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Every last drop

■ Oil filter recycling business helps local man, environment

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Getting an oil change every three months or so is a fairly common errand for the responsible automobile owner.

After the oil change is finished and we drive away with fresh filters and oil, what happens to the used filters?

It may be something most of us don't give a second thought, but listening to the statistics are shocking enough to turn the head of just about anyone with half an environmentally conscious bone in his or her body.

According to the Environmental Protection Agency (www.epa.gov), in 2002, about half of the 500 million light-duty filters (lawn mowers, small automobiles, etc.) sold in the U.S. were landfilled (surprising, but yes, oil filters are legally allowed to be tossed into landfills).

This translates to more than 75,000 tons of steel and more than 9 million gallons of waste oil thrown away – more than 1.5 trillion Btu of energy.

And these numbers don't include larger filters, such as those used in earth-moving equipment, farm equipment, tractor trailers and even locomotives.

There is also the possibility of water pollution. According to the EPA, one gallon of waste oil can contaminate 1 million gallons of ground water. Although measures are taken to prevent oil in landfills from escaping into ground water, the possibility is still there.

But if the filters aren't put into landfills, where else can they go?

This is where David Lucas comes in.

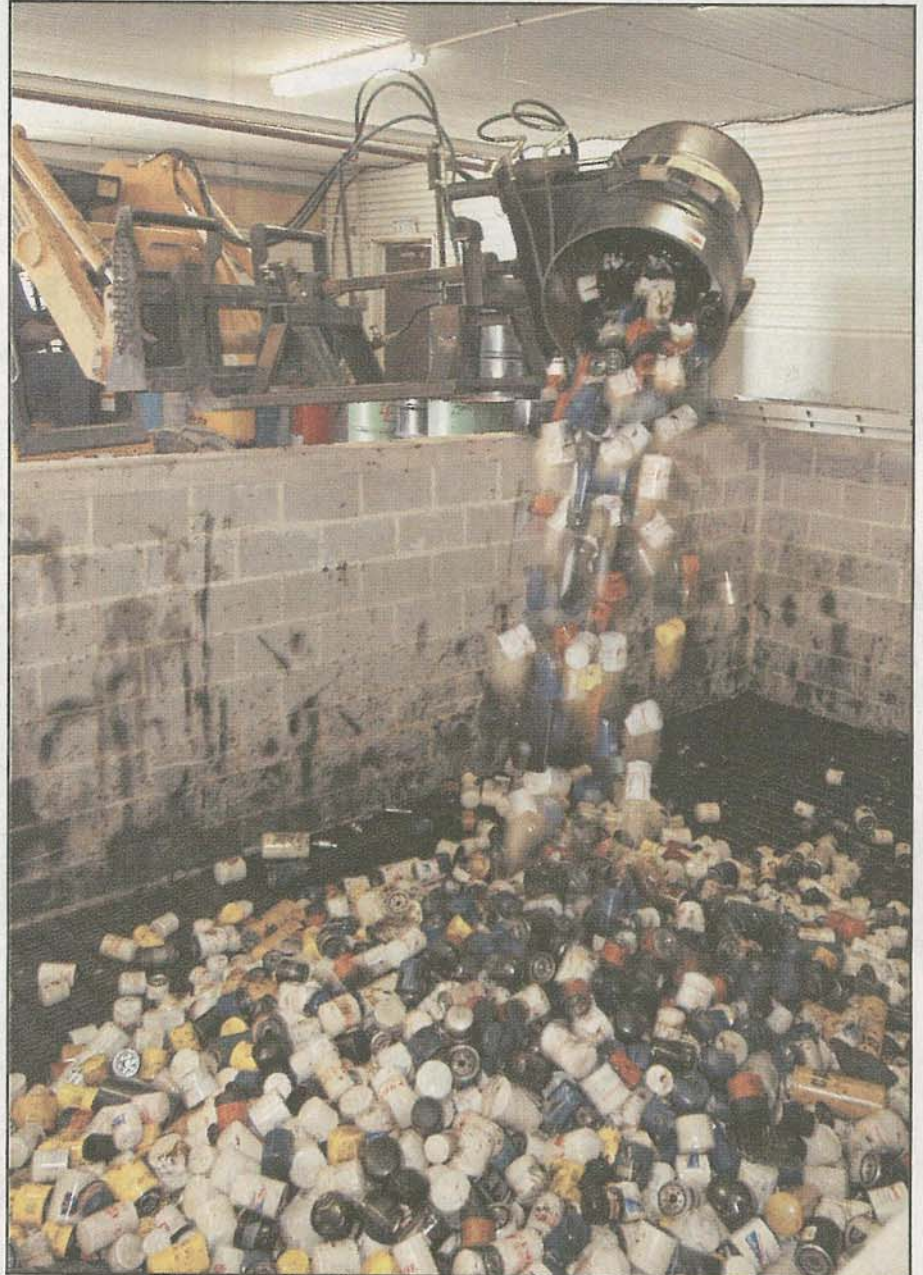
Lucas is a farmer, but about three years ago, he was looking for something else he could do to diversify his income while staying on his Upper Tulpehocken Township farm, where he and his family have been for the past 11 years. So, with the help and guidance of his father, Charles Lucas, he started an oil filter reclaiming business, called Lucas Lane Oil Filter Reclaiming.

He admits his first thought was not the environmental benefits his business was providing, but it certainly is a nice perk, he said. In fact, the statistics speak for themselves.

What some people may not realize, explained Lucas, is when an oil filter is removed from an engine, there is still a great deal of oil that is trapped in the filter.

"About 40 percent of the weight of an oil filter is waste oil that is trapped inside the filter," said Lucas.

Not only that, but the filter itself is made from steel,



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At Lucas Lane Oil Filter Reclaiming, Upper Tulpehocken Township, a machine dumps a barrel of oil filters into a holding area before they are moved to the crusher.

Oil filters continues on DRIVE2

Oil filters

Continued from DRIVE1

which also can be recycled as scrap metal.

Lucas accepts the used oil filters from just about any company who generates them in about a 50-mile radius of Reading, from mom-and-pop auto mechanics to larger automobile dealerships, from lawn mower filters all the way up to locomotive filters.

For a fee, Lucas' company places barrels at customers' businesses and when the barrels are full, they pick them up and bring them back to the recycling facility.

There are other oil filter reclaiming companies out there, but Lucas' is the only one on the East Coast that utilizes thermal processing to reclaim 100 percent of the oil, he said. Most only crush the filters and some shred them.

Most companies stop after compressing the filter — after compressing, about 10 percent of the weight of the filter is still waste oil trapped in the filter.

In order to reclaim that oil, both heat and pressure are needed, said Lucas.

Here's how the process — called "hot draining" — works at Lucas Lane's facility: After the barrels are filled with filters (about 250 filters fit in a barrel), they are picked up from various businesses and brought back to the facility. Then, they are dumped into a holding area.

After the filters are dumped into the holding area, which drains any excess oil to a collection area, they are taken a scoop at a time and placed into the next step: the crusher.

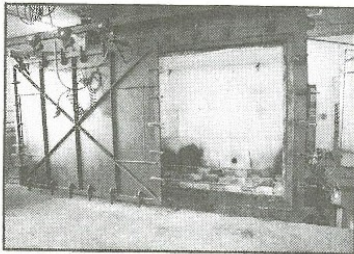
The crusher condenses the filters into 8-by-8-by-10-inch blocks that weigh about 45 pounds each. This process releases all but about 10 percent of the oil trapped in the filter.

The remaining oil is released in the next step, the thermal processing machine. The blocks are loaded into the machine, which in layman's terms is basically a giant oven, where the temperature reaches about 1,700 degrees.

In this process, the remaining oil is released from the filter, the material inside the filter (the paper element and the rubber gaskets) burn away into carbon, leaving a piece of scrap metal that Lucas sells to a scrap steel company. (According to Lucas, it is a lot cheaper to make steel from scrap than it to make it new. Not only that, but making new steel uses up precious natural resources, he said.)

"When (the filter) comes out of the thermal machine, it is 100-percent oil-free," said Lucas.

After 80 barrels of filters have been



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The oil that remains in the filters after they are crushed is released when the cubes are heated to 1,700 degrees in a thermal processing machine, shown above.

hot drained, Lucas is able to recover about 700 gallons of waste oil.

All of the waste oil (excess oil from the holding area, the crusher and the thermal processing unit) drains to a collection tank, which when full, is pumped outside to another tank.

Some of the waste oil goes into a separate 300-gallon tank that is used to operate the thermal machine, while the rest is sold to an oil recycling facility. According to Lucas, it takes about 300 gallons of waste oil to run a load.

The entire process is monitored heavily by the EPA and Filter Management Council, who police the industry, explained Lucas. He also has to pay a great deal — more than \$3,000 a year — in environmental liability insurance.

Although it makes things more difficult, Lucas understands most of these requirements and feels he has a good working relationship with the agencies.

Also, by taking the filters from businesses, he has a written guarantee that states he assumes all responsibility of the filters. This is huge, because many companies don't make this guarantee and the responsibility then remains in the hands of the company that initially had the used filter. (When a mechanic takes a filter off a car, that becomes the mechanic's liability; same goes for the waste oil.)

Lucas doesn't only serve businesses, he also works with municipalities, including Exeter and Tulpehocken townships. This way, people who do their own oil changes can bring their used filters to a township drop-off site.

While it may be a small operation, Lucas feels it adds up fast.

Although it may not be on an enormous scale, one thing is clear: Lucas is certainly making a difference, one used filter at a time.

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David Lucas, owner of Lucas Lane Oil Filter Reclaiming, takes barrels filled with used oil filters and puts them in a crusher to reclaim much of the waste oil inside them, resulting in 8-by-8-by-10-inch cubes.



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Oil Filter Reclaiming

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