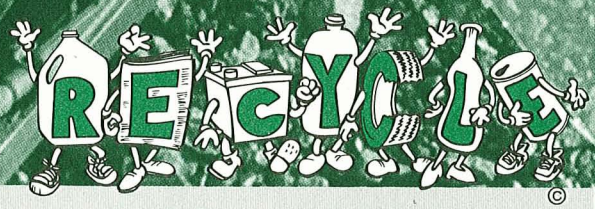
Recycle South Carolina

A quarterly magazine of S.C. DHEC's Office of Solid Waste Reduction and Recycling



SOUTH CAROLINA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF SOLID WASTE REDUCTION AND RECYCLING
1-800-768-7348

C & D Recycling

Winter 98

Table of Contents

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The Facts About C&D Recycling

By Charlotte Pitt

C&D recycling, or construction and demolition debris recycling, has been one of the recycling buzz words of the mid-1990s. C&D debris has become an issue due to a variety of factors around the country and in South Carolina. The recent rise in awareness about C&D recycling in South Carolina has been spurred by a number of issues that include: an increase in the number of known illegal C&D dumps; an increase in the number of new C&D debris landfills; the state's efforts to reach recycling and waste reduction goals, of which a portion of C&D recycling can be counted and, increasing growth in South Carolina, which means an increase in the generation of construction and demolition debris.

C&D debris is solid waste that is generated from construction and demolition activities. These can include the construction, remodeling, repair, and demolition of structures such as buildings, roads, bridges and drainage systems and sewers. C&D waste also can be the result of land clearing. Some of the different types of materials that make up C&D wastes are asphalt, concrete, bricks, wood, soil, glass, vinyl siding, aluminum, steel, drywall, roofing materials, insulation, wiring, tree stumps and much more.

In fiscal year 1997, the state reported generating more than 1 million tons of C&D debris. More than 700,000 tons of this waste was disposed of in either a C&D landfill or a MSW landfill. C&D landfills are constructed strictly for the purpose of disposing of specific C&D materials. In 1997, there were 128 C&D landfills in South Carolina. The generation of C&D waste has increased during the past couple of years and that trend is expected to continue. The increase in C&D generation and the need for an increasing number of landfills is one reason it is important for South Carolina to recycle C&D debris.

In 1997, South Carolina reported recycling more than 400,000 tons of C&D debris, whether it was local governments or private industry. This figure sounds very impressive but is also very deceiving. The amount of waste recycled is not in dispute. However, the amount of C&D waste that is generated is in dispute. The above reported figures for generation are reported by permitted landfills in the state. These figures do not include waste that is illegally dumped or buried. It is believed the amount of C&D waste that is illegally dumped is significant. In 1996, DHEC received nearly 1,000 phone calls reporting complaints about dumped C&D waste.

There is a common belief that C&D waste is inert and therefore has little potential to cause harm to the environment. Generally speaking, the majority of C&D waste would fall into this category, however, there are many exceptions to the rule. There are many products that are used in the construction business that are potentially harmful to the environment. Such materials include paints, lead-based paints that are on older buildings, caulking materials, asbestos in materials, treated wood products and many more. These are the reasons we need to make sure that all construction waste is handled in a conscientious manner.

Landfilling C&D debris is an acceptable form of waste management, however, not the most desired. Reduction, reuse and recycling of C&D debris is definitely a better option than landfilling. (Some of the advantages to recycling C&D debris include: cost savings from avoided landfill disposal fees; money spent on the purchase of new or virgin products; possible revenue generation from the sale of recycled materials; and saves valuable landfill space helping to protect South Carolina's environment and natural resources.)

There are currently some common problems that are impeding the increase of C&D recycling in South Carolina. The cost of disposal at C&D landfills is currently very inexpensive and the increase in the number of landfills has created additional price competition. The average disposal costs at C&D landfills range from about $12 to $22 per ton. The general consensus is that disposal costs need to exceed that amount to make C&D recycling economical.

The increase in illegal open dumping and the illegal burying of waste on-site also has hindered recycling. If a contractor is not willing to pay a disposal cost, the chances are you would not be able to convince them that recycling may save money.

There is a common fear of change. Recycling requires some changes in work habits on a construction site. It is a common belief that these will be too difficult to implement. People in general are not always open to change, not just contractors. This fear of change also flows over into the idea that subcontractors will not want to change their habits either.

There are a number of people around the state that are really making an effort to handle C&D waste responsibly. There are people and organizations reusing waste in an effort to save money on resources and disposal, there are individuals and nonprofit organizations collecting and reusing materials to help less fortunate people build homes; there are businesses that have made their primary business recycling C&D waste and there are local governments and

Continued on next page

disposal facilities that are trying to recycle and reuse some of their incoming C&D waste. So you see there are some who, whatever their reasons, are making an effort and taking responsibility for their waste.

Who is doing what in South Carolina? There are a couple of contractors in the state that have moved into the recycling business. These companies have purchased concrete crushing equipment and are using it to crush their own waste and waste accepted from other contractors. These companies crush the concrete, bricks and blocks to a desired specification and then reuse the crushed aggregate themselves or sell it.

Some landfills around the state are now accepting clean loads of materials such as land clearing debris and concrete and setting them aside to recycle. Many of these landfills are doing so, not only to save space in their landfill, but also to generate a product that can be sold after recycling. Check to see if the local MSW or C&D landfill close to you is offering a similar program.

There are many nonprofit organizations that accept reusable construction materials from contractors. Two of the most well known in South Carolina are Habitat for Humanity and The Harmony Warehouse. Each collects construction materials and uses them in the construction of low income housing.

Many people forget that construction materials are expensive and materials that are one person's waste could actually be another person's treasure.

If you are interested in learning more about C&D recycling and some simple things that can be done to start a recycling program or would like to find out who is recycling in your area, please contact our office at 1-800-768-7348.

C&D References

National

Construction Materials Recycling Association
3 Lee Street
Beverly, MA 60532
508-524-8804
Jim McElvenny
e-mail: JMAK1@ix.netcom.com

C&D Debris Recycling - Journal
Intertec Publishing
PO Box 12988
Overland Park, KS 66282-2988

South Carolina

DHEC's Office of Solid Waste Reduction and Recycling
DHEC
2600 Bull St
Columbia, SC 29201
1-800-768-7348

Keep America Beautiful of South Carolina
Build America Beautiful Program
Diane Marlow
2600 Bull St
Columbia, SC 29201
803-896-4158

The Harmony Project including the Harmony Warehouse
Mel Goodwin
803-577-2103

Habitat for Humanity
Check locally

Buy Recycled Business Alliance -
Recycled content building products
DHEC's Office of Solid Waste Reduction and Recycling
2600 Bull Street
Columbia, SC 29201
1-800-768-7348

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Markets in South Carolina

Wham Brothers Recycling
P.O.Box 4197
Anderson, SC 29622
864-224-3305
Fax 864-224-0000
concrete, asphalt, bricks and block

Holgerson-Johnson
P.O.Box 362
FairForest, SC 29336
864-576-8209
concrete, asphalt, bricks and blocks

Sanders Brothers
1990 Harley Street
N. Charleston, SC 29419
Mailing Address: PO Box 60969
N. Charleston, SC 29419
803-744-4261
bricks, blocks, and shingles

Rural Sanitation, Inc
Dillon, SC
803-774-4831
mixed C&D waste

Carolina Wrecking Company\Carolina Concrete and Asphalt Recycling
Charles Dowy
803-736-6573

Horry County Solid Waste Authority
PO Box 1664
Conway, SC 29526-1664
803-347-1651
concrete, asphalt, bricks, blocks, tree and wood debris

Many C&D and MSW landfills will accept clean loads of materials and recycle them. For example some landfills accept clean loads of land clearing debris that are chipped and sold as mulch or boiler fuel. Some landfills will collect clean loads of concrete and bricks and then will contract with a mobile crusher to have the materials crushed and resold as aggregate.

This is not a complete list of companies in South Carolina that are recycling C&D. It is a short list to give some indication of those who are recycling and will accept certain C&D materials from construction companies.

Cracking Down on Illegal Dumping

By Deborah Carter-McCoy and Norm Shumard

Open dumping. Illegal disposal. Filling a gully. Avoiding regulations. Regardless of what the activity is called, the disposal of solid waste (which includes construction and demolition debris) without a permit is a violation of state law and state regulation. In 1996 alone, the S.C. Department of Health and Environmental Control's solid waste staff responded to about 1,000 complaints regarding open C&D dumps.

The people illegally dumping C&D debris and solid waste cannot be lumped into one category. Violators include private homeowners, road contractors, homebuilders, demolition contractors, small businesses and large corporations and have all been reported to and investigated by DHEC staff as open dumpers. No matter who it is or where they are dumping, it is still illegal and a violation of the law.

Some common materials found in open dumps are lumber, paint cans, scrap metal, pallets, garbage, dead animals, used oil, antifreeze, shingles, concrete, asphalt, stumps, beer cans, steel drums, tires, mattresses, white goods (appliances such as washers, dryers, refrigerators, etc.) and miscellaneous building materials.

The practice of open dumping has been regulated by DHEC for many years, but with the passage and subsequent codification of the S.C. Solid Waste Policy and Management Act of 1991, the enforcement of the laws and regulations prohibiting open dumping has significantly increased. Penalties of up to $10,000 per day per violation may be imposed. In addition, the continued practice of open dumping by individuals or businesses after a warning by DHEC may constitute criminal behavior. During the past couple of years, there has been a dramatic increase in the number of unpermitted, illegal C&D dumping cases that have been referred to DHEC's Office of Criminal Investigation.

The violators that become involved with the criminal activity of continued open dumping of C&D waste are usually motivated by money. They gain tremendously by the "free" disposal of construction and demolition debris. Undoubtedly, most contractors bid on the jobs, with the cost of waste disposal calculated. When the waste is dumped illegally, the cost for proper disposal becomes pure profit.

A recent criminal case calculated cost saving to the contractor and operator of the illegal dump into the millions of dollars. The prosecutor in this case is proposing a fine of roughly $280,000. This amount, if accepted, would set a milestone for a fine on this type of case. The prosecutor in the case is adamant he will not back down, since this amount is only a very small percentage of the total calculated cost savings.

Open dumpers are strictly out to make a buck and have no regard for the environment. People involved in open dumping continually trash their property and the property of others. A site with waste materials dumped on it also tends to lead neighbors to the notion that these dumps are excellent places to dispose of household garbage. This can create even bigger environmental problems.

It is important to stop people who decide to trash the environment to make a personal profit. It also is important to promote those who are actually trying to run a legitimate permitted C&D landfill or C&D recycling facility. This could present the problem of how do the regulators begin to deal with the permitted industry when there are numerous non-permitted operators who refuse any attempt at complying with regulation.

"I would like to state that I am in favor of criminal prosecution of all of these types of cases," said Norm Shumard of DHEC's Office of Criminal Investigation. " I feel that it is imperative that DHEC send out a strong message on this issue, otherwise the dumping will continue. As a practical matter, I realize this is impossible since there are such a large number of violators out there and a limited amount of time that the courts have to devote to this problem", he said. " The most prudent thing to do would be to offer the violator the initial opportunity to comply with regulations and use criminal prosecution as the next step. Also, regulators should be aware that cases such as these have a greater deterrent effect when prosecuted criminally than going through civil or regulatory procedures," Shumard said.

If you know someone who is involved in open dumping suggest they call their local DHEC office or the DHEC office in Columbia to find out where they can dispose of or recycle C&D debris in the area. If they don't respond to your suggestion, you may want to report this illegal activity to your local DHEC solid waste representative.

Editor's Notes

By Mary Anne Banich

As we approach the end of the 20th century and beginning the next, we at the office are doing some short- and long-range planning. Just as the recycling industry has experienced many changes in a short period of time, so, too have we. Since the S.C. Solid Waste Policy and Management Act of 1991 created DHEC's Office of Solid Waste Reduction and Recycling, a lot has taken place locally, statewide and nationally on the recycling front. Recycling began as a grassroots effort and has burgeoned into America Recycles Day. Recycling has become entrenched in the mainstream of society, but continues to face struggles.

The office has created a national, award-winning solid waste curriculum that has made a place for itself among South Carolina's top environmental educational programs, with more than 7,000 teachers being trained in all of the state's 46 counties. South Carolina has one of the nation's top used motor oil recycling programs. There are more than 500 sites accepting used motor oil from Do-It-Yourself oil changers, with a total amount collected of almost 750,000 gallons in 1996. The program has now expanded to include used oil filters and bottles. The office has a top notch grant program envied by many across the country. More than $5 million in support was provided to local governments and schools through six specific grant programs in FY97.

South Carolina has gone from recycling under 100,000 tons in 1993 to almost 3 million tons in 1997. Citizens across the state can give themselves a pat on the back for surpassing the 25 percent recycling goal set for 1997. The recycling rate has tripled since 1994. South Carolina has 444 recycling drop off sites

*See **Editor,** Page 27*

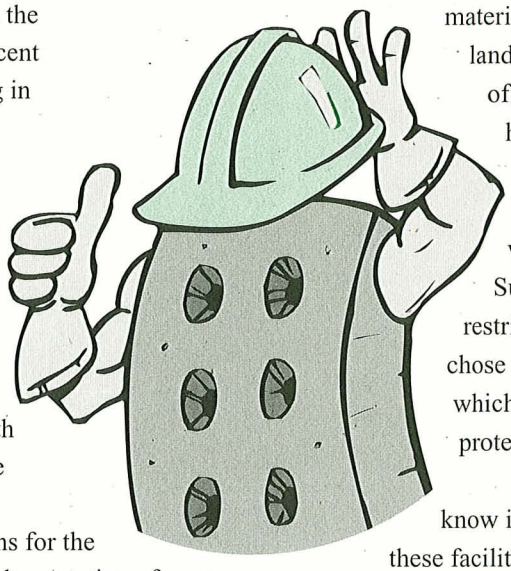
Construction & Demolition Recycling:

What it is and how we do it.

Editorial

By Charlotte Pitt

Construction & Demolition has become an issue due to a variety of factors around the country and in South Carolina. This recent rise in awareness about C&D recycling in South Carolina has been spurred by a couple of issues that include: an increase in the number of known illegal C&D dumps; an increase in the number of new C&D landfills; the state's efforts to reach recycling and waste reduction goals, of which a portion of C&D recycling can be counted and, increasing growth in South Carolina - that means an increase in the generation of C&D.



With the passage of new regulations for the operation of C&D landfills and the implementation of new, stricter, Subtitle D regulations for municipal solid waste landfills, it has become slightly easier to track the amount of C&D waste generated. The first measure of C&D waste being thrown away in South Carolina was reported for fiscal year 1994 - 683,879 tons. This amount has increased to 1,176,412 tons of C&D reported in fiscal year 1997. Remember, too, that these figures only represent the amount of C&D waste that was legally disposed.

The number of C&D landfills also has increased dramatically since 1994. Recycling and waste reduction could help to slow the growth of C&D waste generation, offering a more cost effective, environmentally sound method of C&D waste management.

While some have expressed concern about how safe construction and demolition landfills really are ("Civil Engineering," January 1997), a study was recently completed by the National Association of Demolition Contractors and the U.S. Environmental Protection Agency. The EPA contracted with the consulting firm Gershman, Brickner and Bratton, Inc., to answer two questions: "Is construction and demolition waste being managed in an environmentally safe manner?" and "Are additional regulatory controls needed?" The study determined that C&D waste is relatively inert and poses little risk. Some environmentalists pointed out that many C&D landfills are not required to conduct groundwater monitoring around their sites. Although most C&D materials are relatively inert, there are many materials that are not.

Although South Carolina does not require groundwater monitoring, the state's regulations are clear as to what materials may or may not be disposed of in a C&D landfill. If the regulation is followed, state officials say, there is little risk of environmental harm. South Carolina officials believed there are at least two ways of approaching C&D disposal regulations: cost effective in design with an extremely limited waste stream or a Subtitle D type facility with virtually unlimited restrictions on the waste stream. South Carolina chose the more cost effective method of disposal, which officials still believe offers environmental protection.

Still, to many, the question is how do we know if it is safe or not? Keeping the waste out of these facilities by reducing the amount produced as well as recycling could help solve some of the potential problems.

Illegal dumping in South Carolina has raised even greater awareness because there is concern about the types of materials actually dumped and the potential for environmental damage. Enforcement on illegal C&D dumps should help to reduce the number of these types of sites. Enforcement and fining on illegal C&D sites are something South Carolina is putting a lot of effort into. In fact, South Carolina currently is pursuing a number of illegal dumping cases as criminal activities.

There are a number of people around the state making an effort to handle C&D waste responsibly. There are people and organizations reusing waste in an effort to save money on resources and disposal, and there are people and nonprofit organizations that are collecting and reusing materials to help less fortunate people build homes. In addition, there are some businesses that have made their primary business recycling of C&D waste and there are some local governments and disposal facilities trying to recycle and reuse some of their incoming C&D waste.

There are, however, some in the industry that are not acting responsibly.

People in the construction industry, including architects, need to take a little more responsibility for their actions. Architects are in the prime position to not only design buildings and structures in such a way that would maximize the use of materials (natural resources) and also require contractors to follow certain rules in the construction process. There are even environ-

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mentally responsible architects around the country that can help teach others how to do this. There are also documents available that can help establish specifications for waste reduction, reuse, and recycling at construction sites.

Contractors must take responsibility for the waste they produce. The biggest gripe heard from contractors is that it is too expensive to dispose of C&D waste and that they operate on such a narrow margin that it is tempting for contractors to illegally dispose of waste. Most contractors add a disposal cost to their bids, so those contractors not abiding by the laws need to realize that if they get caught dumping there are fines involved and if dumping continues, there is always the possibility of criminal prosecution. People also need to realize if the dumping problem remains serious, there is also a possibility the laws may only get stricter.

C&D recycling is not in the same boat as many other recyclable commodities. Most recyclables will be accepted by a recycling company for significantly less money, when compared with disposal fees, and in many cases for free. This is not the case with C&D recycling. The margin of difference between the cost of C&D recycling and the cost of disposal is much closer. Apparently, there are no reports that show at what disposal price C&D recycling becomes economical. Even in South Carolina, however, where C&D disposal fees are low to average for the country, there are some people making C&D recycling economical. Those making C&D recycling work have shown that as with any other business recycling requires initial investments, but will pay in the long run.

Contractors should realize if they have access to someone who can recycle construction waste they should take advantage of it. They should not expect the recycler to take this material for free, however, they should expect to save money. Those that don't have access to a C&D recycler can make smaller efforts to pull out traditional recyclable materials found in construction, such as cardboard and metals.

Contractors in many states are starting to see the benefits of source separating materials at the construction site. Many contractors shy at the idea of separating waste because they think it will take too long or it will be too difficult to teach people how to recycle. Many companies already have proven it can work. One such company is Sellen Construction, located in the Seattle area. Sellen was recently highlighted in "C&D Debris Recycling" for their recycling and source separation efforts. They source separate their waste at the construction site and claim that if you make it convenient and simple and offer incentives to your workers it can work. They placed containers in convenient locations, offered rewards to their employees, such as hot dog roasts, for a good job, and made laborers remove misplaced materials from containers. This method was successful for them.

People around the country are proving that C&D recycling and waste reduction can work and there are benefits to it. There are those in South Carolina who are proving small and large efforts can be effective. Let's challenge the construction and demolition industry in South Carolina to start making steps toward responsibly managing their waste from construction and demolition sites.

Growth Challenges Horry County

By Charlotte Pitt

Horry County, which had an almost 6 percent population increase in 1996, is one of the fastest growing counties in South Carolina. To accommodate the population growth and an increase in the number of tourists visiting the coast, a significant amount of new construction has started. The county was one of three in South Carolina with the largest amount of new home construction this past year and, in fact, sold more than $1 billion in building permits, according to Jerry Johnstone of the Horry County Solid Waste Authority (SWA).

Growth is good, right? Well, yes, but also presents problems, issues and challenges. Take construction and demolition (C&D) debris, for example. In 1993, the Horry County Solid Waste Authority reported receiving 25,000 tons of C&D debris at its landfill. In 1996, the amount of C&D waste being disposed had increased to 66,000 tons and the projection for 1997 is more than 70,000 tons.

The C&D figures do not take into account the amount of land-clearing debris (tree stumps, top soil, tree branches, limbs, etc.) being disposed at the landfill. An average of 22,000 to 25,000 tons of land-clearing debris is brought to the landfill for disposal each year.

One of the problems that brought C&D waste to the attention of the SWA and the county was an increase in the number of illegal dump sites. Johnstone and other SWA officials determined that part of the problem was the landfill was not in a convenient location for new construction in the Myrtle Beach area. The SWA knew it needed to do something to help to change this situation, a legal site needed to be provide for contractors to dispose of waste, which would help decrease the amount of illegally dumped waste.

The SWA has shown a concern about C&D waste and has had an interest in recycling this waste for some years now. For the past couple of years, the SWA has been reusing a significant amount of the C&D waste that comes to their landfill. The SWA collects and grinds incoming shingles to use as a road bed material for the roads around the municipal solid waste landfill and leading to the C&D landfill. They request and, if necessary, pull out clean loads of cardboard, clean wood and scrap metal. The scrap metal and cardboard are marketed for recycling and the clean wood is ground and composted at the county composting site.

The Horry County landfill is located outside of Conway - on the other side of the waterway from Myrtle Beach. The SWA determined they were finding more and more illegal C&D dumps on the Myrtle Beach side of the waterway. A realization that a facility was needed to service contractors in the area. In 1996, the SWA started thinking about what could be done and how to do it and discovered that Postec Recycling, an existing C&D recycling facility in Myrtle Beach, was for sale. The SWA looked into the company and decided it would be convenient and that the goals of the facility work well with the goals of the county solid waste management plan. The SWA decided to buy the facility.

"The Horry County Solid Waste Authority has again shown an initiative to be on the cutting edge of South Carolina's program for solid waste recycling by introducing C&D recycling into a program that has already demonstrated excellence," said Steve Thomas, manager of the S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling.

The SWA took control of the Postec site on Feb. 17, 1997. The authority employs five people to run the site: a supervisor, three operators and a clerk. The facility is about nine acres in size. The SWA accepts tree-trimmings and land-clearing debris, concrete, asphalt and masonry products for recycling at this site. These materials are collected in clean loads only, not loads of mixed C&D debris. The fees for disposal are less than the fees at the landfill. There is a charge of $4 per cubic yard for land clearing debris and $5 per cubic yard for concrete, asphalt and masonry products.

The SWA's C&D recycling facility will receive about 12,000 tons of land-clearing debris each year. All of this material is reused and recycled. When a new load of land-clearing debris is delivered to the SWA site, the first order of business is to shake the material using a track hoe with a shear grapple, this removes any top soil attached to the roots of tree stumps. Top soil is one of the bestselling materials from this site. Retail prices for top soil in the Horry County area average about $9 per cubic yard. The stump material is then ground in a stump master to produce an intermediate material. The ground wood that is produced by the stump master is used for two purposes. Some of the material is sold to a private charcoal manufacturer. The remaining material is sent through the mulch maker and turned into mulch.

The SWA produces four types of mulch that are for sale to the public. They sell a fine and a medium pine wood mulch and a fine and medium hardwood mulch. The SWA was producing

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Growth, *continued from previous page*

an ultra fine mulch but will discontinue selling it because it was so similar to the topsoil. All of the equipment needed for the operation of the land clearing/recycling portion of the facility are on-site and were acquired with the purchase of the business.

The SWA also collects and recycles concrete, asphalt and masonry products. The county stockpiles the material until they have enough to contract with a recycler. It usually takes the SWA less than a year to stockpile enough. While visiting the facility, the SWA had contracted with Wham Brother's Recycling to recycle the concrete products. Wham Brother's has a mobile concrete crusher that is moved around the state. The SWA contracted with Wham Brother's to recycle about 8,000 cubic yards each of concrete and asphalt. It estimated it will take the company about seven weeks to crush the materials, taking into account a couple of down days due to weather and mechanical difficulties.

The SWA's C&D recycling facility so far has not had any problems selling their recycled C&D materials. The county currently has not made any large scale marketing efforts to sell these products. The SWA have about 80 regular customers who purchase the recycled materials and about 75 to 80 occasional customers. "We are very optimistic about how the facility is running," Johnstone said, adding that if the Postec site can support itself, the county would like to look into opening another recycling site in the northern part of the county. They feel another facility would alleviate more of the problems with illegal dumping.

Overview of C&D Recycling in the United States

By Robert H. Brickner

This article was reprinted with permission from C&D Debris Recycling *magazine, January/February 1997. C&D Debris Recycling magazine can be reached at 312/726-2802 or by mail at 29 North Wacker Drive, Chicago, Illinois 60606.*

What did the November elections have in common with the construction materials recycling industry? One obvious answer is . . . "If the astute politician doesn't know the answer to the question, the listeners are probably even more puzzled; therefore, quickly make up an answer, make sure it is presented with conviction, and entwine the response with a lot of numbers."

In recent years, "national statistics" have been published on the amount of construction and demolition (C&D) related waste materials generated in the United States. Some less knowledgeable observers think "C&D" is short for "collection and disposal" and continue to reference old and inappropriate statistical data on our industry. While the "Washington Post" might require two collaborative sources to justify printing a hot new government-related scoop, one very old reference-but-be-sure correctly footnoted-is all many so-called writers or contributing editors require to take any C&D-related subject from fiction to nonfiction. A common question we hear is how much C&D is annually generated in the United States, and what's being done besides landfilling to recycle this waste stream?

Our research indicates that the quantity of C&D debris generated is in excess of 100 million (tons per year) tpy. Please disregard any old (U.S. Environmental Protection Agency) EPA, independent consultant, or free-lance writer's illusions (or is it "allusions"?) of only 30 million- to 40 million-tpy industry. This new figure equates to almost 35 percent to 40 percent of the municipal solid waste stream; not the lower 20 percent figure commonly used by default. One of the problems with the older references is that they were typically based only on waste materials going into (municipal solid waste) MSW landfills. Nationally, almost half as many C&D waste landfills (a.k.a. whatever each of the 50 states classified them as . . . e.g., rubblefills, CDL landfills, Class III landfills, etc.) exist as MSW landfills. Additionally, certain C&D waste is still deposited in inert debris sites, the counting of which will definitely leave you between a "rock and a hard place."

In addition to C&D disposal options, of which some owners are still receiving material and charging on a volume basis versus charging by weight, the industry shift toward material reuse, recovery, and recycling also is helping to confuse the industry information and data collecting buffs. For reporting accuracy, this article will offer Labor Day 1996 as my "line in the sand" for the statistical update on C&D waste recycling.

This report is based on a presentation this author made at the fourth annual Construction Materials Seminar last September in Boxborogh, Mass., on the state of C&D debris recycling in the United States. A World Wide Web search stated the data hunt. Dialing up C&D.com and receiving a response that "collection and disposal" did not have its own web page, I knew the challenge had begun.

Fortunately, during the past five years, a significant state, regional, and national database on C&D waste plant locations, facility owners, and vendors exists within our corporate records. However, it goes without saying that an update should be up-to-date! Therefore, over the summer of 1996, many contacts were made with vendors and state groups to confirm new sales, new permits and the on-going status of previously collected facility documentation.

In order to present the national perspective, while our database is state-by-state, the country was ultimately divided into seven regions. In order not to get bogged down in trivial pursuit, the type of C&D waste processing facilities that were sorted and entered into the database were those most frequently evaluated in feasibility reports and implementation plans.

Using all of the updated information collected over the summer of 1996, we were able to specifically identify the location of almost 1,200 C&D waste processing plants across the United States. It should be remembered that while this list may not be exhaustive, as discussed below, it is felt to be more accurate than any previous look available of the number and dispersion of C&D debris recycling plants in the United States.

Due to time constraints, certain C&D facilities could not be contacted to allow distinct classification and, at this time, they appear as part of the "unknown" category. Additionally, since C&D waste related "salvage stories" are not necessarily state permitted operations and do not fall within a "vendor's facility reference list," at this time this group is definitely understated for purposes of this summary information. This is not intended to understate the contributory role of this group of salvage/reuse interests and their contribution to this emerging industry.

See ***Overview,*** *Page 26*

Build America Beautiful

By Diane Marlow

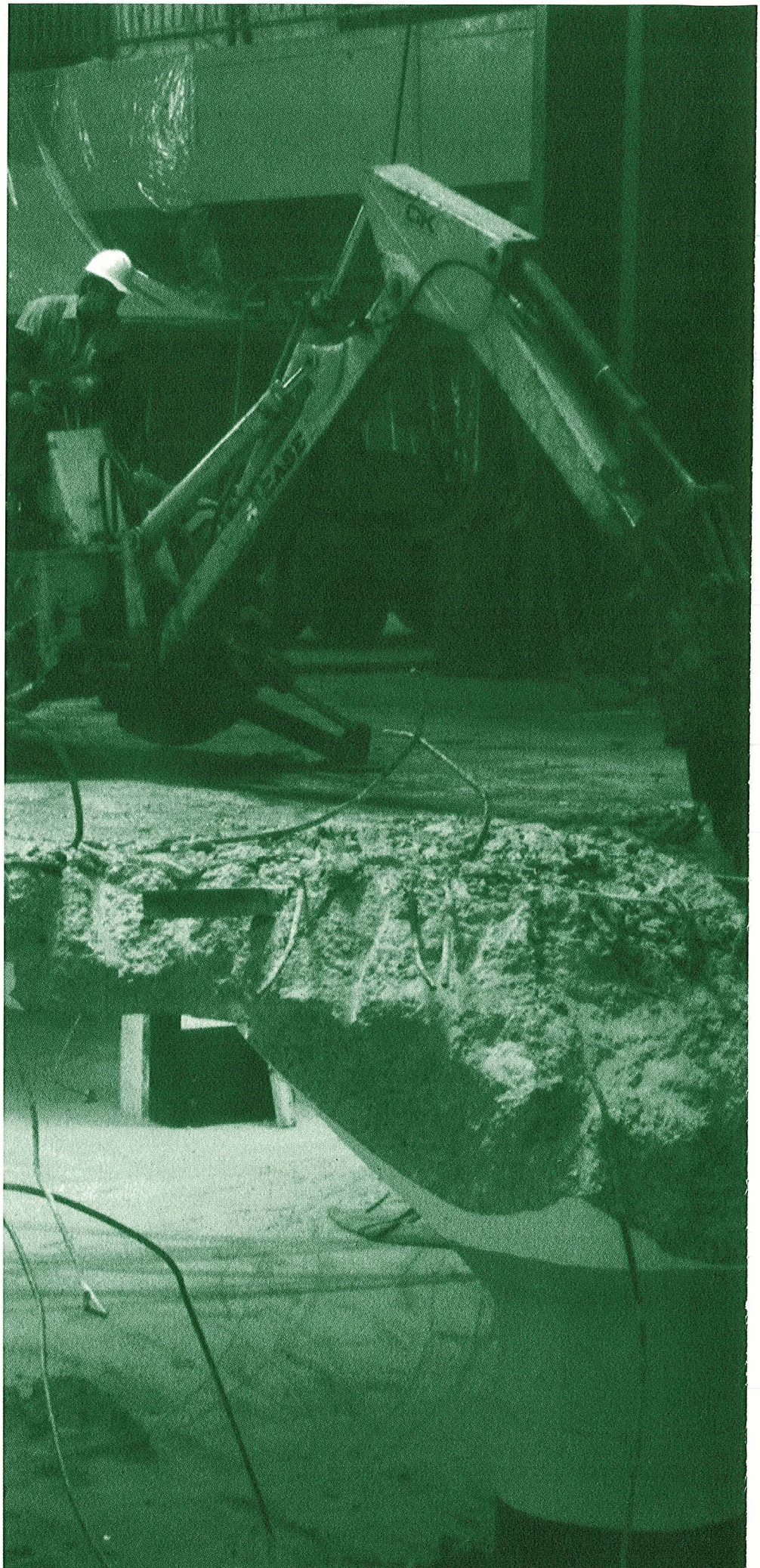
Build America Beautiful, a project of the National Association of Home Builders (NAHB) and Keep America Beautiful, Inc. (KAB), is a voluntary program with the primary goals of litter prevention and waste reduction at construction sites. Secondary goals are to increase safety and reduce liability on these sites.

Construction site litter is an eyesore that shows up on consumer surveys as an environmental problem that communities need to address. Many builders are taking litter prevention and recycling tips available from this program and making them part of their home building practices. Doing this makes sense economically. In a nutshell, waste costs money. By incorporating simple recycling and reuse practices, builders are discovering less waste to dispose.

Join the team that's building with pride and keeping America beautiful. To learn more about the potential for reducing disposal costs and gaining a competitive edge call NAHB toll-free at 1-800-223-2665 to order your Build America Beautiful membership kit ($40-members, $48-non members).

By taking part in Build America Beautiful, you'll also make yourself eligible for an annual national awards program recognizing America's most beautiful builders. Entry forms are available from NAHB and Keep America Beautiful.

Keep America Beautiful, Inc., is a national nonprofit public education organization dedicated to preserving the natural beauty and environment of America and improving waste handling practices at the community level. The state office of Keep America Beautiful and 20 local affiliate KAB programs are standing by to work with you and publicize your success.



Keep America Beautiful of South Carolina

Keep America Beautiful of South Carolina is affiliated nationally with Keep America Beautiful, Inc. of Stamford, CT and locally with 20 KAB systems across the state: Anderson, Beaufort, Charleston, Darlington, Dorchester, Georgetown, Greenville (inactive), Greenwood (inactive), Jasper (precertified), Kershaw, Richland /Lexington counties, Golden Strip (Fountain Inn, Mauldin, Simpsonville), Myrtle Beach, North Myrtle Beach, Rock Hill, Orangeburg, Spartanburg, Sumter, Union (precertified) and York counties.

KAB of SC is a non-profit, educational organization dedicated to litter reduction, proper waste handling and enhancement of the natural and built environment. Through public involvement and education, KAB changes attitudes and behavior resulting in cleaner communities.

KAB of SC is based on partnerships between government, businesses, civic groups and individuals tackling tough problems at the grassroots level. Statewide liaisons with government agencies, Clemson Extension Service offices, businesses, concerned groups and individuals strengthen KAB's ability to involve the people who can make a difference.

KAB of SC is 100 percent funded by private and corporate donations. The nonprofit KAB of South Carolina, Inc. Board of Directors guides statewide initiatives and provides financial responsibility. The S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling provides in-kind services, including housing, and gives technical support to enhance, expand and coordinate environmental education efforts. Cooperative and joint projects with the governor's office and other state agencies complete the organizational strategy of the statewide program.

Statewide KAB Youth Environmental Award Winners Announced by Pepsi-Cola

The KAB of SC Youth Environmental Awards were judged at seven Regional Science Fairs and the winners were recognized by Pepsi-Cola during the 28th Annual Governor's Community Improvement Conference, held in Columbia.

The contest was sponsored by Pepsi-Cola, the Governor's Office, S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling and local KAB affiliates. The 12 first-place winners received cash prizes of $25 in the junior division and $50 in the senior division as well as a certificate signed by Gov. David M. Beasley. The winners attended the Governor's conference and displayed their science fair projects.

Winning entries investigated used oil, soil remediation, crab shells turned into plastic, parking lot run-off, safe drinking water, recycling with earthworms, and surveys of people who recycle.

In Region I (Greenville), Matt Sheffel of Eastside High School in Taylors was the senior division winner. Cheryl Ann Swit from Northwood Middle School in Taylors was junior division winner.

Region II (Columbia) winners were Jesse Jur of Brookland-Cayce High in Cayce, senior division, and Russell Vedder from Newberry Middle School in Newberry, junior division.

Region III (Spartanburg) winner was Robert Crawford from Rawlinson Road Middle School in Rock Hill in the junior division.

In Region IV (Florence), there were two first-place awards in the senior division going to Hoa Pham and Joel Thomas of Myrtle Beach High School. Jennifer Caines of Dillon High School in Dillon won first place in the junior division.

In the Lowcountry Region V (Charleston) Amanda Hawkins from Alice Birney Middle School in North Charleston was the junior winner. Joanna Murray from Wando High School in Mt. Pleasant was the senior division winner.

Brandon Elijah of Lakeside Middle School in Evans, Georgia won the junior division and Whitney Talbert and Joni Axon of Briarwood Academy in Warrenton, Georgia won the senior division in Region VI (Aiken).

The Coca-Cola Governor's Poster Contest Winners Announced for 1997

Student winners in the statewide Coca-Cola Governor's Poster Contest were recognized during the 28th annual Governor's Community Improvement Conference, held in Columbia.

The Governor's Office, KAB/SC and Coca-Cola encouraged children to create posters promoting environmental awareness. The theme for this year's contest was "Together We Make A Difference." A poster calendar displaying the work of the top three winners in each category will be used to promote

Continued on next page

environmental awareness in public and private classrooms across the state.

Entries were initially judged at each school, with students participating in four grade categories. Four county winners, one from each grade category, were then selected by a panel of judges from the county's Clemson University Extension Service office. County winners were judged by a state panel, with representatives from Coca-Cola, the KAB/SC, Inc. Board of Directors, Keep America Beautiful of the Midlands and DHEC.

A grand prize winner and four place winners were chosen for each grade category. All finalists received a $50 savings bond and a certificate from Gov. Beasley. In addition, the four grand prize winners each received an additional $50 savings bond.

Jacob Reynolds from Easterling Primary in Marion was the grand prize winner in the first and second grade category. Also winning in this category were Jennifer Templeton from Simpsonville Plain Elementary, Libby Martin of Ninety Six Elementary in Greenwood, Ashley Anne Ballentine of Midway Elementary in Lexington, and Talib-Din Ameen of Hyatt Park Elementary in Columbia.

In the third through fifth grade category, Amanda Hawks of Northside Elementary in Seneca won the grand prize. Other winners were Anna Cauthen of Hilton Head Christian Academy, Legare Rhett of Ashley Hall in Charleston, and John Moses from Lemira School in Sumter.

Jamie Preston of Alcolu Elementary School in Manning was the overall winner for students in grades six through eight. Recognition also went to Gabrial Covington of Blenheim Middle School in Bennettsville, Jon Bishop of Britton's Neck Middle School in Gresham, Cedric Perry of Fairfield Intermediate in Winnsboro, Desirae Walker of Alston Middle School in Summerville and Kelly Ann West from Northside Middle School in Greenwood.

Derrick Boyd of Manning High School in Clarendon County captured the grand prize for students in the ninth through twelfth grade. Place winners in this category were Andy Goodwin of Wade Hampton High in Greenville, Leonard Betties of Allendale Fairfax High School in Allendale, Calvin Miller of Marion High and Amber Dewberry of North Charleston High School in Charleston County.

New Filter Eliminates Oil Changes

By Elizabeth Rosinski

South Carolina has one of the nation's top recycling programs for do-it-yourself oil changers. And the program has expanded in the past few years to include used oil filters and bottles.

The town of Clover, however, is taking another approach.

Clover officials were asked by Dei-Tec corporation, a company based in Bamberg, to install the new filter system on several town-owned vehicles. The company developed and has 17 patents pending on this renewable filtration system, which, according to company officials, eliminates the need to change the oil and filter every 3,000 miles. Instead, this new filter should last the life of the vehicle.

"Basically, what we are talking about is never having to replace the filters in our town vehicles again," said Mike Burkhold, town of Clover administrator. "This is one way we can cut costs and at the same time act as good stewards of the earth. That sounds like a good combination to us," Burkhold said.

Dei-Tec demonstrated the cost savings and waste reduction advantages of their DEIMAX renewable oil filters to Clover officials, who agreed to a pilot program.

Company officials returned to evaluate the effectiveness of the new filters and to see the cost savings. The new filters were analyzed at 2,500 and 5,000 miles to measure their effectiveness. Dei-Tec President, Jeff Deibel said a price for the renewable filter has not been set, but maintains there is a potential cost savings of up to 50 percent for the town of Clover. In fact, Deibel has results of an earlier study that showed a gasoline engine that traveled 15,000 miles using the renewable filter system and mineral oil.

"Testing showed that the filter and oil were in normal condition, and did not require a change. The additive package reflected no changes either," Deibel said. Based on this success, he continues to look for other participants to further study the renewable filter system.

The town of Clover agreed to be a part of this pilot program because of the potential cost savings as well as protection of the environment. The advantages of a renewable filter system would have a strong impact on the life of a used oil filter. While many counties have begun the collection of used oil filters for recycling, there are still others that do not accept filters at their collection centers. Therefore, the filters are tossed into a landfill. Used oil filters contain between two to four ounces of used oil that could potentially contaminate the ground and surface water.

Deibel said, another advantage of a renewable filter system, is that it is a solution that eliminates the need to change oil, it promotes waste reduction and reduces the amount of energy currently spent on used oil filter recycling.

Oil Collection Increases from DIYers

By Elizabeth Rosinski

The amount of used oil recycled from do-it-yourselfers (DIYers) in South Carolina increased to almost 750,000 gallons in 1996, the sixth consecutive year a record amount has been collected, according to figures compiled by the S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling.

DIYers recycled 747,866 gallons of used oil in 1996, a 3 percent increase from the year before when 723,780 gallons were collected . Since the program began in 1990, South Carolinians have recycled more than 2.8 million gallons of used oil. "We're extremely proud of the collection numbers, of the DIYers, of the local recycling programs and of the many partners that collect and transport the used oil," said Steve Thomas, manager of DHEC's Office of Solid Waste Reduction and Recycling. "Everyone working together makes it possible."

Of the used oil collected in 1996, 628,470 gallons were collected by Santee Cooper through collection tanks provided either by Santee Cooper or DHEC's Office of Solid Waste Reduction and Recycling. Advance Auto Parts collected 92,040 gallons while Auto Zone followed with 18,250 gallons and miscellaneous Exxon stations collected 5,775 gallons. Nine local household hazardous materials collection days resulted in 2,656 gallons of used oil being collected while another 695 gallons were recycled at Q Lubes.

In addition, the total number of used oil filters recycled by DIYers has more than tripled since 1994 when the program began. In 1996, DIYers recycled 134,280 used oil filters compared to 45,082 in 1994. About 5.5 million filters are sold in S.C. and roughly 80 to 85 percent of these go into landfills every year, each containing 2 to 4 ounces of used oil. "We're extremely proud of the increase in used oil filter recycling considering how young this segment of the overall program is," Thomas said, "but we realize, like everyone else, there is a long way to go."

In 1995, South Carolina expanded its recycling program to include funding for used oil bottle collection and in doing so became the first program to collect all three oil-contaminated products - oil, filters and bottles. The project, which was developed by DHEC's Office of Solid Waste Reduction and Recycling and the S.C. Recycling Market Development Advisory Council, received grant funding from the U.S. Environmental Protection Agency. Two counties, Lexington and Charleston, were selected to begin the pilot program in 1996. The pilot programs started well - the two counties recycled 44.09 tons of used oil bottles this past year.

"According to the American Petroleum Institute, South Carolina is the only state in the nation to take this full-service type of approach," Thomas said. "Again, we're extremely proud of what is being done here and of the opportunity to partner with others to make this work."

The state's used oil collection efforts began in 1990, when Santee Cooper collected oil from the public during Earth Day festivities. In 1991, the publicly owned utility began placing permanent used oil collection tanks around the state. In 1992, DHEC's Office of Solid Waste Reduction and Recycling formed the S.C. Used Oil Partnership. The public-private partnership was developed to promote public awareness on the proper disposal of used oil by DIYers. Members are DHEC, Santee Cooper, the S.C. Petroleum Council and the S.C. Department of Transportation.

DHEC's Office of Solid Waste Reduction and Recycling serves as the hub of the partnership, providing grant funding to local governments to set up and maintain used oil recycling programs along with an extensive public awareness and education campaign targeted at schools and the public. NASCAR driver Jeff Gordon is the state's honorary spokesman for the used oil recycling programs. Public service announcements featuring Gordon are currently airing statewide on the S.C. Radio Network's NASCAR report. Clemson head football coach Tommy West and Bob Fulton, the former voice of the University of South Carolina sports program also taped spots that are currently airing on the S.C. Radio Network.

The effects of dumping used oil onto the ground, down drains and into sewers are staggering. One gallon of used oil can destroy 1 million gallons of fresh water or produce a slick on water one acre in size.

There are more than 500 sites across South Carolina that accept used oil. In addition, 44 counties have been awarded funding to begin collection of filters are already recycling filters. Although only a few counties are currently collecting used motor oil bottles, several more counties have applied for grants to begin the program in their county this year.

Call your local recycling coordinator to find out if there will be a used motor oil bottle recycling program in your area. If you are able to recycle used oil, filters and bottles, here are a few tips to insure a safe and successful oil change. Use empty motor oil bottles to collect the used oil. This makes it easy to take to the collection site. Milk jugs can also be used; however remember to label the container and tape the cap shut if it doesn't screw on. When recycling oil filters, it is recommended that DIYers puncture the dome and allow the filters to hot drain for 12 hours before being taken to a convenience site. During transportation, place filter in a plastic bag to prevent any leaking.


E C U

America Recycles Day

By Richard Chesley

Two words: *It worked.*

The first America Recycles Day, created to educate consumers about the economic and environmental benefits of recycling and of the broad availability of recycled-content products, was a national success.

On November 15, millions of people participated in thousands of events held across the United States in the first national celebration of America Recycles Day. An estimated 2.5 million Americans from all 50 states, Puerto Rico and the Virgin Islands were expected to make a personal pledge to start or enhance their recycling efforts and to buy recycled content products.

South Carolina joined the rest of the nation celebrating the first America Recycles Day and recycled its way into the national spotlight. First Lady Mary Wood Beasley served as the honorary chairwoman. More than 38,000 pledge cards were collected and about 100 events held in the weeks leading up to November 15. The celebration culminated with a recycling fair held at The Home Depot, located at 7701 Two Notch Road in Columbia.

The S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling was the lead contact for the state. The office formed a statewide steering committee from local governments, state agencies, the private sector, trade associations and nonprofit groups to organize activities. South Carolina was one of five states to win $5,000 each in the state competition for the best overall implementation of America Recycles Day campaign.

There was more good news. A Columbia middle school student won the national prize offered to 18-year-olds and under. Kyle Harvey won a trip for four to Disney World. Harvey was given his prize at the office's third annual awards program in January.

There was statewide competition as well. Pledge cards also were made available to schools and students across the state. Three separate contests - one each for elementary, middle and high schools across South Carolina - were set up. Each of the winning schools or classrooms will receive a $250 scholarship to be used for educational materials. In addition, the sponsoring classroom teacher will receive one carton (5,000 sheets) of recycled content paper.

Each elementary school classroom was asked to cut out and collect recycling information on any product. Examples include: recycle arrows on cereal boxes; the words "made of recycled content or materials;" the words "carton made from 100 percent recycled paperboard." The class was asked to count the total number of "cutouts," write that number on a piece of paper, along with the name of the school and sponsoring teacher and send both the paper and cutouts to our office. The middle school students were asked to write a 60-second public service announcement on buying recycled. The students could work alone, in any size group or as a class. High school students were asked to write a script for a 30-minute program currently airing on television on the importance of recycling and buying recycled products. The winners will be announced in January.

The winners of the Elementary School Contest are: Kathy Miller's class at Oakview Elementary School of Greenville County collected 24,239 recycle symbols; York Road Elementary had two classroom winners - Mary Shillinglaw's class collected 3,365 symbols and Katherine Martin's class collected 4,985 symbols. Karen Wilson's class at Ninety-Six Elementary of Greenwood County collected 4,417 symbols; Janice Tucker's class at Cleveland Elementary of Spartanburg County collected 3,973 symbols and Renae Lanthrop's class at Iva Elementary School collected 3,809.

The winners of the Middle School contest are: White Knoll Middle School of West Columbia (the German II class sponsored by teacher Dede Grow); the School for the Deaf and Blind of Spartanburg (eighth grade earth/environmental science students sponsored by teacher Debbie Bruce); Lakeside Middle School of Anderson (students Lindsey Long, Stephen McCarley, Ashley Fowler and Paul McCarragher); and Carver-Edisto Middle School of Orangeburg (student Laura Strickland); and another from Carver-Edisto Middle School (student Lindsey Zeigler). Both students were sponsored by teacher Kristi Mixon.

Two groups of students from Aynor High School won the high school competition: Jamie Collins; Jennifer Boisjoly and Tommy Strickland; and Amanda Smith, Misty Brooks and Clinton Johnson. Both groups were sponsored by teacher James J. Parler.

The Home Depot, one of the statewide steering committee members, offered a $4,000 shopping spree as the state's grand prize. Karen Clark of Irmo was the winner.

The statewide steering committee in South Carolina included the U.S. Postal Service; S.C. Army National Guard; S.C. Chamber of Commerce; National Kidney Foundation of South Carolina; S.C. Educational Television; S.C. Energy Office; Association of Conservation Districts; S.C. Soft Drink Association; S.C. Manufacturers Association; International Paper; Union Camp; Keep America Beautiful of South Carolina; and others. Recycling coordinators from Aiken, Berkeley, Charleston, Horry and York counties were the regional coordinators of the event.

SC Composting Reduces Waste

By Richard Chesley

A statewide program offered to local governments to encourage backyard composting is off to an excellent start.

The program offers backyard composting bins - made out of recycled plastic - to participating cities and counties at a discounted price. Local governments can purchase two types of composting bins for $10.50-30, well below the normal wholesale price. Local governments that become part of the program will then sell the bins to residents and demonstrate how to create compost out of garden trimmings and food scraps.

Garden trimmings and food scraps make up more than 25 percent of what is thrown away in an average household, according to Joan Williams, program coordinator for the S.C. Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. "The average household could divert between 500-700 pounds of garbage each year," Williams said. "By diverting this material to backyard compost bins, residents not only reduce the amount of material going to landfills, but they also turn what would be discarded - fruit and vegetable scraps - into soil products for use in their gardens."

Participating cities and counties include Anderson, Berkeley, Charleston, Clarendon, Darlington, Dorchester, Greenville, Horry, Laurens, Lexington, Richland, Sumter and York counties and the Orangeburg Soil and Water Conservation District. Other cities and counties can become part of the program until March 1998 by calling 803-896-4234.

As of January 1998, more than 3,800 bins have been placed in households

*See **Compost,** Page 26*

Waste Tire Grants

By Jana White

Waste tire grants are made available to local governments for a variety of projects. Although stockpile clean-ups continue to be the first priority for funding, the other programs have been proven to be useful in helping local governments manage waste tires and in promoting the expansion of the waste tire recycling industry. Funding for waste tire grants comes from the $2 fee collected on the sale of new tires. A total of $1,236,908 has been awarded for 1998 tire projects.

Waste Tire Grants: These grants may be used to remediate stockpiles, contract with waste tire haulers and recyclers, purchase equipment, perform site preparation and contract for research into waste tire recycling. Waste Tire Grants have been awarded for a total of $978,829.

Closed-loop Grants: These grants may be used to contract with tire recyclers to purchase recycled rubber products made with waste tires generated in South Carolina. **Greenville County** has been awarded $12,600 for recycled tires to be used at the Paris Mountain State Park in the form of a playground, a pathway and a picnic area. The **City of York** has been awarded $6,687 in funds for crumb rubber to be installed at three city recreation complexes. The **City of Seneca** requested and was awarded funds to upgrade a fitness trail at the City Recreation Complex. This will include upgrading the drainage system and resurfacing the trail. The fitness trail will be finished with a 1-inch thick mat of poured recycled tires. The city estimates that 12,126 tires will be used in the resurfacing project. The cost of that project is $107,030.

*See **Tires,** Page 27*

Buy Recycled, Too!

By Holly Storey

Reduce. Reuse. Recycle.

Heard that. Seen that. Been there and done that, right? Well, add one more to your list: buy recycled. Buying recycled materials is not only a good form of waste reduction, it also saves natural resources and energy. And the fact that many products and packaging today are made from recycled materials - it is much easier to buy recycled.

Take, for instance, the Casey Co. The company, which was started in 1995 by David and Steve Bendtsen, offers products made with EcoSpun fabrics, a fabric made from recycled plastic soda bottles. The fiber used to make Ecospun fabric is made by Wellman, Inc., right here in South Carolina.

Wellman Inc., is one of the world's largest manufacturer of polyester fiber made from recycled postconsumer PET bottles. The company, which makes the fiber at its plant in Johnsonville, uses about 2.4 billion plastic soda bottles every year. Recycling often saves energy and Wellman's efforts alone can save enough energy to power a city the size of Atlanta for a year. The recycling efforts also can be seen as a earth-friendly way of keeping the bottles out of landfills.

According to the Casey Co., EcoSpun fabrics provide comfort, easy-care, durability, softness, and rich-looking appearance. The company offers wallets, key pouches, book covers, backpacks, waist packs, brief cases, and even dog bowls and pet beds. The products come in forest green, cranberry red, midnight blue, olive green, and jet black. In addition, the company also offers customized screen-printed or embroidered products with your logo that can be used as a special promotion product or a gift for you customers or employees.

Check out this company on the web at: http://www.pacificrim.net/~caseyco, or write to them at Casey Co., P.O. Box 5332, Bellingham, WA 98227.

Can you image transforming a discarded soda can into a fashion accessory? Well that is what Dieter Meier of Switzerland has done. He has transformed aluminum soda and beer cans into watches.

ReWATCH was founded and launched in Switzerland in 1993, but its name then was Crash. The purpose of the watch was to not only make a fashion statement but also to send a positive message. "ReWATCH is intelligent fun, it lets people feel good about recycling without having to go out and pick up cans," Meier said. "We've already done that work for them."

It is not usually easy to identify what recycled materials were used to make recycled content products. Part of a ReWATCH watch's appeal is that it clearly shows its origins as a soda or beer can. "We wanted the design of the cans to be an integral part of the watch's aesthetic," Meier said. "Then, people would constantly be reminded of what their watch used to be and how it was made."

Because each can is crushed individually with 100 tons of pressure, each watch is slightly different in design. Each watch has distinct colors and fragments of words that reveal the brand of soda or beer it once was. The current line of ReWATCH watches are made from the colorful cans of Coke, Budweiser, Pepsi, and Heineken, to name a few. The complete ReWATCH line will be available in all of the WatchWorld locations and by mail order.

Check out the ReWATCH Web page at www.rewatch.com.

State Recycling Rates Rise Again

Richard Chesley and Ken Acker

The total amount of solid waste recycled in South Carolina increased for the fifth straight year, while nine counties met the state's overall recycling and reduction goals, the S.C. Department of Health and Environmental Control said.

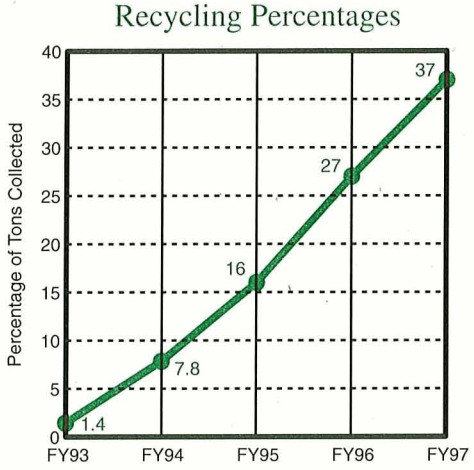
More than 2.8 million tons of solid waste, or 34 percent of the solid waste stream, was recycled in fiscal year 1997 (July 1, 1996 through June 30, 1997), a 7 percent increase from the previous fiscal year. That compares to more than 2.1 million tons or 27 percent in the previous fiscal year and 1.1 million tons, or 16 percent, in fiscal year 1995.

The recycling rate of 34 percent exceeded the state's 25 percent recycling goal set to be met this year by the S.C. Solid Waste Policy and Management Act of 1991. South Carolina exceeded its goal in 1996, a year ahead of the deadline.

The figures were based on county reports to the state and compiled for DHEC's 1997 Solid Waste Management Annual Report that was made available in January.

In addition to and separate from the recycling goal, the act sets a goal of a 30 percent reduction of solid waste sent to municipal solid waste landfills or incinerators to be met this year. Nine counties - Charleston, Cherokee, Darlington, Lancaster, Laurens, Marlboro, Oconee, Pickens and Union - met both the act's recycling and reduction goals. Each of the nine counties will be eligible to receive a bonus grant as provided by the act. A total of $100,000 will be divided between the counties.

Using 1993 as the base year, the state has reduced the amount of solid waste being disposed at municipal solid waste landfills and municipal solid waste incinerators by 27 percent. In calculating the reduction rate to meet the intent of the law, however, only 50 percent of the goal may be met by the removal from the municipal solid waste stream of yard trash, land-clearing debris, household appliances, construction and demolition debris, and waste tires. Using the method outlined in the act, the state's reduction rate is 10 percent, a 3 percent increase from this past year.



"While the state has met its recycling goal, we, in conjunction with local governments, will continue to work to meet the state's reduction goal," said William W. Culler, director of DHEC's Division of Solid Waste Planning and Recycling.

Culler attributed the combination of strong county programs along with the state's technical assistance, public education and grant funding programs in helping South Carolina meet the recycling goal.

Culler also attributed the increases to better cooperation between industry and the local governments in reporting recycling and reduction activities.

Animal tires

By Elizabeth Rosinski

The old tire swing hanging from the oak tree in the backyard has a new look.

Down at the Lazy B Ranch in Columbia, scrap tires still are used for swings by rancher Randy Bassham, but they don't exactly look like tires. What makes these swings different is that they are shaped into animals such as ponies, zebras, elephants, dinosaurs and bulls.

What began as a hobby a few years ago is now a full-time job. Bassham is in the process of incorporating "Imagination Works," a creative concept recycling company. His mission is "to develop and market creative, practical solutions to landfill problems."

Currently his business, West Texas Ponies, is responsible for the creation of more than 300 pedigree horses that are "guaranteed for the lifetime of the cowboy and a million smiles." All swing sets are designed with a patented face, painted to ensure likeness, and fitted with appropriate riding gear. Each thoroughbred also has a serial number to keep track of the swing sets and make them unique to every customer who purchases a pony. Any child, 6 months and older, is able to ride on these sets that are custom fit to a child's size. Prices begin at $79.

Bassham is currently recycling 20 to 30 fabric-belted tires a week. He is able to acquire tires from a variety of sources, including individuals who want to get rid of them.

Bassham's creations can generally be found at craft shows and festivals throughout the state. If you would like more information or even would like to recycle some tires, call Bassham at 803-254-3833.

&D Regulations Amended

By Ellen Jennings

S.C. Solid Waste Policy and nent Act of 1991 directed the partment of Health and Environ- Control to develop a regulation shing standards for construction, ion and land-clearing debris andfills. DHEC's Regulation 61-107.11 SWM: Construction Demolition and Land-Clearing Debris Landfills became effective on July 23, 1993. It was amended on July 28, 1995. This amendment categorized C&D landfills into four types:

1) Short-term C&D landfills - small, short-lived landfills that can accept a limited waste stream for structural fill;

2) Land-clearing debris landfills (General Permit) - landfills that can accept only land-clearing debris and yard trash for structural fill;

3) Long-term landfills - landfills that have controlled access and serve permanently located utility facilities or manufacturing firms on property owned or controlled by the facility or firm; and

4) Long-term landfills - landfills that include all other C&D landfills not addressed in another category as outlined above.

During the 1996 Legislative Session, the S.C. General Assembly amended the act as it relates to C&D landfills. The amended act now states, in part, that short-term landfills are no longer required to demonstrate consistency with the host region/county solid waste management plan. The amendment to the act also extended the life of short-term C&D landfills from six months to one year. An amendment to Regulation 61-107.11 that will make it consistent with the amended act is pending review by the general assembly. It will likely become effective in early 1998.

DHEC's approach in developing the criteria for the C&D regulation was to protect the environment while making disposal of C&D waste as economical as possible. C&D landfills are not required to have liners or monitoring wells, but are restricted in the types of waste that can be accepted for disposal. For example, wastes contaminated with lead-based paint are not allowed in C&D landfills.

The regulation requirements were geared to meet the needs of South Carolina. The topography in the state varies greatly from the upstate area to the coast. There are many natural depressions in the upstate that can benefit from the use of certain C&D wastes being used as structural fill. The coastal areas, however, have a high water table and numerous wet lands, and few areas are suitable for structural fill. All these variables were considered during the writing of the C&D regulation. The four types of C&D landfills makes the regulation flexible and functional for the entire state regardless of the natural environmental factors.

Surveys of how other states handle C&D waste reveal a variety of approaches. Some states treat C&D wastes the same way they treat municipal solid waste (MSW), i.e., household garbage. Other states, like South Carolina, have different disposal criteria for C&D and municipal wastes.

Since the act was passed in 1991, we've seen a decline in the number of municipal solid waste (MSW) landfills in South Carolina from 54 in 1993 to 34 in 1996. An increased awareness of open dumping, bans prohibiting the disposal of yard trash and land-clearing debris in MSW landfills, and increased tipping fees at MSW landfills has resulted in an increase in the number of permitted C&D landfills. In 1993, there were 22 C&D landfills that increased to 108 C&D landfills in 1996. Twelve of the 46 counties in South Carolina reported C&D recycling in 1996. If C&D recycling efforts in South Carolina increase, the number of permitted C&D landfills will likely decline.

Used Oil Grants

The Used Oil grant program has grown to fit the needs of the increasingly sophisticated local programs. This past year the waste oil program expanded by offering funding for the collection of gasoline and oil mixtures. In addition, the collection of oil filters was widely implemented. For 1998, the big news is grant awards being made for the establishment of regional oil bottle collection facilities. Host counties will be setting up collection and processing facilities they will, in turn, make available to other area programs.

Charleston and **Lexington** counties were the first to implement the program with other counties watching closely to learn how to do it themselves. Additional host facilities are planned in the City of North Augusta along with **Aiken, Cherokee, Horry** and **Sumter** counties. For all used oil programs, a total of $1,221,648 has been awarded for 1998.

Current Events Calendar

February 1998

February 10-13
Recycling Coordinators' Workshop, Myrtle Beach, SC

February 17
C&D Workshop for Contractors, Columbia, SC

March 1998

March 1-4
Southeast Recycling Conference and Trade Show, Orange Beach, Alabama

March 2-4
North Carolina Recycling Assoc. Annual Conference
Greensboro, NC

March 20 and 23
Love-A-Tree Kit Pick-up

Recycling Education Grants Awarded

By Tina Lindler

The 1998 grant year is underway and there are some exciting projects going on around the state. Here's an overview of what's happening:

1997-1998 Recycling Education Grants

Thirty-five applicants were awarded a 1997-98 Recycling Education Grant Program for a total of $64,835.

As the years have progressed teachers have become more innovative in their teaching methods about recycling and source reduction.

A positive trend in the Recycling Education Grant Program has been the focus on source reduction. It has become obvious that schools are beginning to concentrate on reducing as well as recycling their waste. Such is the case with C.A. Johnson High School. Students will construct composting bins and collect yard trimmings, leaves, and compostable foods from the cafeteria. The compost generated will be used in flower and vegetable beds. Composting projects aren't just for high schools, but elementary school students as well. Students at Iva Elementary will construct a compost bin and will use the compost in their garden project. (Compost will be used in the garden project.) If you are interested in composting as a future grant project, please contact the Grants Office for specific guidance on composting for non-regulated facilities.

The Recycling Education Grant Program is funded by the Petroleum Fund. Because of the funding source, all applicants must include a used oil awareness project as part of the overall program. This seems to be the one requirement that is the most intimidating for everyone. The Office will not fund a used oil collection site at a school for obvious reasons. The Office suggests that grant applicants develop used oil projects that will teach the significance of recycling used oil. Some schools have dedicated their entire grant project to recycling used oil. Paul Knox Middle School will use grant funds to increase student, parent, and community awareness that it is illegal to dispose of used motor oil on the ground, in the garbage and in the water. They will achieve this through a home-page, surveys, essays and posters on used motor oil and the effects of its disposal on the environment. Other used oil awareness projects include a used oil recycling theme song and slogan contest, poster contests and used oil videos demonstrating the proper way to dispose of used oil.

"...schools are beginning to concentrate on reducing as well as recycling their waste."

Public schools aren't the only ones receiving grant funds. St. Martin De Porres School will develop a composting site. Each class will have an opportunity for hands-on involvement at the compost site.

The 1997-98 Recycling Education Grant Recipients

Aiken Academy
Barnwell Elementary
Batesburg-Leesville Middle
Bethel-Hanberry Elementary
Blythewood Middle
C.A. Johnson High
Carver-Edisto Middle
College Park Elementary
Communities in School
Cross High
Fort Mill Elementary
School District of Georgetown County
Iva Elementary
James Island Middle
Joseph Keels Elementary
Lamar Elementary
Lonnie B. Nelson Elementary
Loris High
Mt. Gallant Elementary
Northwestern High
Oakdale Elementary
Paul Knox Middle
Playcard Environmental Education Center
Pontiac Elementary
Prosperity-Rikard Elementary
Rebound Alternative School
Richland School District Two
Richland School District Two Child Development
Ridge Spring - Monetta High
Rock Hill High
Saint Joseph's High School
St. Martin De Porres School
Summit Parkway Middle
Waccamaw Elementary
Windsor Elementary

1997-98 College and University Recycling Grant Program

The 1997-98 College and University Recycling Grant Program awarded about $104,000 to 10 institutions of higher learning for recycling programs. This is a competitive grant program that will pay for expenses to begin a new recycling program or add to an existing program. This program is funded out of the Petroleum and as a result, all projects must include a used oil awareness project as part of the overall project. Interesting projects this year include:

Central Carolina Technical College

Central Carolina proposes to move an existing used oil collection tank to increase public use of the tank. Central Carolina is requesting funds for a concrete pad for the used oil tank. The college will expand their composting program by adding different types of composting bins to showcase different techniques. The college will offer composting workshops. Funding is requested to purchase equipment to perform freon and antifreeze recycling for college, employee and student vehicles. The recycling program will be promoted through e-mails, fliers, brochures, activities, workshops and seminars for the students and staff. Funding is requested for a rolling recycle system to simplify the collection, separation, and transportation of collected materials for the custodial employees.

Chesterfield-Marlboro Technical College

Grant funds are requested to purchase aluminum can and paper recycling containers that will be located in high traffic areas throughout the campus. Funds are requested to purchase a chipper/shredder to turn yard waste into mulch for plant beds. The college will develop and distribute brochures regarding used oil awareness. Public education will be addressed through posters, fliers, and news releases about the college's recycling program.

Florence-Darlington Technical College

Funding is requested to purchase additional office paper recycling bins. A brochure will be developed and distributed to focus on the college's recycling program. Contractual expenses are requested to add cardboard recycling. The College has instruction programs on auto/diesel and aircraft maintenance that generate waste oil. The recycling newsletter will be expanded to twice a year. Funding is requested to purchase a computer for the project coordinator to track recyclables on campus and to design the recycling newsletter and recycling brochure. Public education will be continued through the addition of books, videos, periodicals, and other resource materials.

Furman University

Furman currently recycles aluminum, paper, plastic and cardboard. They are requesting funds to purchase collection containers for paper and aluminum cans to be place in the labs, classroom areas, and copy machine locations. Furman education students, faculty and staff on the proper disposal of used oil through the campus newspaper, newsletters and e-mail. Additionally, a brochure will be developed that discusses Furman's recycling program.

Medical University of South Carolina (MUSC)

MUSC has added two buildings and is requesting funds to purchase additional bins and toters for the new buildings. Additionally, MUSC will produce a brochure that describes their recycling program, including used oil awareness.

USC-School of Medicine

Currently, the USC-School of Medicine has a recycling program at the VA Campus. They are recycling office blend paper, aluminum cans, cardboard, magazines, newspaper, toner cartridges, florescent tubes, oil, copper, plastic, compost, batteries, and iron. The school plans to extend their recycling program to the Clinical Campus at Richland Medical Park. The school will promote used oil awareness through seminars, student orientation week, and bulletin boards. Public education will be addressed through presentations and new employees will receive recycling information during orientation. Also, the Waste Minimization and Recycling Office Home-page (Healthrecycle) provides the public access to recycling information.

USC-Spartanburg

USC-Spartanburg will concentrate on four main projects. The first project will focus on office recycling. Additional bins and side bin attachments will be purchased to allow paper and trash to be separated at the source. The second project allows for five recycling carts divided into three compartments for trash, paper, and cardboard to facilitate a more timely completion of rounds when picking up recycled materials. The third project will provide seven aluminum can/plastic combination recycling containers that will be placed near vending machines. A trailer is requested to collected plastic bottles which Spartanburg County will pick up. The final component is a used oil awareness project. This will utilize brochures, campus and staff newspaper articles, and information on the campus-wide television system to promote proper disposal of used motor oil.

Williamsburg Technical College

Williamsburg Technical College will begin a recycling program and is requesting grant funds to purchase various types of recycling containers to collect these items. Containers will be placed in classrooms and other high-traffic areas to encourage recycling of paper, plastic and aluminum cans. All recyclables will be transported to a Williamsburg County recycling center. Funds will purchase a paper shredder for confidential documents. Used oil awareness is currently being taught in the auto mechanics, heating, ventilation and air conditioning classes. Public education will be addressed through seminars to educate students and faculty twice a year. The college's public information office will promote the recycling program in various local newspapers.

Winthrop University

Winthrop is requesting funds to purchase containers to either expand their

*See **Grants,** Page 27*


Recycles!

Just What Was Recycled?

By Richard Chesley

More than 2.8 million tons of solid waste was recycled this past fiscal year - but just what was recycled?

The traditional commodities, right? Aluminum, plastic, glass. Well, yes, but the No. 1 recycled commodity as reported by the state's 46 counties was yard waste with more than 205,000 tons of yard waste being recycled in FY 97. The second most recycled item, as reported by counties, was construction and demolition debris with more than 52,000 tons recycled.

The bottom five recycled items counties listed in their annual reports were lead acid batteries (79.84 tons); followed by aluminum (263.68 tons); bimetal (303.02 tons); other paper (389.52) and plastic beverage containers (550.31 tons).

There were, of course, several interesting commodities listed in the county reports. Orangeburg County reported that one industry recycled 6.5 tons of dog food. Sumter County reported nearly 30 tons of Christmas trees. Lancaster County listed 2.6 tons of fluorescent tubes recycled by industry. Cherokee County reported 1,214.8 tons of pasta by industry. Lexington County listed 58.22 tons of foam rubber padding. Abbeville reported 23.46 tons of bale wrapping. Oconee County reported industry recycling 8,335 tons of textiles.

"It shows how far we have come with recycling and recycling programs within the state when you have such a variety of commodities being recycled," said Ken Acker of DHEC's Division of Solid Waste Planning and Recycling and who helped compile the information for the annual report. " Even with the overall success of the state's recycling rate (34 percent), we can't be satisfied - there is room for improvement.

"The counties have responded to the public's desires to recycle a wide range of items,'' Acker said. "Local businesses and Industry have also actively implemented recycling programs and have been willing to share the information with their local governments."

A breakdown of what was reported to be recycled by counties, industry, commercial and non-profits

Source : 1997 S.C. Solid Waste Management Annual Report (All totals are tons)

County Top 5		**County Bottom 5**	
1. Yard waste	205,601.33	5. Beverage plastic	550.31
2. C&D debris	52,613.26	4. Other paper	389.52
3. Misc.	52,491.87	3. Bimetal	303.02
4. Newspapers	43,882.30	2. Aluminum*	263.68
5. Waste tires	24,799.61	1. Batteries**	79.84

Commercial Top 5		**Commercial Bottom 5**	
1. C&D debris	274,883.31	5. Other glass	36.00
2. Other metal	270,318.71	4. Bimetal	25.13
3. Cardboard	246,549.44	3. Clear glass	3.09
4. Other plastic	45,782.15	2. HDPE***	0.99
5. Waste tires	24,688.85	1. Batteries**	0.13

Industry Top 5		**Industry Bottom 5**	
1. Misc.	789,307.14	5. HDPE***	423.54
2. Other metal	271,981.45	4. Beverage glass	413.15
3. C&D debris	89,464.15	3. Yard waste	245.00
4. Cardboard	80,031.80	2. Other glass	44.21
5. Other plastic	37,896.14	1. Brown glass	0.4

Non-Profit Top 5		**Non-Profit Bottom 5**	
1. Misc.	19,389.73	5. Waste Tires	25.94
2. Other paper	2,837.12	4. Beverage Plastic	22.41
3. Beverage glass	1,645.81	3. HDPE***	19.37
4. Cardboard	1,497.29	2. Batteries**	1.31
5. Newspaper	1,322.36	1. Glass****	0.7

County - includes all local governments within the county

Industry - has a manufacturing or has a Standard Industral Classification Code.

Commercial - grocery stores and fast food establishments

Nonprofit - college/university, government agencies and fire departments

Miscellaneous - industrial, sludge, textiles, used oil filters, wooden pallets, latex paint, and antifreeze

C&D - steel, brick/block, concrete, wood scraps, shingles and gypsum

* non-beverage
** small sealed lead acid batteries
*** pigmented colored
**** brown, clear, green, other

Overview, *continued from Page 11*

Based on the 1,174 facilities, their percentage, by type of plant, are presented in Figure 2. Using geographic regions, Figure 3 indicates that the largest percentage of facilities in found in the Western and Mid-Atlantic regions.

The regional summary of the three primary types of C&D facilities that handle the largest percentage of materials in the C&D waste stream .

In addition to contributing an extensive database review to help put the industry in perspective, this slice-in-time presentation is obviously not totally complete. Post Labor Day 1996 discussions (along with crystal ball and recent Tarot card readings) are allowing me to mix hard data and my common sense to opine that-within the primary C&D waste categories- at least 1,800 facilities around the United States currently exist.

Lastly, please note that the plants identified in this article are specific C&D waste-handling projects. They do not include quarry rock crushing plants nor brush/tree tub grinding plants. Additionally, they are not pallet grinding operations. A significant amount of effort has been put into assuring that the material origin is C&D waste derived. Finally, a multipurpose plant location that could be processing mixed C&D, shingles, and gypsum wallboard, for example, is identified as one mixed C&D plant. Hence, the small number of specific C&D waste constituents processing plants (e.g., shingles or wallboard) is not necessarily the true industry perspective, as certain mixed C&D projects also process and recover these materials.

Mr. Brickner, a contributing editor of C&D Debris Recycling, is senior vice president of Gershman, Brickner & Bratton Inc., Falls Church, Va.

Figure 2:
C&D Waste Recycling Facilities Identified by GBB
Percent by Type

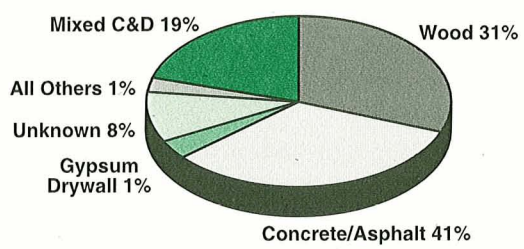
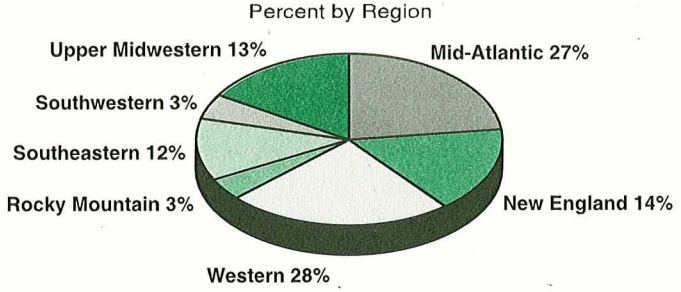


Figure 3:
C&D Waste Recycling Facilities Identified by GBB
Percent by Region



Compost, *continued from Page 18*

throughout South Carolina. If each household diverts an average of 600 pounds, that means the program may have diverted 2.2 million pounds from South Carolina landfills to date. These households will be composting year after year which will lead to a huge cumulative diversion of material.

The statewide program is partially funded by the U.S. Department of Energy's State Energy Program administered by the S.C. Energy Office. For more information, residents are encouraged to call their local recycling coordinator or call DHEC's Office of Solid Waste Reduction and Recycling at 1-800-768-7348.

Tires, *continued from Page 19*

Automobile Dismantler Grants: The dismantler program was designed to help rid the state of unsightly and unhealthy waste tire piles that have accumulated at salvage yards. The program works by reimbursing counties for accepting waste tires free of charge from salvage yards. Dismantlers must be pre-approved by the department before they may take part in the program. To date, a total of $258,079 has been awarded in fiscal year 1998 for dismantler grants.

Grants, *continued from Page 23*

recycling program or replace old recycling containers. Used oil awareness will be addressed in a campus newsletter article. Public education will be addressed through e-mails, fliers, and articles in the newsletter.

Wofford College

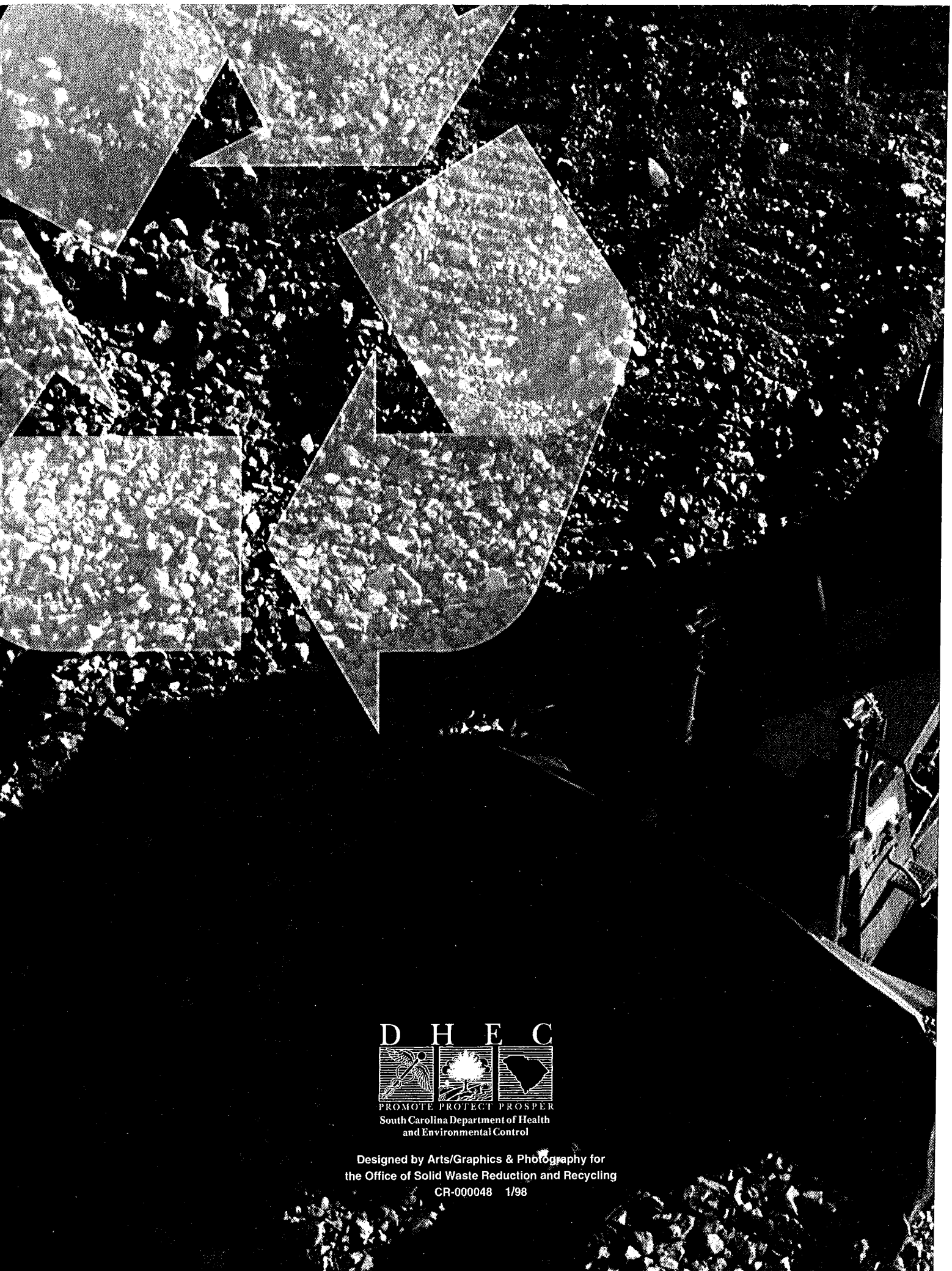
Wofford currently collects paper and aluminum cans. The recycling program will expand to include all types of office paper, junk mail, plastics, newspapers, magazines, phone books and catalogs. Wofford is requesting grant funds to purchase various types of collection containers for the recyclables. Collection containers will be placed throughout the campus and in dorm rooms. They are also requesting funds to purchase a used truck and tommy lift to transfer collection containers to the appropriate location. Wofford will begin composting yard debris, leaves and tree limbs. Posters and brochures available from various sources will be used to discuss the proper disposal of used oil. A brochure describing the college's recycling program will be developed. Brochure will contain recycling tips, pick-up schedules, contact phone numbers, etc. Public education will continue through the student newspaper, recycle notepads, routing magazines, etc. Please contact Tina Lindler at 1-800-768-7348 for more information.

Editor, *continued from Page 6*

and 549,514 households have access to curbside recycling. But don't get too comfortable, because the U.S. EPA recently proposed a 35 percent recycling goal by the year 2005.

As a part of office planning, we have ceased the publication of the newsletter and have begun to publish this magazine. Our intention was not to change our coverage of solid waste and recycling issues in the state, but to expand that coverage to include national perspectives. Each issue, published quarterly, will have a theme - this one is Construction and Demolition recycling - about which the feature stories will provide local, state and national outlooks. We will have information on sustainable development, Pay-As-You-Throw, markets and waste reduction. Then there are the political issues of recycling such as ending virgin material subsidies, financing recycling businesses and job creation through recycling, which will get more attention in the coming decade both from us and others in the field.

Let us hear from you. You might even get your name in print. We want to know what you think the important issues are, because even though there is no subscription price, this magazine is for the readers.



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