines in revenues and carriers' overall financial health. Conrad added that increases are primarily focused on commodity segments where rates have fallen the farthest and/or have not taken increases in previous rounds.

WTSA is a voluntary discussion and research forum of 10 major ocean and intermodal container shipping lines serving the trade from ports and inland points in the U.S. to destinations throughout Asia.



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Electronics

different regulations, and manufacturers would prefer to have one or a few companies to deal with that can shield them from the complexities of varying local rules.

It's also important for companies to offer a range of services. E-recycling may include end-of-life processing of an obsolete computer to recover commodities, but it may also involve refurbishing less dated machinery for resale and reuse, Lipman noted. "So I think having a breadth of capabilities is important," he said.

Unfortunately, small niche players that tend to serve one or a few communities with specialist services dominate the e-recycling industry in numbers. So there aren't many desirable acquisition candidates around. That's just one of the obstacles acquiring companies face when going on a shopping spree.

Consolidation's limits

Profitability is a significant issue for would-be acquirers, said Jim Taggart, CEO and founder of ECS Refining, a Santa Clara, California, end-of-life electronics recycling company that recently received a significant investment in order to expand its network of processing plants in California, Texas and Oregon. Small, familyowned recycling operations may see their profit margins vanish when they are integrated into larger organizations, he said.

The industry also suffers from over capacity, with one study showing average capacity utilization is 57 percent. The shortage of materials is largely due to exporting e-waste overseas, Taggart said. If large electronics manufacturers require recyclers to show that they're not exporting, or if the U.S. Congress passes legislative restricting such exports, that may help alleviate the over-capacity problem.

However, at the same time, electronic devices are shrinking in size dramatically as laptop computers replace desktop PCs, and tablet computers and smartphones replace laptop computers. The falling average size of electronic devices may tend to reduce the tonnage of the entire stream, despite shorter replacement cycles.

Finally, in states and cities that offer financial incentives for e-recycling much of the profitability of the existing e-recycling companies may be made up of those incentives. Budget pressures make the continuation of such incentives uncertain, and that makes some companies' continuing profitability suspect.

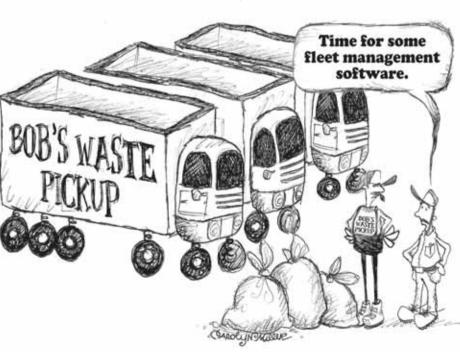
In an industry dominated by small, unsophisticated operations with limited capability and reach, would-be acquirers have to spend a lot of time looking before they find something they want to buy, Taggart said. The time and effort spent to acquire one \$50 million company is far less than would be spent to acquire ten \$5 million companies, he noted, and there are probably not more than five \$50 million companies in the field. "When you come right down to it, there's not a lot of large enough companies that are attractive for acquisition and available," he said.

Consolidation outlook

Despite the significant acquisition activity to date, and the complications surrounding additional acquisitions, it's expected that this trend will continue for the foreseeable future. E-waste has been the fastest growing portion of the waste stream in recent years, the pace of technological advancement is growing so that more devices become obsolete faster, security worries require more and more reliable data destruction on old devices, and environmental regulation is getting ever-stricter.

Karnofel suggests that the most likely scenario has e-recycling winding up with three dominant players. This is what happens in a typical consolidation in most industries, he said, although it could take several years and several rounds of acquisitions for it to play out.

"It's going to happen," said ECS Refining's Taggart. The major driving force is that big electronics makers want to deal with big electronics recyclers who can supply all their needs in all their locations. "That is encouraging the development of national capabilities," Taggart said. "I know that's our strategy. To get to a national footprint and have the same capability nationally that we do regionally."





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NJ awards \$16 million in litter grants

The Christie Administration awarded nearly \$16 million in Clean Communities grants to help municipalities and counties fund litter cleanup efforts that help beautify New Jersey's communities and roadsides.

The New Jersey Department of Environmental Protection (DEP) awarded \$13.86 million to 559 eligible municipalities. Seven municipalities are not eligible because they have fewer than 200 housing units. An additional \$1.73 million was awarded to all 21 counties.

As established by law, the nonprofit Clean Communities Council oversees the reporting requirements for the program.

The Clean Communities grants are funded by a legislated user-fee on manufacturers, wholesalers and distributors that produce litter-generating products. Disbursements to municipalities are based on the number of housing units and miles of municipally owned roadways within each municipality. Disbursements to counties are based on the number of miles of roads each county owns.

The municipalities receiving the largest grant awards were: Newark, Essex County (\$322,906); Jersey City, Hudson County (\$297,748); Toms River, Ocean County (\$1681,297); Hamilton, Mercer County; (142,745); Edison, Middlesex County (\$134,350); Elizabeth, Union County (\$132,690), Woodbridge, Middlesex County (\$131,533), Brick, Ocean County (\$127,792); Middletown, Monmouth County (\$114,937); and Cherry Hill, Camden County (\$113,429).

The counties receiving the largest grant awards were: Ocean (\$160,448), Cumberland (\$140,524), Burlington (\$131,412), Bergen (\$114,416) and Camden (\$98,433).

Among the activities funded by the grants are volunteer cleanups of public properties, adoption and enforcement of local anti-littering ordinances, beach cleanups, public information and education programs, purchases of equipment used to collect litter, purchases of litter receptacles and recycling bins, purchases of anti-litter signs, purchases of supplies to remove graffiti, and cleanups of stormwater systems that can disperse trash into streams, rivers and bays.

For lists of municipal and county grant awards, view this article on www.AmericanRecycler.com.





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New recycling initiative wins recycling award

Mark Tveit knew there was a way to divert Styrofoam[™] packing blocks – known as a space hog in the landfill – from the garbage by recycling them instead. This initiative earned the nine-year City of Tacoma employee the Individual Recycler of the Year award from the Washington State Recycling Association.

Tveit's commitment to increase recycling opportunities at the City's Recycling Center, such as the recent addition of Styrofoam, electronic peripherals and highvalue metals has added approximately \$8,000 in revenue and diverted nearly 50 tons of material from the landfill.

Tveit initiated the idea and researched an in-house recycling machine that chops, heats and presses Styrofoam into 40 lb. blocks, which can then be recycled into products such as plastic TV and computer casings.

Thanks to Tveit's passion and followthrough to find more efficient ways to reclaim and recycle items brought to the City's Recycling Center, Tacoma and Pierce County residents and businesses may now recycle clean and dry #6 Styrofoam packing blocks.

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Local charities receive donations from recyclers



Pictured L to R: Chesapeake Economic Development assistant director Ben White, CHKD director Sarah Simoncini, president of Recycling Perks Bill Dempsey and president of TFC Recycling Michael Benedetto.

Children's Hospital of the Kings Daughter's (CHKD), the Chesapeake Humane Society and the Foodbank of Southeastern Virginia took home donations during a check presentation at CHKD's Chesapeake office.

CHKD was the first place winner of Recycling Perk's inaugural "Giving Back" spring charity challenge. Recycling Perks launched the "Giving Back" campaign in February 2012 to raise awareness for local charities. Perks users were asked to nominate and vote for their favorite deserving local organizations online to help determine how donations would be distributed throughout the community. Ninety-two local charities were nominated and over 2,200 votes were cast online between April and June.

Chesapeake Economic Development assistant director Ben White joined repre-

sentatives from TFC Recycling and Recycling Perks to present CHKD, the Chesapeake Humane Society and the Foodbank of Southeastern Virginia with a check for \$2,000, \$1,000 and \$500, respectively.

Recycling Perks aims to expand this program and is planning the second annual "Giving Back" campaign for this fall. Local businesses are invited to participate in the incentive program at no cost by offering a reward for resident's participation. Information can be found at www.recyclingperks.com.

Recycling Perks is currently available to approximately 315,000 households in Chesapeake, Norfolk, Suffolk and Richmond, Virginia. Residents use their awarded points to claim rewards offered by local businesses and municipalities benefit by creating a cleaner more efficient waste program.

Study shows foam food containers make up 1.5 percent of litter

Commonly used polystyrene foam food service products (typically referred to as Styrofoam[™]) make up 1.5 percent of litter, according to a new report that surveys recent studies on litter.

The May 2012 report by environmental consulting firm Environmental Resources (ER) Planning of Gaithersburg, Maryland, "examined a variety of litter surveys to determine the extent to which polystyrene foam food service products contribute to litter."

ER Planning compiled information from 19 litter surveys conducted in the U.S. and Canada from 1994 to 2009, including a 2008 national survey of 240 sites. The firm reviewed surveys that used statistically valid quantification and characterization methodologies.

The report finds that polystyrene foam food service products "consistently constitute a small portion of litter (1.5 percent). Evaluating just the surveys conducted since 2000 yields an even lower median value of 1.1 percent."

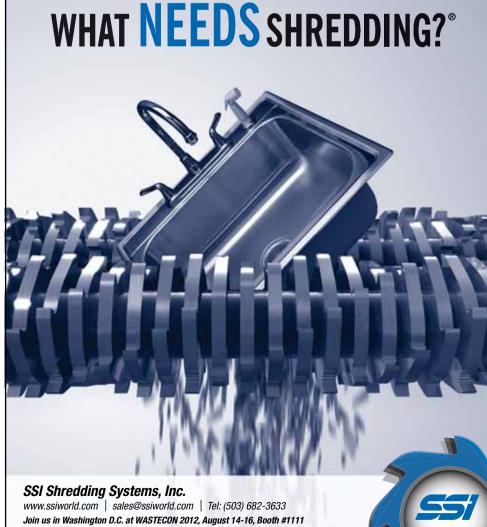
The report's project manager – Steven R. Stein – is a subject matter expert on litter, recycling and environmental issues. His work studying litter and its impacts on our communities has been featured in The New York Times and National Geographic, as well as on NPR and Good Morning America. Field crews under his direction have physically surveyed litter along more than 15.5 million square feet of roadways and recreational areas.

He led the 2009 KAB National Litter Survey, the most comprehensive study of its kind and sponsored the 2011 National Litter Forum, which focused on restoring our nation's communities. Stein has taught Environmental Science and Ethics in Management at the university level.

The report was underwritten by the American Chemistry Council's Plastics Foodservice Packaging Group.

For a direct link to the complete report, view this article on www.AmericanRecycler.com.





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ANSYS makes electric vehicle batteries more practical

One year into a U.S. Department of Energy (DOE) funded project, ANSYS, General Motors LLC, the National Renewable Energy Laboratory (NREL) and ESim are leveraging engineering simulation technology to optimize electric and hybrid vehicle battery performance. The team achieved significant milestones during the past year in support of the DOE's Computer Aided Engineering for Electric Drive Vehicle Batteries (CAE-BAT) project.

GM awarded ANSYS a subcontract to develop battery software tools that will help accelerate development of next-generation electric vehicles (EV). The project is a result of a competitive procurement

One year into a U.S. Department of through the DOE's NREL that was prergy (DOE) funded project, ANSYS, sented to GM last year.

> The main goal of the CAEBAT project is to incorporate existing and new battery models into engineering simulation software to shorten design cycles and optimize batteries for increased performance, safety and life span. The project is driving EV innovation.

> The GM-ANSYS-ESim team's achievements over the past year include prototyping and validating three electrochemistry modeling approaches. The partners also prototyped a co-simulation feature, which blends battery multiphysics and system simulation technologies that enable engineers to shed

unnecessary details and increase simulation efficiency without compromising the accuracy of the model.

"Traditionally, the EV battery industry depends mostly on the expensive and time-consuming process of design-build-test-break for prototyping and manufacturing these batteries," said Jan Aase, director of the vehicle development research lab at GM Global R&D. "However, the virtual development of engineered products has proven to be an effective way of evaluating many design alternatives. This specific team was selected because of their individual track records of success in their respective fields for providing reliable technologies that lead to efficient products."

The team is leveraging NREL's considerable experience in multiphysics, multi-scale modeling of lithium-ion battery systems. The resulting design tools will be made commercially available through ANSYS. GM plans to validate and apply the model to its electric vehicles in development.

NREL expects that the resulting systems will become commercial offerings in about two years. This initiative is funded by DOE's Vehicle Technologies Program in the Office of Energy Efficiency and Renewable Energy.

First Wind begins new construction in Maine

First Wind, an independent U.S.based wind energy company, has obtained \$76 million in construction financing for its 34 MW Bull Hill Wind project in Hancock County, Maine. With financing in place, First Wind will start major construction activities on the project, which will have the capacity to generate enough clean energy to power about 18,000 homes.

A subsidiary of First Wind closed a \$70 million non-recourse construction loan and \$6 million in letters of credit for the Bull Hill Wind project. Union Bank served as administrative agent and Project LC Issuing Bank. Additionally, an affiliate of Union Bank will provide long-term capital through sale-leaseback financing for the Bull Hill Project upon achievement of commercial operations. The output of the Bull Hill Wind project will be sold to NSTAR under a longterm power purchase agreement, which was approved in August 2011. Once complete, Eastbrook and the surrounding communities in Hancock County will receive an average aggregate tax payment of approximately \$100,000 annually for the next 20 years and an additional \$240,000 annually in community benefit payments.

Construction of the project will include the installation of 19 Vestas 1.8 MW wind turbines on Bull Hill and Heifer Hill ridges in Hancock County, Maine. During construction, the Bull Hill Wind project will create about 200 jobs and will provide significant revenue to the surrounding communities. Maine-based contractor Reed & Reed has commenced site preparation work and is hiring mostly Maine-based businesses and subcontractors to work on the project. The installation of the turbines is expected to take place during the summer of 2012, and the project is expected to be online and operating by the end of 2012.

Bull Hill Wind will represent First Wind's fifth operational project in Maine. First Wind has 4 other operational wind projects in Maine including the 42 MW Mars Hill Wind project in Aroostook County, which just marked its 5 year anniversary of commercial operations, along with the 60 MW Rollins Wind project in Penobscot County and the 57 MW Stetson Wind and the 26 MW Stetson Wind II projects, both located in Washington County.

Equipment (

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Principal Solar sought solutions for Texas' energy lack

Principal Solar, Inc., a publicly traded solar energy holding company executing a roll-up strategy to create the world's first distributed solar utility, has released a white paper titled, "Solutions for the Texas Energy Shortage." Authored by Ron Seidel, PE, PSI board of directors, the paper examines strategies for spurring generation development to meet Texas' growing energy demands.

There is not sufficient financial incentive to encourage building new power plants, so as a long-term solution, the shift from traditional to solar power could be significant.

111 111

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Vintage Tech opens operations center in Midwest

Vintage Tech Recyclers, an asset recovery and responsible recycling company has selected a Kansas City area community for its newest operations center. The company has leased a 21,500 sq.ft. warehouse in Riverside, Missouri, just 6 miles north of downtown Kansas City. Vintage Tech Recyclers expects to create up to 50 new jobs in the next 3 years and plans to expand its facility to 40,000 sq.ft.

Vintage Tech Recyclers evaluated several locations in the Midwest and selected the Kansas City region for its central location and easy access to interstates and rail. As the most central located metro in the United States, Kansas City is one of only a few U.S. cities in which four interstates intersect. Five major railroads serve the metro, making Kansas City the largest rail hub in the nation in terms of tonnage.

The Kansas City Area Development Council, the City of Riverside, the Platte County Economic Development Council, the Missouri Partnership, Missouri Gas Energy, KC SmartPort and KCP&L worked together to bring Vintage Tech Recyclers to the Kansas City area.

A friend and I were standing in line at a fast-food restaurant.

There was a big sign posted. "No bills larger than \$20 will be accepted." The woman in front of us remarked,

The woman in front of us remarked, "Believe me, if I HAD a bill larger than \$20, I wouldn't be eating here."

ELECTRONICS Vermont renews contracts with NRRA for e-recycling

Detail-oriented processes are required by the state

BUY JUNK CARS DIRECT

To sustain the momentum of the electronics recycling program's (E-Cycles) first year achievements, the Agency of Natural Resources signed a renewal of a contract that began in July with the Northeast Resource Recovery Association (NRRA). With the contract renewal, NRRA will continue its administrative oversight of the Vermont E-Cycles Program through September of 2013. The first year target goal of 3,400,000 lbs. was surpassed on March 20, 2012 and current estimates are nearing the 5,000,000 lbs. mark for the first 12 months of this new collaborative program.

Vermont legislation established the manufacturer-funded E-Cycles program to provide convenient and free collection of waste computers, monitors, printers, computer peripherals and televisions across the state. The legislation established a goal to collect 5.5 lbs. of electronic waste per person, or 3.4 million lbs. in the first program year. The program was launched July 1, 2011, and on the first day of spring – less than 9 months into the program year – the Vermont E-Cycles program surpassed that expectation.

The success of the program is largely attributed to the convenience of having over 90 permanent collection sites across the state for Vermonters to choose from as well as many special collection events. Vermont residents, households, charities, schools and small businesses with 10 or fewer employees have responded to the challenge of keeping banned electronic waste out of the landfills.

The Northeast Resource Recovery Association (NRRA) and its partners, the Association of Vermont Recyclers (AVR) and Good Point Recycling (GPR) in Middlebury were selected from a competitive State RFP process in April 2011. NRRA is a New Hampshire-based association with over 30 years of experience as a clearinghouse and valuable source of technical and marketing assistance in the general areas of waste reduction for the region.

NRRA has an ongoing partnership with AVR which is a Vermont non-profit environmental organization established in 1982 as a grassroots effort to support recycling in Vermont. NRRA, AVR and Vermont-based Good Point Recycling were chosen based on their ability to provide expertise and oversight to a very detailed-oriented collection and tracking process required for the State of Vermont's manufacturer funded E-Cycles Program. These three organizations worked collaboratively with the state, and collection locations to easily exceed the first year's statewide electronic recycling goal.

E-Waste Systems signs letter of intent

E-Waste Systems, Inc., an electronic waste recycling and reverse logistics services firm has signed a non-binding letter of intent (LOI) to acquire an end-of-life electronics company with operations located in the Southwest, Central and Western regions of the U.S. as part of its strategy.

The acquisition target is profitable and is realizing significant growth under its existing team of quality executives. The intended acquisition will provide complementary services, geographical advantages and a customer base which matches the company's emphasis on servicing OEM's, major retailers, large corporations and government institutions.

This LOI requires that the names of the target be kept confidential to protect customers, suppliers and employees, but will be announced as soon as the definitive agreement has been executed. Due diligence has commenced, definitive agreements are pending and closing is contingent upon, among other items, completion of two years of PCAOB qualified audits, which are nearing completion.

According to the Environmental Protection Agency, various reports in the U.S. have stated that electronic waste is growing two to three times faster than any other waste stream, with a majority coming from large businesses and institutions. With the continuing introduction of new and enhanced electronic components, hundreds of millions of obsolete hardware devices will be entering the waste stream over the next three to five years.

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INTERNATIONAL

Recycled plastic product competition open for entries

EPRO declared this year's Best Recycled Plastic Product competition to find Europe's best recycled plastic product open.

Since its launch in 2009 the competition has witnessed a growing number of entries and an increased range of applications for recycled plastic.

This year's competition seeks to reach a wider audience and will recognize two new awards. Awards will be made for the first, second and third place with a new special award going to the best plastic recycled product from the IdentiPlast hosting country, which this year is Poland.

Also new for 2012, EPRO will be seeking consumer nominations. EPRO and the competitions supporting organizations, PlasticsEurope, EUPR, EUPC and ACR+ will be asking people to nominate their favorite product made from recycled plastic packaging via their social networking media. It is hoped that this new dimension will bring the everyday consumer closer to the competition and highlight new products that may not already have entered.

The key objective for the competition is to raise awareness of the value and versatility of used plastics packaging, the opportunity to recycle this material and to recognize it as a valuable resource.

Plastic packaging design, improved collection schemes, advances in sorting technology together with a greater range of reprocessing opportunities and applications means that the need to send many plastics to landfill is gradually decreasing.

Industry advancements have provided the capacity to sort, reprocess and recycle. The material needs to be supplied by the user, for an economical and environmental balance. Fulfilling the demand of the facilities across Europe and reducing the plastics resources going to landfill. EPRO believe that one of the most important ways of doing this is to raise the awareness of the products made from recycled plastics packaging, in turn showcasing a wide range of recycled products, thus creating a demand and maybe an appetite for new companies to start to design and manufacture more products made from recycled plastic – promoting the cycle of plastics.

This competition also enables the industry to further demonstrate their commitment and work in the area of Corporate Social Responsibility and for the consumer to more fully understand the scope of their environmentally friendly actions.

Product Manufacturer Entry – EPRO (European Association of Plastics Recycling and Recovery Organizations) invites producers of products made from recycled plastics packaging to enter. EPRO will collect examples of the best recycled products from across Europe from now until September 20, 2012.

Your product entry will need to:

•Contain a substantial percentage of postconsumer/postindustrial plastics (50 percent and over).

•Be a marketable product or a product that entered the market in 2010 or later.

•Be on the market and to have sold at least one unit.

•Either a B2B product, or a product for the consumer market.

•Sustainable with supporting information given on the entry form.

•Have been produced in Europe.

•Be made out of recycled used plastics packaging.

> For a direct link to online entry, view this article on www.AmericanRecycler.com.

SEE Algae Technology sells algae farm to Brazil's Grupo JB

SEE Algae Technology GmbH (SAT), a developer of infrastructure for the commercial production of high-quality algae, has signed an agreement to supply and install a one hectare dual-use algae production plant for Recife, Brazil-based Grupo JB (JB), a bioethanol producer in Brazil. Once operational, the production process will yield algae lipids which can be used to make biodiesel and biochemicals, among other compounds. Under the agreement, SAT will design an algae farm and provide its algae cultivation technology to JB, oversee installation, and ensure the farm's initial productivity.

Separately, SAT has also entered into a joint venture (JV) with Grupo JB to market the company's algae production technology in Brazil. Algas Do Brasil will be 63 percent owned by SAT and 37 percent owned by JB.



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Ludgate Environmental Fund invests in resource efficiency

Ludgate Environmental Fund Limited has three new investments in biomass, anaerobic digestion and waste heat recovery, each with the expectation of significant growth potential.

Ludgate Environmental Fund has committed £7.0 million to Tamar Energy Limited, to fund the development and construction of food and mixed waste anaerobic digestion plants that produce renewable energy.

Tamar Energy is developing a UK network of more than 40 plants with capacity to generate 100 MW of electricity over the next 5 years. The company has an advanced pipeline of projects as well as experienced engineering and construction partners with proven success in the UK.

Tamar announced in February that Sainsbury's, a UK retail user of anaerobic digestion, is both an investor and strategic partner. Sainsbury's is working closely with its suppliers to help them access Tamar's plants and thereby reduce the environmental impact of their operations. Ludgate Environmental Fund is investing alongside RIT Capital Partners plc, the Duchy of Cornwall, Fajr Capital and other investors.

Ludgate Environmental Fund is also leading a £5.3 million growth capital round in waste heat recovery company, Micropelt GmbH based in Freiburg and Halle, Germany. Mitsubishi UJF Capital Co. Ltd is participating alongside Ludgate Environmental Fund and existing shareholders. Micropelt's thermal energy harvesting technology uses waste heat to generate electricity, displacing batteries in automated equipment for a range of industrial and domestic applications. The company has strong partnerships with major semiconductor and system integrator players worldwide.

The third investment is £3.1 million in Ignis Biomass Limited. The funds are intended for the construction of a biomass energy plant in Wick, Scotland to replace oil-fired heat production for the district heating network which is to be bought from the Highland Council.

Quebec to hike bottle deposits in hope to increase recycling

Quebec's Minister for the Environment, Pierre Arcand, has stated that Quebec is doubling the deposit on beer cans, soft drinks, energy drinks and PET plastic containers and glass soft drink containers to \$.10 effective January 2013.

The new \$.10 fee will apply to soft drink containers, small beer cans and bottles. The exception are containers larger than 450 mls which are subject to a \$.20 deposit.

The increase will allow the government to free up more money to support retailers which collect the returned containers, the government agency Recyc-Québec said. Currently, retailers get a \$.02 handling fee, paid from unredeemed deposits. Environmental organizations support the move, calling it long overdue.

According to Boissons Gazeuses Environnement, a non-profit organization created by the Quebec soft drink industry, in 2010 the province recovered 708 million aluminum containers, 215 million plastic bottles and 5 million glass bottles for a total of approximately 22,290 metric tons.

Boissons Gazeuses also observed that 400 million deposit containers are still being thrown away in garbage in Quebec each year, and Quebecers forego \$20 million in unredeemed deposits annually.

PLASTICS

NextLife and 300 Recycling partner

NextLife[™] and 300 Recycling have revealed plans to form a strategic relationship utilizing 300 Recycling's collection expertise to expand accessibility to NextLife's proprietary sustainable resin solutions. NextLife and 300 Recycling intend to expand collection and processing of plastic waste found throughout the United Kingdom effective immediately.

NextLife converts plastic waste into FDA and Health Canada approved sustainable resins. NextLife currently supplies sustainable resin to many global customers used in a variety of applications and industries. As part of the company's strategic growth strategy, NextLife intends to utilize their own proprietary technology to produce and distribute globally the cleanest postconsumer resins manufactured. NextLife and 300 Recycling will focus on their respective core competencies.

"This strategic partnership allows NextLife to process more material from around the world, extending NextLife offerings to the UK and Europe," said Robert Dishman, executive vice president of Global Supply Chain for NextLife. "We plan to work together to create new product offerings and recycling opportunities in the United Kingdom."

300 Recycling utilizes collection expertise to provide plastic recycling services that would not exist otherwise. Recycling programs developed by 300 Recycling are designed to create the highest value and use for plastic waste that would otherwise end up in landfill.

Plastic package recycling increases by 15 percent across Canada The Canadian Plastics Industry said Carol Hochu, president and CEO of the CPIA.

Association (CPIA) released a new report informing Canadians that their recycling efforts have increased the amount of post-consumer plastic packaging being recycled across Canada. An additional 15 percent of plastic packaging was recycled in 2010 compared to 2009, as reported by Moore Recycling Associates Inc.

This increase is the result of more material collected for recycling as well as more companies providing recycling information. In total, over 217 million kilograms of post-consumer plastic packaging were collected for recycling in Canada.

The results are derived from a survey of over 500 companies who are handling recycled plastics in North America. These companies are made up of reclaimers, exporters, brokers, Material Recovery Facilities (MRFs) and other handlers of used plastics.

"We are elated that around 70 percent of the plastic packaging collected was recycled in Canada. This amounts to more than 149 million kilograms. We are building a recycling industry in Canada, re-using valuable plastic materials and creating jobs to grow the economy,"

Plastic packaging collected for recycling includes plastic bottles, non-bottle rigid plastics such as deli and dairy containers, bakery, vegetable, fruit containers and plastic film, bags and outer wrap. These valuable resources are reused to make, for example, fleece jackets, new plastic bottles, pipe, pallets, crates and buckets, decking and other lawn and garden products.

The plastic recycled quantities reported for 2010 by Moore and Associates Inc. compared to 2009 represent an increase of 13 percent for bottles, an increase of 6 percent for non-bottle rigids and an increase of 36 percent for plastic bags and outer wrap.

Of particular note, there was over a 50 percent increase in plastic film and bags collected for recycling from commercial businesses. In addition, of the total film and bags recovered, a third came from consumer curbside recycling programs across Canada. CPIA continues to work with partners and stakeholders across Canada to increase recycling opportunities and it appears to be paying off.



And even better, Canadian recyclers of plastics want more supply; they have underutilized capacity creating ample opportunity for consumers and businesses to supply our recyclers with more plastics. For instance, it is estimated that the film and bag recycling capacity in Canada to be at 38 percent utilization of the capacity and non-bottle rigid recycling capacity is at a 47 percent utilization of the capacity. There is plenty of room to increase plastics recycling.



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Bottle recycling pays off for soccer teams

In a close contest that saw several teams earn rewards for their recycling efforts, the Girls Under 13 Red Team from the California Odyssey Soccer Club is the winner of the first-ever Recycle. Goal. Central Valley recycling contest, which challenged local youth soccer teams to collect and recycle materials.

The winners recycled almost 1,970 lbs. of materials, including more than 300 lbs. of plastics, to win the competition. Overall, the participants collected and recycled more than 4,280 lbs. of materials, including nearly 1,500 lbs. of plastic.

The Central Valley contest is an extension of the successful Recycle. Goal. competition that started in Southern California three years ago.

All qualifying teams earned \$250 to go toward future tournament fees. The winning team will attend a Fuego game at Chukchansi Park and enjoy free food in a luxury suite at the field as a reward.

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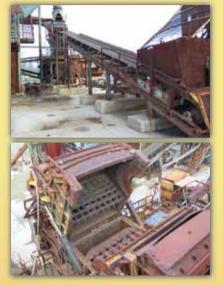
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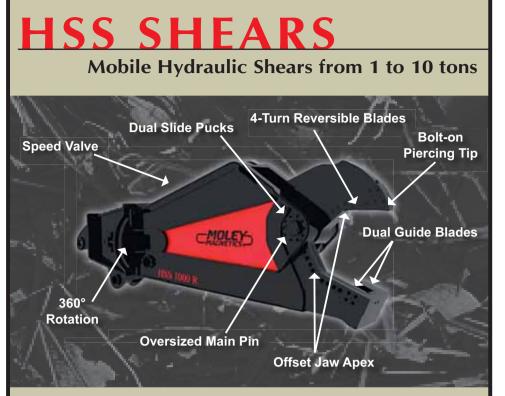


1995 HARRIS ABS 550 SEE IT RUNNING. Spare parts 19,000 hours.



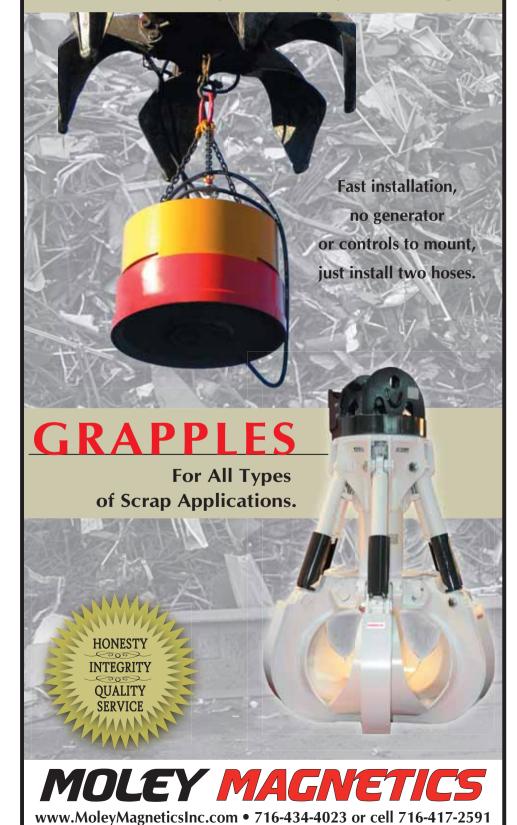
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MAGNETS

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METALS

Upstate Shredding-Ben Weitsman to build new wire chopping plant

A state-of-the-art wire chopping facility will bring 10 additional jobs to Owego, New York, according to Upstate Shredding-Ben Weitsman.

The new \$6 million facility, being built in Owego, will feature a wire chopping plant installed by the Wendt Corporation of Tonawanda, New York, and purchased from MTB Recycling of Trept, France. A new 100,000 sq.ft. nonferrous warehouse is being built to handle the additional flow of nonferrous material into Owego, New York.

"With this investment, we will be able to increase our profits and further process more valuable materials from the automobiles and other insulated wires we are currently selling to others," said Adam Weitsman, owner of Upstate Shredding-Ben Weitsman.

The plant will process copper, aluminum and lead coated wire from Upstate Shredding and all Ben Weitsman feeder yards. The company will also purchase insulated copper and aluminum, aluminum copper radiators and lead coated wire on the open market from dealers in the Northeast and Canada. In addition, the company will purchase insulated wire from other shredders.

All of the material – from the company's own shredders, feeder yards and materials purchased on the market – will be chopped into pure metals, which can then be sold on the open market. This refined material is highly marketable throughout the world.

The four stage process for an MTB chopping line is fully automated and is capable of separating the various components of the cable to pure metal – 99.7 percent to 100 percent pure aluminum and 98 percent to 99.9 percent pure copper.

A chopping line has four components. First is a pre-chopping process, raw feedstock of wire and cables are fed into a system that shreds or chops wires into consistent lengths. Next is granulation, when material from the pre-chopper is stripped of insulation. A third step, separation, divides recyclable metals from insulation materials, and finally in the last step, the materials are sorted and loaded into containers for resale.

FeMET, StEEL and Premier name internship placements

The American Iron and Steel Institute (AISI) and the Association for Iron & Steel Technology Foundation's Ferrous Metallurgy Education Today, or FeMET Initiative, and Steel Engineering Education Link, or StEEL Scholarship program, both aimed at attracting top talent to the North American steel industry, have awarded scholarships of \$5,000 to third year students from leading North American colleges for the 2011–2013 academic years. Each scholarship includes a paid internship at a North American steel company during the summer and a second scholarship of \$5,000 in the student's fourth year based on satisfactory academic and internship performance.

The following 2011–2013 scholars have been awarded internships for the summer of 2012:

FeMET

•John J. Andreiuk, Materials Engineering, University of Alberta –Internship at U. S. Steel Canada, Lake Erie Works, Nanticoke, Ontario, Canada.

•Andrew S. Etzold, Metallurgical Engineering, Missouri University of Science & Technology – Internship at TMK IPSCO, Research and Development, Houston, Texas.

For a complete list of the internships, view this article on www.AmericanRecycler.com.

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METALS

percent from May 2012

ment's most recent Steel Import Monitoring and Analysis (SIMA) data, the American Iron and Steel Institute (AISI) reported that steel import permit applications for the month of June totaled 2,796,000 net tons (NT). This was a 5 percent decrease from the 2,939,000 permit tons recorded in May and also a 5 percent decrease from the May preliminary imports total of 2,945,000 NT.

Import permit tonnage for finished steel in June was 2,171,000 NT, down 7 percent from the preliminary imports total of 2,323,000 NT in May. The estimated finished steel import market share in June was 24 percent.

In June, the largest finished steel import permit applications for offshore countries were for South Korea (331,000 NT, up 3 percent from May), China (195,000 NT, up 26 percent),

Based on the Commerce Depart- Japan (152,000 NT, down 18 percent), Germany (127,000 NT, up 23 percent) and Taiwan (75,000 NT, down 5 percent). Through the first 6 months of 2012, the largest offshore suppliers were South Korea (1,885,000 NT, up 25 percent from the same period in 2011), Japan (1,001,000 NT, up 32 percent) and China (790,000 NT, up 41 percent). Finished steel import permits for

products that registered large increases in June versus the May preliminary include tin free steel (up 102 percent), hot rolled bars (up 9 percent) and tin plate (up 8 percent). Major products with significant year-to-date (YTD) increases versus the same period in 2011 include reinforcing bars (up 55 percent), cut lengths plates (up 52 percent), oil country goods (up 41 percent), line pipe (up 38 percent and sheets and strip hot dipped galvanized



CR Scrap Metals 1 2 MarketWatch 3 5 Commodity Zone 2 Zone 3 Zone 4 Zone 5 Zone 1 \$319.00 #1 Bushelings \$228.00 \$265.00 \$325.00 \$325.00 per gross ton 242.00 264.00 274.00 330.00 318.00 #1 Bundles per gross ton 245.00 260.00 319.00 330.00 335.00 Plate and Structural per gross ton 248.00 256.00 314.00 315.00 305.00 #1 & 2 Mixed Steel per gross ton Shredder Bundles (tin) 200.00 237.00 215.00 310.00 210.00 per gross ton 237.00 215.00 310.00 210.00 200.00 **Crushed Auto Bodies** per aross ton 150.00 172.00 190.00 190.00 195.00 Steel Turnings per gross ton 2.70 3.05 3.05 3.15 3.26 i Coppe er pound #2 Copper 2.58 2.90 2.95 3.01 3.07 per pound Aluminum Cans .58 .58 .70 .70 .65 per pound Auto Radiators 1.98 2.05 1.90 2.13 1.66 per pound .57 .55 .60 .71 .70 Aluminum Core Radiators per pound 1.68 1.56 1.60 1.60 1.75 Heater Cores per pound .70 .55 .56 .67 Stainless Steel .73 per pound All prices are expressed in USD. Printed as a reader service only

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June imports decline by five Costa Concordia: structural integrity key to success of salvage operation

Joseph Farrell, founder and chief USA company that was awarded the Costa executive officer of Resolve Marine Group, Inc., a maritime emergency and disaster response, salvage and ship wreck recovery companies, said, "Removal of the capsized Costa Concordia cruise ship from the Tuscany coastline is one of the largest undertakings of its kind - this is a massive and complex operation which the entire world will be watching.

For more than 30 years, Resolve Marine Group has conducted hundreds of seafaring salvage and ship wreck removal operations. Among Resolve's historic headline missions is the oil spill cleanup operation following BP Deep Water Horizon catastrophe in the Gulf of Mexico in 2010 and its recovery of the aircraft and human remains at the Value Jet Flight 592 crash site in the Florida Everglades.

Resolve Marine Group also owns and operates the Resolve Maritime Academy. Since 1994, it has trained on-board firefighting techniques to more than 18,500 professional mariners.

Recently, the Academy – which has focused primarily on training marine firefighting, hazardous materials response and vessel damage control – expanded its curricula to include navigational safetyrelated programs.

Farrell said, "Resolve Marine Group has worked with Titan Salvage on a number of important maritime ship wreck projects." Titan is the Pompano Beach, Florida, Concordia project along with the Italian marine contractor Micoperi.

"The Costa Concordia is a massive, international assignment that will involve hundreds of personnel including naval architects and engineers, highly experienced salvage masters and a variety of specialists such as environmental consultants," explained Farrell.

"Based on my experience, Titan and Micoperio are staffed with qualified teams for this mission, which, I suspect, will require dispatching equipment and crews from around the globe," he said.

"The plan to upright the capsized craft; then slowly tow it to a port near Rome could take more than a year to complete. Because of the magnitude of this project, unlike other salvage operations and because the cruise ship is so close to land - the Costa Concordia requires special attention to the environmental concerns and to limiting disruption to the community, which relies almost entirely on tourism for its economic livelihood."

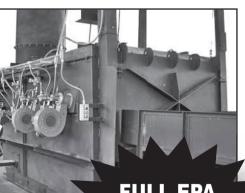
Farrell explained, "The salvage team has to be extremely careful not to cause adverse effects to the environment. Rolling and then refloating the ship in one piece rather than dismantling it piece-by-piece will be quite a feat. The main concern will be to not further compromise the ship's structural integrity, so that it can be maneuvered off the coast and to another port."

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METALS

Novelis recognized for sustainability leadership

American Metal Market (AMM) recognized Novelis Inc. with an award for Environmental Responsibility and Stewardship at the first Awards for Aluminum Excellence at a ceremony in New York.

Novelis was honored with the Environmental Responsibility Stewardship award for its commitment to sustainability. Novelis pledged to increase the amount of recycled aluminum input material in its manufacturing process to 80 percent by 2020 from 33 percent in 2010. Novelis' recycled content is now up to 39 percent. The company has adopted a number of ambitious targets to improve the eco-efficiency of its operations. Novelis is investing millions to increase recycling capacity, including more than \$350 million in Brazil, Germany, Korea, Italy and the United States.

"The award is a testament to the talented, dedicated individuals who make Novelis an industry leader and partner of choice to our customers every day," said Novelis president and CEO Phil Martens.

Logan Aluminum, a joint venture of Novelis and Tri-Arrows Aluminum, Inc., received the Aluminum Mill Excellence award. In 2011, the Logan Aluminum plant in Russellville, Kentucky, achieved record numbers in many aspects of its business, including the plant's best-ever Customer Satisfaction Index (CSI) rating since it began production in 1984. The CSI rating measures customers' satisfaction with Logan Aluminum in five key areas, including returned goods authorization rate and preferred supplier rating. The plant supplies beverage can body sheet, bare and coated end sheet and tab stock, providing aluminum for more than 40 percent of the aluminum beverage cans produced in North America.

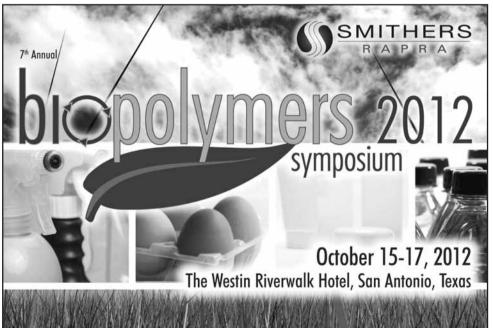
Novelis also had five other award finalists in the categories of Best Product Innovation, Best Brownfield Technology Project, Environmental Responsibility and Stewardship, Aluminum Advocacy and Aluminum Mill Excellence.

Nucor-Yamato Steel to expand hot rolled sheet piling production Nucor Corporation communicated Arkansas, and is expected to be completed

Nucor Corporation communicated that Nucor-Yamato Steel Company, a joint venture between Nucor and Yamato Kogyo Co. Ltd., has approved a \$115 million plan to expand the production of hot rolled sheet piling. This project will be completed at Nucor's steel mill in Blytheville,

in early 2014. Upon completion, the project will add

several new sheet piling sections, increasing the single sheet widths by 22 percent and providing a lighter, stronger sheet covering more area at a lower installed cost.



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- This is the industry's longest running and most comprehensive U.S. bioplastics conference, bringing together more than 250 key players and decision makers for debates, disussion and networking.
- The 2012 program is being designed by the organizations leading the way on technology, policy and innovation: NatureWorks, the University of Wisconsin Stevens Point, Novamont, SPI, the Institute of Local Self-Reliance, Michigan State University and the USDA BioPreferred Program.
- There is no better place to learn about new applications; the 2012 conference will cover semi-durable and durable applications like automotive, electronics, personal care and tires, as well as packaging applications.

"Excellent conference, good use of my time" Biodegradable Technologies Manager, CORTEC

Register online before August 24 and save \$100 off of your conference registration fee!



www.biopolymersummit.com

2012 Cans for Cash City Recycling Challenge ends

More than 114 million aluminum cans collected

The winners of the 2012 Cans for Cash City Recycling Challenge were announced by the U.S. Conference of Mayors and Novelis Inc.

Established in 2004, Cans for Cash is a national contest that rewards U.S. cities for recycling aluminum beverage cans. Combined, cities that participated in the 2012 Challenge collected 114,284,354 aluminum beverage cans during the challenge period. The amount of energy saved by recycling these cans could supply enough energy to power 10,884 U.S. homes for an entire day.

Grants were made in two categories – Most Cans Collected and Most Innovative Ideas. First place winners in each category were awarded \$25,000 grants and second and third place winners were awarded \$15,000 and \$5,000 grants, respectively.

Most Cans Collected recognizes the cities that collect the most aluminum beverage cans per capita during the challenge period (any consecutive 28 days between March 1st and April 30th, 2012). In this category the winners are:

First Place (\$25,000 grant)

•Milwaukee, Wisconsin, Mayor Tom Barrett; city population: 594,833; number of cans collected: 39,393,259; cans collected per capita: 66.2. Second Place (\$15,000 grant)

•Richmond, Indiana, Mayor Sally Hutton; city population: 36,812; number of cans collected: 2,258,852; cans collected per capita: 61.4.

Third Place (\$5,000 grant)

•University City, Missouri; Mayor Shelley Welsch; city population: 35,371; number of cans collected: 1,627,438; cans collected per capita: 46.0.

Most Innovative Ideas rewards the cities that employ the most creative strategies to promote aluminum beverage can recycling. Winners in this category are:

First Place (\$25,000 grant) •Pembroke Pines, Florida Mayor Frank Ortis Second Place (\$15,000 grant) •Newport News, Virginia Mayor Mckinley Price Third Place (\$5,000 grant) •Irvine, California Mayor Sukhee Kang

The Cans for Cash City Recycling Challenge has collected and recycled more than 902 million aluminum cans since the challenge started back in 2004.

Aleris implements new strategies

Aleris has established the Commercial & Defense Plate global market segment and a centralized sustainability initiative, both key strategic areas for the company.

Commercial & Defense Plate, a new organization, is the company's fourth global market segment, complementing existing businesses serving aerospace, automotive and heat exchanger customers.

Stephen S. Stone, formerly senior vice president and general manager, Rolled Products North America (RPNA), assumes the new role of vice president, Commercial & Defense Plate. Kelly R. Thomas, formerly vice president and treasurer, has been named senior vice president and general manager, RPNA, replacing Stone. Eric Rychel, most recently a managing director for Barclays Capital in the Investment Banking Division, has joined Aleris as treasurer and head of corporate development, replacing Thomas.

Centralizing Aleris' diverse worldwide sustainability activities in a single organization will enable the company to build global sustainability partnerships with its customers more efficiently. Guido Weber, formerly vice president, operations, RPNA, becomes vice president, sustainability. Thomas Brackmann, most recently president of Nichols Aluminum, has joined Aleris as vice president, operations, to replace Weber.

Skyline Steel acquired by Nucor

Nucor Corporation has completed the acquisition of the membership interest of Skyline Steel LLC and its subsidiaries for the purchase price of approximately \$605 million. Skyline Steel LLC is now a wholly owned subsidiary of Nucor Corporation and will maintain its headquarters in Parsippany, New Jersey. Nucor expects the acquisition to be accretive in the next full fiscal year of ownership.

Skyline Steel LLC is a steel foundation distributor serving the U.S., Canada, Mexico and the Caribbean. Skyline distributes quality products to service the most challenging applications, including marine construction, bridge and highway construction, heavy civil construction, storm protection, underground commercial parking and environment containment projects in the infrastructure and construction industries.

Skyline has 21 sales offices and a robust infrastructure comprised of processing and fabrication facilities, dozens of stocking locations, an efficient supply chain and exclusive engineering support. Skyline's flagship products include hot rolled and cold formed sheet piles, H-piles and pipe piling. The company's processing and fabricating capabilities include spiralweld pipe piling, rolled and welded pipe piling, cold formed sheet piling and threaded bar in Pennsylvania, Mississippi, Ohio, Illinois and Washington.

AUTO

GM marks 100th landfillfree facility

A single plastic bag of household garbage represents more trash going to a landfill than 100 General Motors facilities combined.

GM recently added its 100th landfill-free facility - a parts distribution center in Lansing, Michigan. It is a milestone in the company's ongoing efforts. No other automaker has as many facilities contributing zero waste to landfill.

GM first reduces waste and then focuses on recycling and reuse. In 2011, it recycled or reused 2.6 million metric tons at its facilities worldwide. That is equivalent to more than 38 million trash bags, or more than a month's worth of trash for every resident in New York City. GM recycles more waste from its worldwide facilities than any other automaker.

"Our landfill-free program continues to strengthen our business by creating efficiencies, generating revenue and inspiring innovation with products made from recycled content," said Mike Robinson, GM vice president of Sustainability and Global regulatory affairs. "It's a mission that's integrated within our business processes. Everyone here plays a role in its success."

GM began tracking its waste 15 years ago, and, armed with this insight, improves its recycling each year. All of its worldwide facilities combined including landfill-free plants and all others - recycle or reuse more than 90 percent of the waste they generate.

In conjunction with its suppliers, GM recycles scrap cardboard from various plants into a sound absorber on the Buick Lacrosse and Verano interior roof. Air deflectors on the Chevrolet Silverado and GMC Sierra pickup trucks are made with used tires from the automaker's proving ground. GM regularly shares its recycling best practices with companies of all sizes and industries.

In its first sustainability report as a new company, GM committed to achieve 25 more landfill-free sites and reduce total waste by another 10 percent by 2020. Since 1997, the company has reduced total waste by at least 43 percent.

In 2011, GM reduced total waste generated per vehicle by 5 percent at its global manufacturing facilities. Its recycling and reuse efforts last year avoided 10 million metric tons of CO2-equivalent emissions. GM's landfill-free roster includes more than half of its global manufacturing facilities.

Independent sustainability agency Two Tomorrows audited GM's landfillfree and recycling leadership.

For a direct link to more information, view this article on www.AmericanRecycler.com.

Pratt Industries opens facility in South Carolina

Pratt Industries, a recycled paper and packaging company, officially opened its new material recovery facility (MRF) in Spartanburg County, South Carolina in June.

The state-of-the-art, \$3.5 million facility replaces a smaller recycling plant the company had operated nearby.

"Due to the loyal support of our customers and the growth in this area we outgrew that facility and decided to re-invest in the community by building a plant for the future," said Myles Cohen, Pratt's recycling division president. "At 62,000 sq.ft., this new site is more than 6 times larger and offers expanded recycling services."

The new plant recycles both residential and commercial single streams, including all grades of paper, cardboard, glass, aluminum, steel and plastic, as well as other materials. In addition, it can handle all recyclables from industrial and retail businesses.

"It will improve the recycling capability for the entire upstate region, so from an economic standpoint, this expansion benefits the state of South Carolina, area businesses and the communities in the Upstate," Cohen said.

According to Cohen, the facility's close proximity to I-85 makes it convenient and cost-effective for those who want to deliver their recyclables directly to the site.

"But we still offer full transportation capabilities within a 100-mile radius including van trailers, roll off services, flat-bed services and front-end loader programs," he said.

At capacity, the MRF will recycle 10,000 tons of paper per month – the equivalent of more than 2 million trees a year.

Pratt is America's 5th largest box company with more than 4000 greencollar employees.

PAPER

AF&PA paper reports posted

The American Forest & Paper Association released its May 2012 U.S. paper reports.

Containerboard

Containerboard production rose 1.3 percent over the same month last year and 7.2 percent compared to April 2012. The month-over-month average daily production also reflect an increase of 3.7 percent. The containerboard operating rate for May 2012 gained 3.7 points over April 2012, from 91 percent to 94.7 percent.

Paperboard

production Total boxboard decreased by 0.3 percent compared to May 2011 but increased 2.8 percent from last month. Unbleached Kraft Folding production increased over the same month last year and increased compared to last month. Total Solid Bleached Boxboard & Liner production increased compared to April 2011 and increased compared to last month. The production of Recycled Folding decreased compared to April 2011 but increased when compared to last month.

Recovered Fiber

According to the report, total U.S. industry consumption of recovered paper in May was 2.54 million tons, 3 percent higher than April 2012. Year-to-date consumption in 2012 is 3 percent lower than during the same period last year.

Printing-writing paper

Total printing-writing paper shipments increased one percent in May compared to May 2011. Shipments for the two coated printing-writing grades posted year-over-year increases compared to last May while shipments for the two uncoated grades declined. U.S. purchases (shipments + imports exports) of printing-writing papers decreased one percent in May. Total printing-writing paper inventory levels also changed by one percent, decreasing compared to last month.

Additional key findings include:

•Shipments of coated free sheet (CFS) papers increased the most among the four printing-writing grades yearover-year. The increase is the largest since September 2010.

•Shipments of coated mechanical (CM) papers also increased the largest year-over-year since September 2010.

•Shipments of uncoated free sheet (UFS) papers decreased year-over-year by less than one percent.

•Uncoated mechanical (UM) paper shipments continue to decline year-overyear following on the heels of 15 consecutive year-over-year increases from January 2010 through March 2011; average growth during those 15 months was 17 percent.

Business Leadership Paper Recycling Award presented

The American Forest & Paper Association (AF&PA) 2012 Business Leadership Recycling Award was presented to One American Center, a 32 story office building located in downtown Austin, Texas that is operated and managed by Thomas Properties Group.

The One American Center program stood out from other entries as a result of the successful recovery of more than

145,000 lbs. of paper and paper-based packaging in 2011 (505 lbs. per tenant) and an additional 208,000 lbs. of shredded confidential files. Even more impressive, the recycling program is offered on a voluntary basis to tenants, who are educated through newsletters, building-wide recycling events, brochures and a website.

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BUSINESS BRIEFS

Wastequip adds Moore as new board member

■ Wastequip added George Moore to the board of directors of Wastequip's parent holding company, Patriot Container Corp. Moore is currently executive vice president at Rexnord Corporation.

Prior to joining Rexnord in 2006, Moore was executive vice president and CFO at Maytag Corporation. Before that, he was with Danaher Corporation as group CFO, where he was responsible for tools, test and measurement, environmental and retail petroleum and water quality platforms. He has additional experience with Yield House Inc., and Arthur Andersen & Co.

Moore has been a member of the advisory board for FM Global since 2004. He was a board member and audit committee member of Jacuzzi Group Worldwide from 2008 to 2010.

Pennsylvania DEP names Langer as regional director

■ Lynn Langer has been named regional director of the Department of Environmental Protection Agency's Southcentral office. Langer has served since 2004 as the region's assistant director.

Langer joined what was then called the Department of Environmental Resources in 1983. Her career has involved everything from working to prevent pollution to chairing a workgroup of state, local and federal stakeholders to develop one of the state's water protection programs. Langer has also served as chief of DEP's watershed protection section.

Bandit Industries adds three new dealers

■ The U.S. dealership network for Bandit Industries continues to expand rapidly through 2012. Three new dealerships have signed on to help meet growing demand for Bandit equipment, providing sales, parts and service support for Bandit customers in the Northeast and South.

Niagara Frontier Equipment Sales – western New York: Located in Lockport, New York, Niagara Frontier Equipment Sales has been serving residents in western New York for over 40 years. The company will stock a complete line of Bandit hand-fed chippers and stump grinders, with full on-site support for parts and service.

Tuff Equipment Company – central Tennessee: Serving customers from branch locations in Goodlettsville and LaVergne, Tuff Equipment Company is a large-scale dealer. The company will cover central Tennessee from north to south, stocking and selling Bandit's full line of hand-fed chippers and stump grinders.

Crusher Works – northern and central Alabama: Crusher Works in Bessemer, Alabama will specialize in sales and service for Beast[®] Horizontal Grinders. With over 30 years of combined experience in heavy duty crushers and shredders, Crusher Works is qualified to provide total sales, parts and service support for Bandit's full range of diesel and electric-powered Beast grinders. The company will take care of Bandit customers throughout north and central Alabama.

Timken board elects Diane Creel as company director

■ The Timken Company's board of directors has elected Diane C. Creel as a director of the company, for a term that expires at the company's annual meeting in 2013. The election restores Timken's board to 12 members.

Creel is the recently retired chairman, chief executive officer and president of Ecovation, Inc., a green technology company providing waste to energy treatment solutions to Fortune 1000 companies in the food and beverage industries. She now applies her 35 years of expertise consulting with clients in the engineering, architecture and construction industries.

Prior to Ecovation, Creel was chairman, chief executive officer and president of Earth Tech, Inc., which, during her tenure as CEO, completed 27 acquisitions and grew revenues from \$50 million to \$1.6 billion. She currently serves on the boards of directors of Allegheny Technologies, Inc.; EnPro Industries; and Goodrich Corporation. She holds many career awards in recognition of her entrepreneurial spirit and leadership and is also chairman of the Canyon Creek Foundation, a philanthropic foundation for the betterment of communities. Creel holds Bachelor of Arts and Master of Arts degrees in journalism from the University of South Carolina.

Everybody starts out with a full bag of luck and an empty bag of experience. The trick is to fill the bag of experience before the luck runs out.

Komptech USA adds new dealer in Canada

■ Komptech USA welcomed the latest partner to their expanding network. Foreman Equipment, Ltd. is now the authorized Komptech equipment distributor for British Columbia and Yukon, offering local sales, parts and service support for the complete Komptech product line. Foreman has been a distributor of Powerscreen crushing and screening equipment for more than 25 years and joined a list of other successful Powerscreen dealers that also represent Komptech equipment.

With locations throughout British Columbia, Foreman Equipment is Western Canada's leading supplier of quality screening, crushing, road-building and now recycling equipment. The company carries over \$1 million in parts inventory at its main warehouse in Abbotsford, BC in order to provide local support to keep its customers up and running profitably.

Heraeus reorganizes U.S. Chemicals Division

■ Heraeus, a precious metals and technology group headquartered in Hanau, Germany, reorganized the company's U.S. chemicals division into a single legal entity, Heraeus Precious Metals North America LLC (HPMN). Heraeus' U.S. trading division began operation under the name Heraeus Metals New York LLC on July 1, 2012.

The realignment of HPMN will now bring the U.S. chemical sites in Newark, New Jersey, Wartburg, Tennessee and Santa Fe Springs, California, together as one legal entity.

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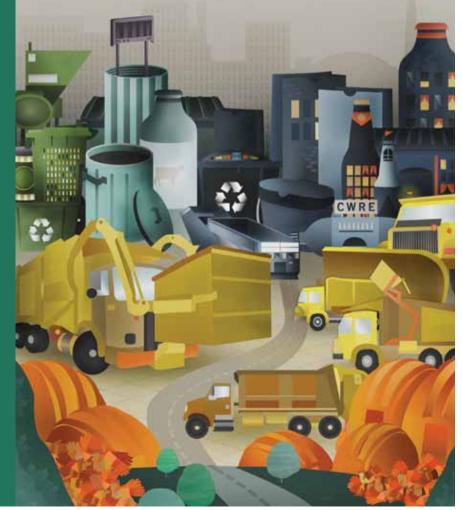
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BUSINESS BRIEFS

Industry veteran joins Paragon Environmental

Steven Haskins, an industry veteran with nearly 30 years' experience, has joined Paragon Environmental Construction of Brewerton, New York, as the company's vice president of construction.

In this role, Haskins is charged with managing the company's construction division, and oversees estimating, procurement and operations for Paragon.

Haskins, who holds degrees and certifications from Potomac State College of West Virginia University, has held a variety of positions in fields of increasing responsibility in both the public and private fields. He was the assistant highway superintendent for Wayne County, New York, overseeing various aspects of the department's operations. He has also worked in the private sector, estimating costs and assisting in preparing bid proposals for various projects. Most recently, he worked for Tug Hill Construction, Inc., of Watertown, New York, preparing requests for proposal documents for government and commercial heavy civil construction projects, including technical and pricing components.

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The Magnetics Division, Global Equip

A10

Ohio Baler owner acquires United Services GP, Inc.

■ Mike McChrystal, the owner of Ohio Baler Co., based in Cleveland, Ohio, has acquired United Services GP Inc. (USGP), a full-service equipment sales and service company for the recycling industry. USGP also provides rigging services.

McChrystal said the acquisition complements Ohio Baler's national reach as a distributor and service provider for the recycling industry and allows the company to expand its rigging business. As part of the acquisition, United Services' name will change to OBC Rigging.

Indicative of the emphasis on rigging services, OBC Rigging is involved in relocating Conversion Resources LLC's facility to Cleveland.

Frank Towns, a 32 year veteran in the rigging business, will head the new operations which will remain in Rochester through the transition but it is expected that the business will move to Cleveland by the end of this year.

Company Wrench partners with SANY America

Company Wrench entered a new distribution partnership with SANY America. This new partnership will add an additional excavator product line for Company Wrench's customers in multiple locations across the United States.

Over the next 12 months, SANY America and Company Wrench have planned an aggressive strategy targeting both the rental and end-user segments.

Events Calendar

August 14th-16th WASTECON. Gaylord National Resort & Convention Center, Washington, DC. 240-494-2256 • www.wastecon.org

Solar Power International 2012. Orlando County Convention Center, Orlando, Florida. 703-738-9460 • www.solarpowerinternational.com

September 12th-14th 22nd Annual Arkansas Recycling Coalition (ARC) Conference & Trade Show. Robinson Center, Little Rock, Arkansas.

866-290-1429 • www.recycleark.org

September 16th-18th 5th Annual Waste-to-Fuels Conference & Trade Show. Mystic Marriott Hotel & Spa, Mystic, Connecticut.

800-441-7949 • www.waste-to-fuels.org September 26th

Upper Peninsula Recycling Coalition. Bay West College Campus, Iron Mountain, Michigan. www.uprecycles.com

September 29th-October 3rd WEFTEC 2012 – 85th Annual Water Environment Federation Technical Exhibition and Conference. New Orleans Morial Convention Center, New Orleans, Louisiana. 800-666-0206 • www.weftec.org

October 23rd-24th Northeast Recycling Council Fall Conference. Hotel Northampton, Northampton, Massachusetts www.nerc.org

NEW PRODUCT SHOWCASE



Atlas Copco 3700 E 68th Avenue Commerce City, CO 80022 800-732-6762 www.atlascopco.us



Atlas Copco has added two models of bulk pulverizers, the BP 2050 and BP 3050, to their range of silent demolition tools. Features include a specially angled shape and wide jaw for improved access to material and a speed valve for a more rapid open and close cycle.

The wide jaw makes it easier to feed in material, and aids in the separation of rebar and concrete. The large jaw dimensions enable a high production output. Each model comes with a replaceable tooth-plate and cutting blades on the jaw which results in less down time in the field.



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RIG SOURCE DEBUTS TERRAMAC CRAWLER CARRIER LINE

Rig Source, Inc. has introduced their new Terramac RT9 rubber track multipurpose carrier. The CE certified Terramac RT9 model has an 18,000 lb. carrying capacity and is equipped with a 230 hp Cummins diesel engine in both open cab and closed cab options.

The unit has rollover protective structure as well as falling object protective structure components. Ground pressure when fully loaded is only 4.9 psi. The RT9's easy front and rear bolt-on attachments can accommodate a variety of needs in the drilling and general construction industries.

SENNEBOGEN ADDS NEW MAGGRAPPLES TO PRODUCTS

The combination grapples and magnets have been designed and built to Sennebogen engineering specifications. Due to the number of different product scenarios, Sennebogen is offering 11 models, and depending upon the application and the range of product being picked up, the corresponding magnets are available in various diameters.

Each unit features 360-degree rotation and is designed to accept both high radial and axial loads. Spiral steel hose guards help prevent hose damage and the cylinders are protected with removable guards for ease of service.

WARREN & BAERG ADDS MODEL G278-30-400 GRINDER

The model G278-30-400 grinder with feed roller assembly is the largest and latest generation of Warren & Baerg's high production, virtually dust-free round bale grinders. The G278-30-400 grinder is designed specifically for round bales, it also handles square and mid-size bales.

With the new feed roller assembly system, it's possible to effectively process round bales in excess of 20 tons per hour, in a cleaner environment than the traditional tub grinder. The feed roller assembly eliminates material slugs eliminating amp draw spikes increasing production output through better utilization of power.

WENNSOFT OFFERS EVOLUTION ASSET MANAGEMENT SOLUTION

WennSoft has released WennSoft Evolution – a complete operational solution for organizations focused on work order management, asset management, installation, field service and maintenance. The solution is designed for equipment-centric organizations in the energy, construction, and manufacturing and distribution industries.

Evolution delivers asset management, maintenance agreements, simple and segmented work orders, field service, advanced dispatching and scheduling, mobile solutions for field technicians, quotes, purchasing and invoicing. Page A20, August 2012

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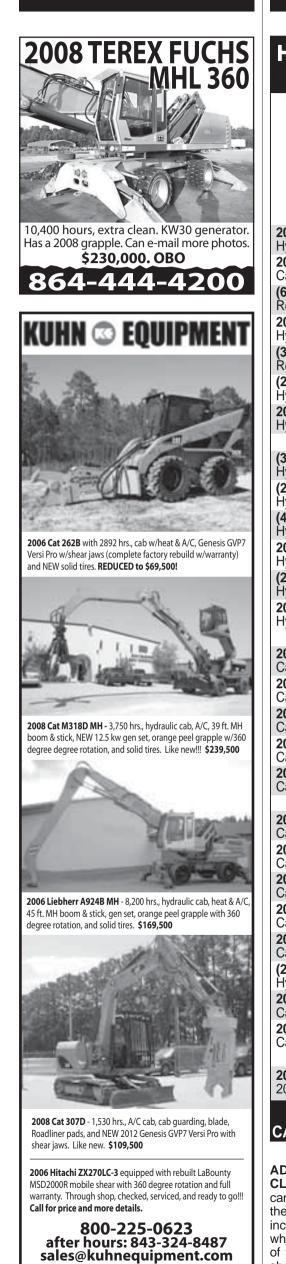


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American Recycler



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LEGAL FOR TRADE NTEP SCALES: Floor scales 4 x 4 5,000 lbs. \$775, 5 x 5 5.000 lbs. \$1,000 ship free! Crane scales 250 lbs. and up start at \$775. Bench scales 100 lb. and up start at \$239. All scales pre-calibrated. Other sizes and capacities. American Weigh Scales 770-542-0230 mail@awscales.com www.americanweigh.com

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WANTED TO BUY: Allied Gator good used shear MTR series, size 40 to 90. Contact Dave Kotula at 218-929-0299 or e-mail davebo40@hotmail.com. Also buying good used conveyor belting.

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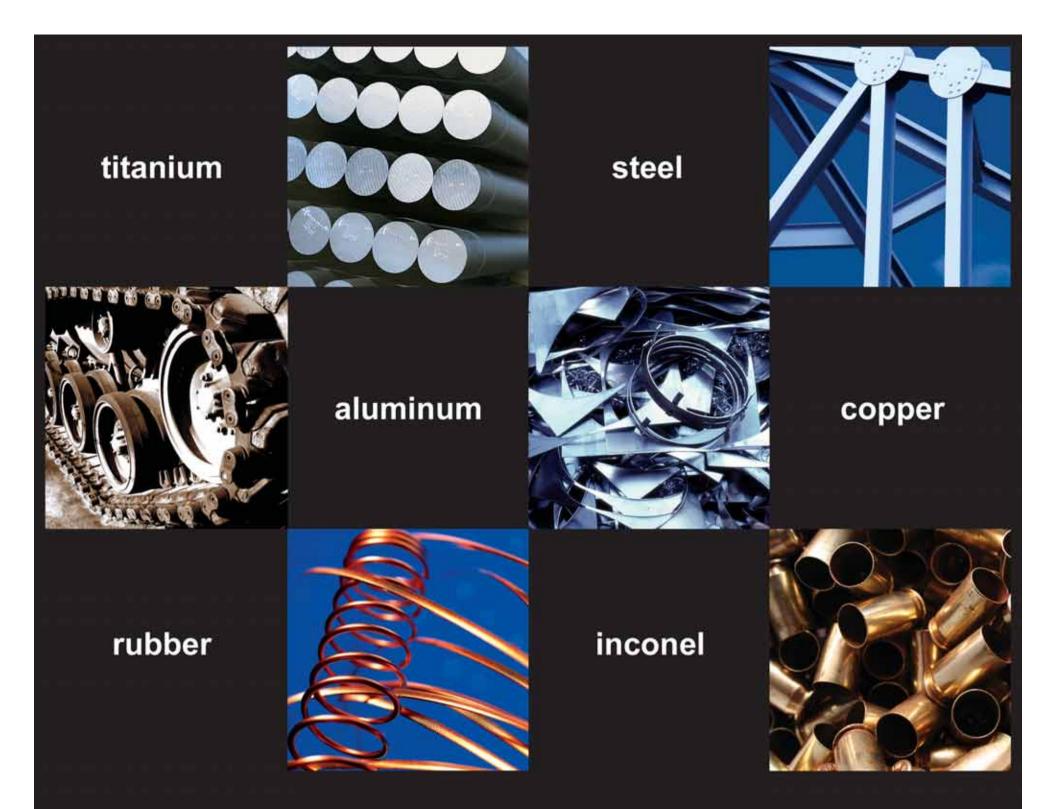


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Mining project hunts treasure in old landfills

by MARK HENRICKS

mhenricks@americanrecycler.com

To most people, a landfill is a place where trash goes to stay forever. For advocates of landfill mining, however, a landfill is a temporary storage place for materials that may not be recyclable at the moment. As recycling technology improves, the thinking goes, someday a landfill will be seen as a repository of value, not waste.

While the idea makes some sense, and sporadic landfill mining projects have occurred here and there, no fullscale landfill mining project to strip the value out of a landfill has been demonstrated. But in Belgium, it appears that such a full-scale project may be underway. There, at the Remo Milieubeheer landfill site in Houthalen-Helchteren, a consortium of European firms aim to dig out the tons of contents in the site, convert some to energy and the rest to valuable materials, and then turn the land into a nature park.

According to Group Machiels, the Belgian environmental construction and development company that owns the site and is spearheading the effort, it will take 20 years and more than \$280 million dollars to complete. Machiels said the site contains more than 16 million tons of waste, of which 45 percent can be recycled as material. The balance will be converted to energy through a gas plasmafication process supplied by its partner, Advanced Plasma Power of London.

An energy plant using up to five of Advanced Plasma Power's Gasplas-



As recycling technologies improve and allow reclamation of an ever increasing number of materials, landfills have become something to be mined for value, rather than distasteful necessities.

ma units will be constructed, generating up to 100 megawatts of electricity, enough to power 100,000 homes. The vitrified residue from the Gasplasma plants will be marketed as construction material.

Technology Arrives

One of the key elements of the Remo project is the availability of Advanced Plasma Power's energy conversion technology. "This process delivers high overall energy efficiency, maximum combined heat and power potential, maximum landfill diversion, minimal generation of secondary residues and very low plant emissions," said Advanced Plasma Power CEO Rolf Stein. Stein said valuable recyclable materials will be filtered out at the beginning of the process. The remainder – largely organic material – will be processed into energy. The company describes the Gasplasma process as consisting of three stages. In the first, waste feedstock is gasified to produce ash and gas. A See MINING, Page 7

AUGUST 2012

Cal/OSHA fines EDCO Waste and Recycling

The California Department of Industrial Relations' (DIR) Division of Occupational Safety and Health (Cal/OSHA) has issued 7 citations totaling \$111,935 in penalties to Southern California-based EDCO Waste and Recycling Services Inc., a collection and recycling company with a history of safety violations and worker injury. "EDCO Waste and Recycling Services Inc. failed to provide vital safety training, leading to dangerous accidents and serious injury," said DIR director Christine Baker. "Proper workplace safety training is critical because it reduces severity of harm following accidents and, more importantly, prevents acci-

dents from occurring in the first place."

Cal/OSHA's citations include a Serious and Willful violation and Serious Accident-Related violations that resulted in a severe injury to a worker at EDCO. Cal/OSHA had previously cited the company for the same problems that led to this recent worker injury. "EDCO violated critical safety standards requiring that machinery be de-energized and equipment locked down to prevent movement during maintenance work," said Cal/OSHA chief Ellen Widess. "EDCO was given prior orders to fix these serious hazards and failed to do so, which resulted in See EDCO FINED, Page 6



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A Letter from the Editor

Readers,

When I was younger, I really, really wanted a metal detector. In my mind, there was treasure waiting to be found in every backyard and on every beach, and it would be mine for the taking if only I had the means to ferret it out.

While I never got my metal detector, nor found any treasure, a company in Belgium has taken treasure hunting to a grandiose new level. There, they are determining the feasibility of mining 16 million tons of landfilled material for the resources hidden within.

Though I imagine it's much stinkier than most beaches, and likely much more hazardous than my backyard, the kid in me thrills at the idea of plumbing the fetid depths for discarded wealth. And while the project isn't about plucking precious metals from the rubbish, the odds of there being something awesome in 16 million tons of garbage have to be pretty good.

In this month's Focus cover story, author Mark Henricks explores the Belgian landfill mining initiative, and discusses the benefits and barriers to the widespread adoption of the practice. And while the project's main goal is to recover recyclable materials and generate energy from the remaining trash, perhaps the company will set up a picking line for me to man for a week or so. Now that would be a real (smelly) treasure hunt.

The day dreams of my youth aside, I hope you enjoy the August issue of American Recycler. We have a lot of other great articles for you to explore and mine for precious knowledge and industry trends. If your idea of treasure is a little more mature, perhaps you ought to peruse our cover story about acquisitions and consolidation in the electronics recycling industry. Now there's an industry where one may truly hope to find gold and other precious metals.

As always, feel free to get in touch with questions, comments or responses to articles we've published. I'd be interested in hearing our readers' tales of treasure – have you had anything unusual or interesting brought into your facility? If anyone has a truly interesting story, perhaps we'll share it in next month's American Recycler.

Until next month,

Dave Fournier Focus Section Editor david@americanrecycler.com

Star Atlantic Waste Holdings plans purchase of Veolia ES Solid Waste

Star Atlantic Waste Holdings II, L.P., a Highstar Capital portfolio company, disclosed that it has reached an agreement to purchase Veolia ES Solid Waste, Inc. from Veolia Environmental Services North America Corp. Star Atlantic will combine its existing investments in Advanced Disposal Services, Inc. and Interstate Waste Services, Inc. with the acquired Veolia operations. The combined business, which will operate

as Advanced Disposal Services, will be the largest privately owned environmental services business in the United States. It will have operations in 20 states and have annual revenues of approximately \$1.4 billion, a fleet of over 3,000 trucks, 47 landfills, 92 transfer stations and 5,450 employees.

The transaction is subject to customary regulatory approvals and is expected to close this fall. Star Atlantic has obtained committed financing from Deutsche Bank Securities, Inc., Macquarie Capital, UBS Investment Bank and Barclays. Deutsche Bank Securities, Inc. acted as lead financial advisor to Highstar Capital and Star Atlantic. Macquarie Capital acted as co-advisor to Highstar Capital and Star Atlantic. Winston & Strawn LLP acted as legal advisor.

Weilbach to join Valet Waste board of directors

Valet Waste's Steven Weilbach will be joining the board of directors. Based in San Francisco, Weilbach is a 25 year veteran of the commercial real estate industry with extensive experience in the multifamily property sector. At present, Weilbach is the national head of multifamily for Cushman & Wakefield, overseeing its United States investment sales group where he is responsible for directing strategic initiatives, business development and client services. Previously, he was principal, managing director and chief investment officer for Pacific Property Company.

Republic Services executive elected to the EREF board

The board of directors of the Environmental Research and Education Foundation (EREF) reported the election of its newest members – Joe Benco, vice president, engineering and environmental management, Republic Services and Bruce G. Wilson, professor and department chair, Department of Civil Engineering, University of New Brunswick.

Joe Benco started with Allied Waste in 1998 as an environmental manager for the western Missouri/Nebraska district based in Kansas City. After the BFI acquisition in 1999, Benco moved to become the regional engineer of the Great Lakes Region. In 2004, he was promoted to a senior manager in the corporate office, and became the department director in 2006.

In March of 2008, Benco was promoted to vice president of engineering and environmental management, a position that continued through the merger with Republic Services. In this role, Benco is responsible for the management of the company's environmental issues and construction.

Benco is currently serving as the business committee chair for the Global Waste Management Symposium.

Bruce Wilson is a professor in the Department of Civil Engineering at the University of New Brunswick in Fredericton, Canada and has served as chair of the department since 2008. He teaches courses in solid waste management, municipal engineering, environmental planning and sustainability. His current research focuses on the efficiency of solid waste collection systems.

Wilson started working on waste reduction, recycling and composting projects in 1988 as a consultant with Resource Integration Systems Inc. in Toronto, Ontario. In 1992, he joined the Waste Reduction Branch of Ontario Ministry of the Environment as a material specialist working on composting and tire recycling projects. In 1997 he returned to university to study solid waste collection systems.



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WM rolls out stormwater program strategic alliances

Waste Management, Inc. (WM) has implemented a program to provide a total stormwater management offering to U.S. municipalities in the form of public-private strategic alliances. WM, in collaboration with AbTech Holdings, Inc., an environmental technologies and engineering firm specializing in addressing water contamination issues, will team up with municipalities to design, build, operate and service stormwater infrastructure.

One year after announcing its pilot stormwater solutions program with AbTech, WM is transitioning to commercialization with its stormwater solutions. Along with these solutions, the program has the potential to include finance alternatives for the municipal infrastructure as needed.

"Our approach is to team with municipalities and provide comprehensive, turnkey stormwater solutions working with AbTech Industries," said Paul Pistono, vice president of public sector solutions at Waste Management.

Under WM's stormwater program offering, AbTech Industries, Inc. will provide and deploy stormwater treatment technologies, deploying both their own technologies and other commercially available engineered systems, teaming with WM and municipalities. The program offering will also include stormwater needs assessments, design of stormwater control measures and ongoing servicing and maintenance of the stormwater infrastructure.

Marathon partners with Zero Waste Energy on new plants

Marathon Equipment Company Solutions Group, of which Marathon has entered a new strategic partnership with Zero Waste Energy of Lafayette, California.

Through this exclusive partnership, Marathon will manufacture anaerobic digestion systems for Zero Waste Energy, and both companies will collaborate on synergistic wasteto-energy market development and sales activities like providing renewable CNG for refuse collection applications targeting the global waste handling customers of Environmental

is a part.

Marathon is a manufacturer of onsite waste compaction and recycling systems.

Zero Waste Energy designs, builds and operates integrated solid waste facilities throughout North America. They recover material for recycling and reuse while transforming organic waste into green renewable energy through an anaerobic digestion, dry fermentation process via their Smartferm system.

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RECYCLING SYSTEMS

Covanta reaches waste disposal agreement in Tulsa

Covanta WBH, LLC, a subsidiary of Covanta Energy Corporation, a sustainable waste management and renewable energy company, divulged that it has entered an agreement with Tulsa, Oklahoma that extends current waste disposal services for the municipality. The agreement, which was approved by the Tulsa Authority for the Recovery of Energy, runs from July 2, 2012 to June 30, 2022, with options to extend the agreement thereafter. The contract provides reliable, long-term sustainable waste disposal to the residents of the city and continues a successful partnership between Covanta and Tulsa that began in the 1980s.

The Covanta WBH energy-fromwaste facility holds special meaning for Covanta as it was the first energy-fromwaste project built by the company. Today, the facility processes over 300,000 tons of municipal solid waste per year and generates up to 240,000 pounds-per-hour of steam. The steam is used to generate clean electricity and is delivered to an adjacent refinery, offsetting their need for fossil fuels to generate steam on-site. The facility also recovers thousands of tons of metals per year for recycling that would have been lost had the city's waste gone to a landfill.

With this agreement, the city's waste comprises approximately onethird of the facility's capacity, solidifying Tulsa as Covanta WBH's largest municipal client.

Annually, the Covanta Energyfrom-Waste facility in Tulsa:

•Converts over 300,000 tons of municipal solid waste and non-hazardous industrial waste into more than two billion lbs. of steam and approximately 50,000 megawatt hours of renewable electricity,

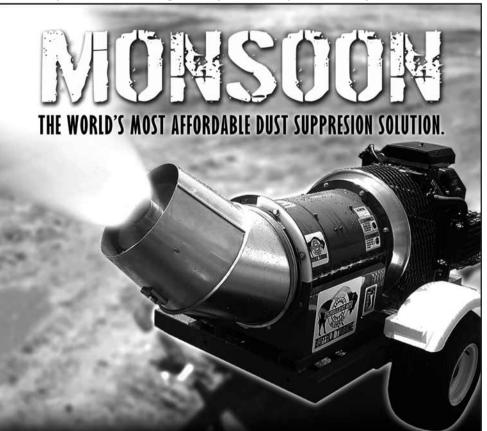
•Recovers and recycles more than 7,700 tons of metal, the equivalent amount of steel used to build more than 6.000 automobiles.

•And, offsets the need for 300,000 barrels of oil or 75,000 tons of coal.

Recovering energy from waste after efforts to reduce, reuse and recycle have been employed is a critical component of managing residual waste. For every ton of municipal solid waste processed at energy-from-waste facilities like Covanta WBH, greenhouse gas emissions are reduced by the equivalent of approximately one ton less of carbon dioxide emissions. This is possible due to the avoidance of methane from landfills, the offset of greenhouse gases from fossil fuel electrical production and the recovery of metals for recycling.

A lawyer's dog got loose and headed for a butcher shop, where it stole a roast. The butcher went to the lawyer and asked, "If a dog steals a piece of meat from my store, do I have a right to demand payment for the meat from the dog's owner?" The lawyer answered, "Absolutely." The butcher smirked, "Then you owe me \$8.50. Your dog was loose and stole a roast from me today." The lawyer, without a word, wrote the butcher a check for \$8.50, and the butcher left.

Three days later, the butcher got a bill from the lawyer: \$100 due for a consultation.



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EQUIPIVIEN SPOTLIGHT **Fleet Management** Software

by MARY M. COX

maryc@americanrecycler.com

Successful waste and recycling fleet managers coordinate their routes and drivers with an aim for maximum efficiency. With cost pressures increasing, they're constantly tasked to squeeze more efficiency and productivity from their drivers and trucks to improve operational margins, meet environmental targets and keep customers happy.

The On-Route product, by Alpine Technology Corporation, is designed to make waste industry routes as simple to follow as an off-the-shelf GPS, only instead of one destination, On-Route tracks hundreds of pickups providing visual service images. Normal service events are captured automatically while the driver can accurately record extras or record service abnormalities by taking photographs with a touch of the screen. On-Route connects the office and truck by forwarding real-time dispatches to the truck and showing office personnel a map displaying route service status and truck location. Drivers become dependent on the efficiency of On-Route so Alpine has refined a robust mobile platform that has an impressive zero percent failure rate over the past three years.



Mick Baker, senior project manager, reported that Alpine specializes in refining technology solutions for the waste industry. He said that On-Route provides a quick return on investment because, "Every event is recorded providing absolute proof of service or 'Not outs;' photos provide accurate proof of extras that are automatically billed without disputes; instead of taking hours longer, replacement drivers run routes efficiently; and the product totally integrates with Alpine's back office software streamlining entry."

Don Diego Padilla, vice president at FleetMind Solutions, Inc., described their product as having a lightweight yet rugged touchscreen display that provides users in the waste and recycling field with a tough and robust onboard computing platform. "It manages a wide range of inputs from a vehicle's on-board systems including cameras, scales, RFID readers, tire pressure and fuel monitoring, as well as other devices. The product's dashboard reporting provides a single-view interface into fleet operation and performance. You can easily track key performance indicators, flag potential issues and track detailed and individual performance data," Padilla explained.

He said a vehicle map view history is also provided, with reported positions relative to towns, cities, highways and streets. Real-time positioning presents a map view of the vehicles' current positions for easy tracking. The Driver Direction function allows for better planning of each truck's route to reduce time spent on the road and the number of engine hours per day. This helps optimize each route to use less fuel and driving time.

An Automated Service Verification function uses RFID technologies to enable fully automated service verification. Each garbage can or cart can be associated with a specific customer address and drivers can quickly verify cart details. The FleetLink Scales feature is a patented onboard waste weight management system that installs easily onto truck forks and integrates seamlessly with back office systems. The proprietary technology of the product ensures a lower cost installation with practically no maintenance or calibration requirements.

Padilla noted that green fleets are a growing trend in the industry due to reduced fuel consumption, mileage and exhaust emissions. Also, the importance of fleet safety is stressed more than ever due to the potential threat of fatalities and injuries, and the related costs of accidents. Safety initiatives have become a critical concern for any fleet manager.

FleetMind offers fleet management solutions and designs, manufactures and markets wireless enabled on-board computers, driver terminals and business automation software that extend the reach of a customer's enterprise

back-office systems all the way to the truck and driver. "Our solutions have allowed some of the largest waste and recycling management fleets in North America to link their drivers and vehicles to business operations

in real-time, delivering measurable improvements to fleet productivity, fleet safety, customer service and sustainability," Padilla said.

PC Scale, Inc. (PCST) provides software solutions and technical services for the waste, recycling and related industries, offering a multitude of options for managing business-critical data. Yasi Alemzadeh, vice president, marketing, stated, "Our suite of product offerings have been specifically designed by our industry experts for recycling and solid waste management, healthcare waste management, landfill billing, transfer station, liquid waste (grease and port-o-let) as well as tire recycling, gate house and truck scale ticketing for both attended and unattended scale management, municipal waste routing and billing."

Using the latest Microsoft technologies, the PCST suite of applications provide routing and billing software solutions for both municipal waste and independent haulers of waste and recycling materials. "As the only route and scale management software provider serving the waste and recycling industries to have achieved Microsoft's Silver partner status in multiple competencies, and with a history of over 2,100 customer installations, including 5 of the top 10 waste and recycling companies in North America in 2011, PC Scale TechnologiesTM is the premier provider of solid waste technology business solution software," Alemzadeh said.

PC Scale's mobile solutions allow for a multitude of functions both on the hauling business side as well as the scale management side of the business.

Hauling companies can send electronic work orders and services to a handheld device operated by a driver in the field.



the ability to update the services, capture electronic signatures from customers (and subsequently print receipts using a wireless Bluetooth printer), capture images while onsite, and record odometer and disposal information, as well as downtime. The unit also has GPS capability and

That driver then has

provides turn by turn directions. From a scale management perspective, the mobile solution can be used as a point of sale system, allowing for an attendant to start the ticket creation process with long lines, assisting in speedier weighing once the truck reaches the scale. The mobile solution can also be used as a load checker on the tipping floor - in the event of load checks, tickets can be edited to include the proper materials so that when a truck crosses the outbound See SPOTLIGHT, Page 5

Manufacturer List

Alpine Technology Corp. **Mick Baker** 888-852-7267 www.rams-pro.com

DesertMicro Barry Grahek 800-547-7082 www.desertmicro.net

FleetMind Solutions, Inc. **Don Diego Padilla** 888-639-1666 www.fleetmind.com

PC Scale Tower Yasi Alemzadeh 610-932-4006 www.pcscaletower.com

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Alpine Waste to measure customers' recycling efforts

Alpine Waste & Recycling has outfit- cling for the environment, the community, ted each of its collection vehicles with smart devices that weigh and record the contents of each customer pick-up. This data is used to provide monthly automated reports to Alpine's customers detailing the waste diversion percentage and sustainability impact of their recycling efforts. These reports will appear monthly on the back of each customer's invoice.

"Many customers who recycle do so because they recognize the value of recy-

Spotlight Continued from Page 4

scale to weigh out, the process is just as quick as the weigh-in.

Alemzadeh commented, "This industry seems to be moving towards paperless options in most areas. We have clients that have moved to paperless work orders using our TowerMobile handheld solution, which allows them to send roll-off, delivery/removal tickets, grease pickups or portable toilet services to a handheld unit, as opposed to printing work orders and worksheets and passing them to drivers, as has been the trend, historically. The handheld option allows the data to be returned to the home office in a more real-time fashion. updating the software system so customer service and operations staffs are updated as quickly as possible. There is also a paperless option with the e-mailing of invoices, web portals where customers can view images, electronic signatures captured with the handheld and future generations," said Alpine president John Griffith. "However, until now there has been no accurate way to measure or understand the results of these efforts. Our automated reports will accurately display the quantity of material recycled, the waste diversion percentage, and its impact on the environment for our customers." Alpine's fleet of 60 trucks has been

outfitted with this system.

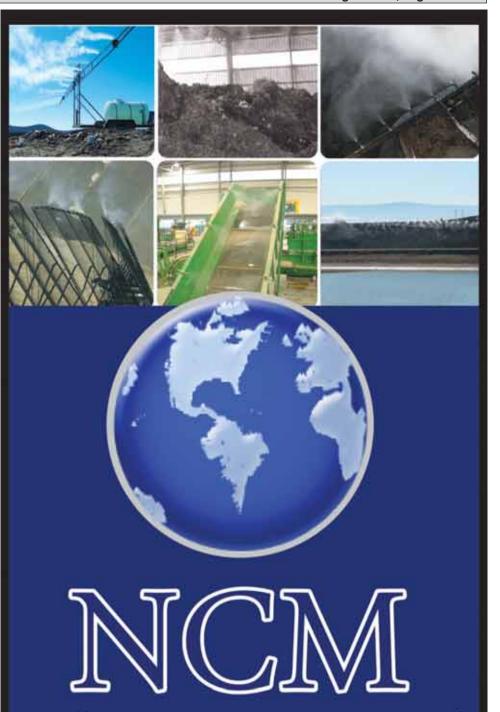


PC Scale Tower

devices, and service notifications via email.

In addition to their mobile product, PC Scale also offers products that integrate with companies who specialize in onboard units, such as Fleetmind, Air-Trac and Routeware. Route and service data is sent from the PC Scale Tower software package to the on-board unit. As the driver updates his on-board system of service skips, not outs, etc., the PCST software package is updated immediately, providing real-time data to customer service, operations staff and management.





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EPA completes groundwater treatment at superfund site

Agency (EPA) regional administrator Judith A. Enck and Congressional Representative Rodney P. Frelinghuysen publicized the completion of a system to treat contaminated ground water at the Rockaway Borough Wellfield Superfund site in Rockaway Borough, New Jersey. The officials were in Morris and Essex Counties to review and assess progress on Superfund cleanups at six hazardous waste sites. They were joined by State and local officials to highlight the success of the federal Superfund law in protecting the health of people who live and work near contaminated sites, creating jobs and boosting local economies.

The Rockaway Borough Wellfield Superfund site includes three municipal water supply wells that supply drinking water to 11,000 people. The EPA recently completed work on a ground water treatment system to address perchloroethylenecontaminated ground water in the East Main Street/Wall Street area of the site.

In 1985, the New Jersey Department of Environmental Protection investigated the Rockaway Borough site and concluded that contamination found in the municipal water supply was coming from multiple source areas within the borough. EPA initiated a followup investigation to identify the sources of contamination, determine its extent and evaluate potential cleanup methods. These investigations confirmed the perchloroethylene contamination and determined that a facility belonging to Klockner and Kockner was responsible for contaminating the soil with tetrachloroethene, a commonly used industrial

U.S. Environmental Protection solvent that can have serious health impacts, including liver damage and an increased risk of cancer.

> The EPA subsequently removed the contaminated soil and sent it to a facility certified to treat and dispose of it. The EPA installed a treatment system to clean up the ground water contamination. Work to remove and treat soil contaminated with lead at the Rockaway Borough site will begin later this year.

Other local Superfund sites still under EPA purview include:

•The Radiation Technology, Inc. Superfund site – a 263-acre site that was used for testing and developing rocket motors and developing propellants.

•The Rockaway Township Wells Superfund site – a two-square-mile wellfield containing a cluster of three municipal wells within 100 feet of each other that are contaminated with various volatile organic chemicals.

•The Dayco Corp./L.E. Carpenter Company Superfund site – a 14.5-acre property housed buildings, warehouses and the remnants of disposal areas associated with a former vinyl wall covering manufacturing facility.

•The Dover Municipal Well No. 4 Superfund site – a former public water supply well located in the town of Dover, located 1.5 miles away from three municipal wells serving approximately 22,000 people.

•The Caldwell Trucking Co. Superfund site – a former sewage hauling site occupying 11 acres in Fairfield, consisting of properties and ground water contaminated by the disposal of residential, commercial and industrial septic waste.

EDCO fined

Continued from Page 1

escalating the type of citation to willful."

These new citations resulted from an accident and serious worker injury on December 31, 2011 while workers were connecting a hydraulic cylinder to the packer device in a garbage truck. The hydraulic system was activated to extend the cylinder outward to be connected to the packer, which compacts the trash that has been dumped into the truck. The injured worker was standing on the packer unit inside the truck body when the cylinder struck it, causing him to fall into an area between the packer and the truck body wall where he sustained crushing injuries.

Cal/OSHA had previously conducted an inspection in October 2011 at the Lemon Grove facility following a refuse truck accident resulting in severe injuries to a mechanic. Cal/OSHA found that EDCO had not ensured that control levers were blocked as required, resulting in severe injuries to a mechanic. EDCO appealed Cal/OSHA's findings and citations.

Following the December accident, Cal/OSHA successfully petitioned the Appeals Board to raise a citation category from Serious Accident Related to Willful. In 2003, EDCO also received a serious citation for not having employees use lockable controls on a compacter and failing to have adequate written safety procedures.

Cal/OSHA's latest citations include a Serious Willful violation issued because EDCO did not correct a

prior violation for not conducting periodic inspections to evaluate the effectiveness of their written safety procedures. A Willful violation is one where the employer committed an intentional and known violation.

"This preventable accident caused a devastating worker injury. EDCO, on full notice, still failed to provide adequate training on their job hazards and failed to have good written procedures and conduct internal inspections to ensure worker safety," said Widess.

Cal/OSHA issued serious accident-related citations to EDCO for their failure to guard the pinch point in the garbage truck, failure to have a hazardous energy control plan and failure to implement procedures to control or lock movement of the equipment while workers are performing maintenance or repairs. Two general citations and one regulatory citation were also issued for not establishing an injury illness prevention program and a heat illness prevention program and for not developing or training to written operating rules for mobile collection/compactions equipment.

A willful violation is issued when an employer either commits an intentional violation and is aware that it violates a safety law, or when an employer is aware that an unsafe or hazardous condition exists and makes no reasonable effort to eliminate the hazard. A serious violation is cited when there is a reasonable possibility that death or serious physical harm could result from the actual hazard created by the violation. A general violation is one in which an accident or illness may result but would probably not cause death or serious harm.



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WM reports revenue grew with increased volume

Waste Management, Inc. revealed financial results for its quarter ended March 31, 2012. Revenues for the first quarter of 2012 were \$3.29 billion compared with \$3.10 billion for the same 2011 period. Net income for the quarter was \$171 million, or \$0.37 per diluted share, compared with \$186 million, or \$0.39 per diluted share, for the first quarter of 2011. Results in the first quarter of 2012 included approximately \$3 million of after-tax costs from a combination of restructuring charges and integration costs associated with the acquired Oakleaf operations. Excluding these items, net income would have been \$174 million, or \$0.38 per diluted share.

David P. Steiner, president and chief executive officer of Waste Management, commented, "Our revenue grew for the ninth consecutive quarter. We achieved positive internal revenue growth from volume for the first time since 2006, and we also saw continued benefits from our cost reduction initiatives.

"We achieved solid performance in the first quarter of 2012 despite the expected impact of the headwinds we discussed in our fourth quarter 2011 earnings release. We had a \$0.03 per diluted share headwind from lower commodity prices at our recycling operations as well as a \$0.02 per diluted share headwind from waste-to-energy operations. We also had a negative \$0.01 per diluted share effect from higher fuel prices. With our core solid waste business growing revenue and earnings, we overcame those headwinds to produce a solid start to our year."

Key highlights for the first quarter 2012 include:

•Revenue increased by 6.2 percent, or \$192 million, with \$131 million of the growth coming from acquired Oakleaf operations.

•Internal revenue growth from yield for collection and disposal operations was 0.9 percent. Adjusting for contract changes related to the company's South Florida waste-to-energy plants, internal revenue growth from yield for collection and disposal operations was 1.2 percent.

•Average recycling commodity prices were approximately 20 percent lower in the first quarter of 2012 compared with the prior year period. This unfavorable year-over-year change negatively impacted earnings per diluted share by \$0.03 in the first quarter of 2012.

•Increased fuel costs negatively impacted the quarter by \$0.01 due to 9.5 percent higher diesel prices compared to prior year quarter.

Mining •Continued from Page 1

plasma converter removes impurities in the gas and vitrifies ash and inorganic fraction. Finally, the cleaned gas powers gas engines to generate heat and power.

Landfill mining's past

The first landfill mining project dates back to 1953, when a project in Israel removed soil for spreading on agricultural fields. Its record since has been spotty, with a few projects in the U.S., mostly devoted to recovering landfill space and creating energy. Beginning about 10 years ago, landfill mining began attracting attention again. However, a number of significant obstacles have kept landfill mining from taking off.

The technology is a primary issue. While landfill contents may contain concentrations of valuables such as gold and aluminum that are richer than many ores, the technology to effectively recover these materials in the environment of a landfill has been lacking. Machiels said it has addressed these challenges, although the company hasn't said exactly how.

Financing has also been difficult to obtain, owing to the uncertainty and long time frames involved. The Belgian project is relying on government renewable energy credits for much of its financial support. Other issues include social acceptance of using recycled materials for construction and other purposes, and conforming to regulations that make working in the often-toxic environment of a landfill challenging.

Landfills make difficult mining sites in part because there is little information about what is stored in them and where it is. Sites are typically unstable for decades after closure, and contaminated with dangerous gas and leachates. The mixed contents require separation and cleaning before processing, which takes energy and costs money.

Social pressures also act against the concept. Many old landfills are in urban areas or close to recreational areas. Some have been closed and turned into parks or other uses. Turning such a site into a vast industrial project with lots of trucks and heavy machinery often faces opposition.

The practice of taking revenueproducing methane from many sites is also an obstacle, because landfill owners don't want to give up certain methane revenue for the uncertain promise of mining profits.

Finally, the cost of such projects is significant. From selecting a suitable site from the short list of acceptable candidates, to re-landfilling waste that can't be used, the capital and operating costs of landfill mining are enormous. The fact that one joint

For the first time in many years, an old man traveled from his rural town to the city to attend a movie. After buying his ticket, he stopped at the concession stand to purchase some popcorn. Handing the attendant \$8.50, he couldn't help but comment, "The last time I came to the movies, popcorn was only \$0.15."

"Well, sir," the attendant replied with a grin, "You're really going to enjoy yourself. We have sound now."



project has actually taken steps to mine a large landfill on an industrial scale has, therefore, considerable significance for landfill operators and recyclers. What works in Remo may work elsewhere, and that could change the picture profoundly.

Group Machiels has been researching landfill mining since 2006, and has collected approximately 2,500 tons of material for testing. Among the questions investigated was how much different landfill contents had decomposed since it first began being used in the 1960s. Now, Machiels has set a date of 2014 for when the project will become fully operational. Whether that happens or not, the company reported receiving inquiries from many nations seeking information that might help with other landfill mining projects.

At this point, all Machiels can point to are its studies and pilot projects suggesting that landfill mining could work. Otherwise, landfills today remain what they have always been – final resting places for materials nobody could find any use for. Depending on what happens at Remo – and how lawmakers, regulators and financiers react to it – that could change.

"There is clearly potential for the extension of landfill mining to countries all over the world," said Advanced Plasma Power's Stein. "Rising land values in many cases provide an additional incentive to clear land for development. It will not happen, however, without a supportive legislative and regulatory framework."



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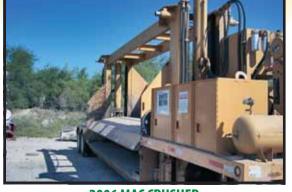


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