



**NORTH CAROLINA
RECYCLING BUSINESS
ASSISTANCE CENTER**

A cooperative effort of the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Commerce.

Recycling Works

Volume 4, Number 4

November 1998

KTI, Inc., completes acquisition of FCR, Inc.

Company adds \$100 million in annual revenues and 27 plants in 14 states

By Kathleen Gray, market development specialist

KTI has assembled a group of companies that are processing and marketing more than a billion pounds of recyclables, including the paper stock (depicted

On August 31 KTI, Inc., announced its acquisition of Charlotte-based FCR, Inc., a national waste processing firm with 27 plants in 14 states that will process more than 1.3 billion pounds of recyclable materials in 1998. Also, FCR's chief executive officer, Paul Garrett, was named vice chairman of KTI, and FCR's

chief financial officer, Brian Noonan, was named chief financial officer of KTI.

With the acquisition of FCR, KTI significantly increased the size of the company, entered the insulation manufacturing business, and added recycling assets to the company's expanding Recycling Division. Prior to the FCR acquisition, KTI's annual revenues were expected to be nearly \$200 million by the end of 1998.

(See KTI, page 7)



As appeared in the September 1998 issue of Recycling Today magazine.

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Research for recyclable materials in North Carolina: yard trimmings and food residuals

By Craig Coker, environmental specialist

The Recycling Business Assistance Center (RBAC) currently is researching the markets for a variety of recyclable materials in North Carolina and analyzing the relationship between supply and demand for these materials. This article on organic residuals is the first in a series of commodity profiles that will be published in the newsletter. The complete report should be available from RBAC in early 1999. For more information, contact Kathleen Gray at (919) 715-6537.

Yard Trimmings

Yard trimmings have been banned from North Carolina landfills since January 1, 1993. As a result, more than 300 facilities statewide process yard trimmings into mulches and composts. More than 80 percent of these facilities are publicly owned by local governments. The amount of yard trimmings entering the solid waste stream has steadily declined since the ban, due in part to source reduction efforts (backyard composting, grasscycling, etc.). Approximately 773,000 tons of yard trimmings were generated (not including hurricane debris) in fiscal year 1996-1997. More than one million tons of yard trimmings were processed into mulches and composts at North Carolina facilities in fiscal year 1996-1997. The increase is a result of residuals created by Hurricane Fran in 1996. Adjusting for this increase, the recovery rate for yard trimmings is estimated at 90 percent.

The potential demand for composts and mulches produced from organic residuals is estimated to exceed 13 million tons per year, with the largest demand associated with agriculture (particularly for composts). Landscaping is the largest current market for mulches. This market purchases both high quality bark mulches and lower-quality woody residuals mulches (like yard trimmings). The demand for yard trimmings-based mulches is strong in the lower-end landscaping mulch market, where the price advantages offset the woody nature of the mulches. Another strong market for yard trimmings is use as bulking



agents in composting systems that process nitrogenous wastes such as animal manures and wastewater sludges. Overall, the demand for yard trimmings is expected to exceed the supply for the foreseeable future.

Food Residuals

Food residuals are created at every step in the distribution chain from the farm to the dinner table. In 1997, about 862,500 tons of food residuals were generated in North Carolina, comprising 11 percent of the total solid waste stream. Mechanisms for food residuals recovery differ depending on whether recovered foods are suitable for human



(See *Research*, page 3)

Recycling Works is published by the North Carolina Recycling Business Assistance Center (RBAC), a program of the Division of Pollution Prevention and Environmental Assistance of the North Carolina Department of Environment and Natural Resources (DENR). For more information call (919) 715-6500 or (800) 763-0136, or write to DPPEA, P.O. Box 29569, Raleigh, NC 27626-9569.

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AlliedSignal begins carpet recycling program

By John S. Blaisdell, market development specialist

AlliedSignal (Richmond, Va.) and DSM Chemicals North America (Augusta, Ga.) have formed a joint venture to recycle post consumer type 6 nylon carpet waste. The joint venture, Evergreen Nylon Recycling, LLC, will create a processing facility with the capacity to recycle approximately 200 million pounds of carpet waste annually. Using a chemical process, Evergreen will recapture a virgin quality type 6 nylon to produce various recycled content products, including carpet fibers and automobile parts.

According to a study by the National Association of Home Builders (NAHB) Research Center, approximately 3.5 billion pounds of discarded carpet is generated nationally each year. North Carolina's share of that waste is estimated to be approximately 97 million pounds or 49,000 tons annually, almost all of which is currently being landfilled. Due to the cost and complexity of recycling carpets, no recycling programs have existed until recently.

Carpet is made of many different types of fibers. Carpet face fiber is made of type 6 nylon; nylon 6,6; polypropylene; polyester; wool; and various blends. The primary and secondary backing materials and the adhesive layers also are made of a variety of materi-



als. Carpet bulkiness can add to handling and processing difficulties as well.

AlliedSignal currently is in the process of establishing collection sites throughout the country, including in North Carolina. With these facilities in place, AlliedSignal will be able to consolidate volumes of the waste carpet, sort the recyclable type (nylon 6), bale it, and then ship it to their new facility in Augusta, Ga. Allied currently is not recycling the other types of carpet fibers. Nylon 6 carpet is identified using a special portable device developed by Evergreen.

The Augusta, Ga., processing facility is expected to be operational by late 1999. However, Allied currently is accepting materials and stockpiling them until the facility opens. For more general information, or if you are interested in becoming a regional collection center for AlliedSignal, please contact Susan Van Ness, AlliedSignal's collections marketing manager, at (840) 520-3028.

Research, from page 2

consumption. Recovery efforts for edible foods include gleaning programs (for farm food residuals) and food bank and rescue programs. Recovery efforts for inedible foods include animal feed (either direct or remanufactured into feed) and composting.

Less than two percent of food residuals generated by commercial and residential sources were recovered in North Carolina during 1997. Composting food residuals is a growing trend, particularly at institutions (i.e., schools, correctional institutions, large employment centers).

Industrial food residuals, generated by the processing of agricultural products into consumer products, were not included in this study because of insufficient data. Available information suggests that most of these

residuals are recovered as animal feed.

Diversion of edible food residuals to food banks and rescue programs is constrained by the small, non-profit/volunteer nature of these programs and by ongoing concerns about food donor liability. (North Carolina's Good Samaritan Law was passed in 1989.) Diversion of inedible food residuals to animal feeds and food composting operations is constrained by the lack of a sophisticated source-segregation and collection infrastructure and by the lack of adequate composting capacity within a reasonable distance from generators.

Overall, the demand for food recovery programs and food residuals-based compost is believed to be great enough to support increased diversion if some of these constraints can be eliminated.



Looking for a recycler? Check out the Directory of Markets for Recyclable Materials Web site

The *Directory of Markets for Recyclable Materials (DMRM)* is a database maintained by the Recycling Business Assistance Center (RBAC) that contains information about recycling companies serving North Carolina's private and public sectors. The database includes a variety of information including the types of materials each company accepts, material specifications, company contact information, etc. The database is found on the Division of Pollution Prevention and Environmental Assistance (DPPEA) Web site, which can be accessed through the Internet. For more information, call (919) 715-6500.

How to Use the Site

1. Go to <http://www.p2pays.org/dmrm/>
2. Before selecting any materials, go to the Frequently Asked Questions page for helpful hints such as "How to select an appropriate recycling company."
3. Begin the search by selecting the major category for the material of interest. For example: **TEXTILES**.
4. Narrow the search by selecting the more specific material. For example: **TEXTILE THREADS AND YARN WASTE**.
5. The Web site generates a list of recycling companies accepting textile threads and yarn waste. The list also has a link to each company's full information, including other materials they accept.
6. Print the list with the contact information provided, and find the best recycling company with which to work.

Cool Features

The "Links Page." Links you to:

- Other similar recycling market development programs nationwide.
- Trade associations for specific recyclable commodities.
- Recyclable Commodity Exchanges.
- The "Electronic Submission Form" for new recycling companies to be listed on the site.

North Carolina offers organic residuals grants

The Division of Pollution Prevention and Environmental Assistance (DPPEA) is funding the recovery of organic residuals through its 1998 Organic Waste Reduction Grant Cycle.

Eligible projects will reduce the flow of organic residuals to waste disposal facilities or stimulate market demand for recycled organic residuals.

The amount of grant funding available is a maximum of \$25,000 per project, with a 10-percent cash match required of the applicant. Special consideration will be given to projects that address the following:

- ◆ commercial and residential food wastes (e.g., estimates of generation quantities, recycling programs)

- ◆ diversion of industrial organic wastes from landfills
- ◆ diversion of recycled organic wastes and products to agricultural markets
- ◆ market demand assessments for recycled organic wastes
- ◆ compost quality standards for different markets
- ◆ compost use assessments (e.g., crop yield, disease suppression, bioremediation, etc.)

A Requests for Proposals (RFP) is available. Proposals should not exceed 10 pages and must be postmarked no later than December 1. Announcements of award winners will be made by February 1999. To receive a copy of the RFP, please contact Craig Coker, organics recycling coordinator, at (919) 715-6524 or e-mail: craig_coker@p2pays.org.
– C. Coker

RECYCLING COMPANIES:

Need financing? Then mark your calendars!



4th Southeast Recycling
Investment Forum
Kiawah Island Resort
August 22 - 24, 1999

We are giving you plenty of notice to update your business plan in preparation for this event. For more information about the Forum, or to discuss how it could help your business, please contact Matt Ewadinger, RBAC manager, at (919) 715-6504. Also for more details, watch for the upcoming issue of **Recycling Works**.

COMPANY PROFILES

Harmony Industries - High Point, N.C.

Harmony Industries, Inc., of High Point is a synthetic by-products collector, consolidator, and broker that accepts plastic packaging and other wastes, including most textiles, rubber, foams, fiberglass, and cotton gin mote. (See the company's web page for a detailed list of materials accepted: <http://www.cebunet.com/harmony/>.)



provide trailers and hauling within a 250-mile radius and currently has more than 20 trailers in service bringing materials to its 10,000 square-foot warehouse. Many of the company's markets are overseas. In addition to brokering recyclable materials, Pendlebury has worked with international companies to bring new technologies to North Carolina.

Harmony was established in 1992 by David Pendlebury, who previously had worked in the plastics industry with rotomolded thermosets. The company can

For more information, contact: David Pendlebury, president, at (336) 886-7225 or dpendle@nr.infi.net.
- K. Gray

Envirocycle, Inc. - Morrisville, N.C.

Envirocycle, Inc., recently opened the doors to their new electronics recovery business in Morrisville, N.C., near the Raleigh Durham International Airport.

Envirocycle is one of the nations largest electronics recovery businesses. Nationally, they recycled a total of 310,000 cathode ray tubes (CRTs) and televisions in 1997, recovering 24 million pounds of glass. In the first half of 1998, they recycled a total of 190,000 CRTs and televisions, recovering 14 million pounds of glass.

Envirocycle repairs, recycles, and brokers a variety of computer and electronics equipment including computer monitors (commonly called CRTs). The Morrisville facility also engages in the contract manufacturing of new-build and/or repairs of electronics assemblies, completed to the specifications of the customer.



Customers pay a fee to Envirocycle for CRT recycling, because of high costs involved in their safe handling. CRTs are dismantled at the Morrisville site using state-of-the-art technology to safely remove the leaded glass screen from the rest of the tube. The glass is then shipped to another Envirocycle facility in Hallstead Pa., where it is processed into a high quality glass cullet ready to be recycled. It is then sold to manufacturers of CRTs for use in new televisions and

Other computer and electronics equipment is either refurbished and resold or sent to the Hallstead, Pa., facility for dismantling and recycling. Refurbishment and resale is given highest priority. When equipment can be resold, Envirocycle returns a portion of the profits to the generator. For more information, contact Thomas Swanson by phone at (919) 781-5900, fax (919) 781-7600, or e-mail swanson@mtx.com. Also, visit their web site at <http://www.enviroinc.com/index.html>.
- J. Blaisdell

KTI, from page 1

And, Wall Street security analysts are forecasting 1999 revenues of approximately \$350 million for KTI.

FCR, Inc. Offers Diverse Operations

FCR's operations are organized around three business units: material recovery facilities, cellulose insulation manufacturing, and plastic recycling plants.

For the first quarter of 1998, FCR's three operating divisions generated \$15,026,558 in revenue, \$2,487,869 in *EBITDA, and \$589,678 in net income. The company employs about 800 personnel. FCR's revenues are expected to be running at an annual rate of \$100 million by the end of 1998.

FCR's recycling division owns and/or operates 18 material recovery facilities located in 10 states that receive, sort, process, and market co-mingled materials under long-term contracts with municipalities and other authorities. In 1998, the division is projected to process more than 650,000 tons of recyclables, while KTI is expected to process some 500,000 tons in comparable recyclables. During the past five years, FCR's recycling volume has had a compounded annual growth rate of more than 45 percent.

U.S. Fiber, Inc., FCR's insulation division, was created in May 1997 with the acquisition of cellulose insulation plants located in Ronda, N.C., and Tampa, Fla. These plants use waste paper as feedstock to make cellulose insulation material for sale to the manufactured home industry and insulation contractors. During 1997, U.S. Fiber acquired additional plants in Ohio and Oregon. In January 1998, U.S. Fiber opened a new manufacturing plant in Arizona and currently has a plant under construction in Texas.

FCR's third operating division is FCR Plastics, which was created in September 1997 with the purchase of the assets of Resource Recycling, Inc., a re-processor of post-consumer and post-industrial plastics in North Carolina. FCR Plastics has three plants processing more than 50 million pounds of recycled plastics a year. KTI currently operates a plastics trading and brokerage operation in Annapolis, Md., and handles more than 40 million pounds of recycled plastics a year.

Our calling has been to figure out how to process recyclables in the most efficient manner possible. We've had to figure that out in order to compete for municipal contracts against the giants.

*- Paul A. Garrett
chief executive officer of FCR*

KTI Company Profile

KTI, Inc. operates six waste-to-energy plants, 34 material recovery facilities, five insulation plants, four plastics facilities, an international recycled products brokering business, and other recycling assets in 24 states. KTI, headquartered in New Jersey, handles or processes nearly three million tons of waste and recyclables a year and has about 1,500 employees.

KTI receives approximately 20 percent of its revenue from power and steam sales, 20 percent of revenues from waste processing operations, and 60 percent from recycling operations. Due to acquisitions, recycling activities have grown considerably faster than waste-to-energy operations.

The Future of KTI's Expanded Operations

KTI has acquired seven companies in the past year in the paper and plastics recycling industry. For the remainder of 1998, management will be focused on integrating FCR operations and its employees into the company. In the meantime, KTI management is expected to continue the company's acquisition strategy with an emphasis on waste processing and recycling operations.

** EBITDA is an acronym for earnings before income taxes, depreciation, and amortization. In other words, it's an indicator of the business' cash flow because depreciation and amortization are so-called non-cash items, and income taxes can include carryforwards and carrybacks from other years (and other items that can mask the actual cash flow).*

A new report by David Kirkpatrick of Kirkworks offers the most up-to-date information on investment and consolidation within the recycling industry. The report is titled Merger and Acquisition Activity in the Recycling Industry and is available for \$15 from the National Recycling Coalition, (703) 683-9025.



Reduce Reuse Recycle

The Recycling Business Assistance Center (RBAC) is a program of the North Carolina Division of Pollution Prevention and Environmental Assistance.

Call (919) 715-6500 or 1-800-763-0136 for free technical assistance and information about preventing, reducing, and recycling waste.

North Carolina market prices for recyclables

Prices current as of November 5

Item	Western Region	Central Region	Eastern Region
METALS			
Aluminum Cans, lb. loose	\$0.41	\$0.40	*\$0.46
Steel cans, gross ton baled	*\$48	\$40	*\$38
PLASTICS			
PET, lb. baled	\$0.08	\$0.06	\$0.105
HDPE, lb. baled	\$0.06	\$0.04	\$0.09
PAPER			
Newsprint (ONP), ton baled	*\$30-\$40	\$20	\$40
Corrugated (OCC), ton baled	*\$50	\$50	\$45
Sorted White Office, ton baled	*\$130	n/a	\$125
Magazines (OMG), ton baled	*\$50	n/a	\$15
Mixed, ton baled	\$5-\$10	n/a	\$15
GLASS			
Clear, ton crushed	\$42	\$40	\$25
Brown, ton crushed	\$24	\$33	\$21
Green, ton crushed	\$15	\$8	\$2

*Price from end market. **Facility sells magazines with newsprint.

Note: Prices listed above are compiled by RBAC and are for reference only. These prices are not firm quotes. RBAC obtained pricing information from processors for each category and developed a pricing range. Any wide-range variances in price are attributed to quantity of material, transportation costs, and availability of end markets.

RBAC IS ON THE NET

Visit us at <http://www.p2pays.org>



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