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CONTACT US

Guzzler/Vactor
1-800-627-3171

Tony Fuller
Director of Sales
tfuller@vactor.com

Tracy Krebsbach
Service Manager
tkrebsbach@vactor.com

Tim Lee
Product Manager
tle@waterblast.com

Mark Pshak
Inside Sales Manager
mpshak@vactor.com

John Stafford
FS Solutions
jstafford@guzzler.com

Jetstream
1-800-231-8192

Joe Varca
Global Sales Manager
jvarca@waterblast.com

New EPA Regulations Will Change Chassis Starting in 2010

We all survived the switch to low-emissions diesel engines and ultra-low sulfur diesel fuel in 2007. Now, get ready for the second phase of the Environmental Protection Agency's diesel emissions regulations that begin in 2010. "It's only one year away," warns Guzzler Product Manager Tim Lee.

The 2007 changes slashed diesel particulate emissions by 90 percent. The 2010 guidelines call for engine makers to do the same for smog-forming nitrogen oxide (NOx). That would eliminate 2.6 million tons of NOx emissions annually. EPA expects reduced smog to prevent 8,300 premature deaths, 5,500 cases of chronic bronchitis, and 360,000 asthma attacks each year.

Unfortunately, those benefits come at a cost. Pollution control equipment make diesel equipment, including vacuum trucks, more expensive. Still, the bump up in prices should be less than in 2007.

But unlike 2007, the industry has not settled on a single pollution control technology. Instead, there are two contenders. "We're also seeing a reshuffling of vendors serving the industrial cleaning market," Lee says. Here is a rundown on what you should know:



Technology Choices

There are two competing technologies for reducing NOx: exhaust gas recirculation (EGR) and selective catalytic reduction (SCR). Each has its own strengths and weaknesses.

Exhaust Gas Recirculation. If EGR sounds familiar, it is because today's engines already use EGR to reduce NOx. Advanced EGR technology will be necessary to meet EPA's 2010 requirements.

EGR uses cooled, recirculated exhaust gases to lower engine-firing temperatures. Since the exhaust gas already was used for combustion, it has less oxygen. This lowers the temperature of the fuel-air explosions inside the engine cylinders, which in turn reduces the NOx produced.

EGR's weakness is that you have to run your engine less efficiently. "That reduces fuel economy.

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“ The 2007 changes slashed diesel particulate emissions by 90 percent. ”

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It also generates more soot, which places a greater burden on the particulate filter,” Lee says. The good news is that EGR is relatively simple to use. Just start the engine and the system does its job. There is no need for additional operator training.

Selective Catalytic Reduction. Europe embraced SCR in 2006, but it is new here. SCR injects a urea solution (also known as diesel exhaust fluid or DEF) into the engine’s hot exhaust stream. The urea breaks down NOx into nitrogen gas and water. It takes two to three gallons of urea to treat 100 gallons of diesel.

Once the reaction takes place, you’re done. “Since you don’t recirculate the exhaust, you can run at more fuel efficient temperatures and improve mileage, which is a significant advantage, especially when fuel prices inevitably rise again,” Lee says. SCR also generates less soot, so engineers may be able to downsize radiators and particulate filters.

“The downside is that you have to add new urea storage, dispensing, sensing, and control

systems,” Lee explains. “That will make it more expensive than EGR. You’ll also have to buy and add urea separately from diesel fuel.”

A truck whose urea tank runs dry will produce 10 times more NOx than a compliant truck. EPA won’t let that happen. Instead, trucks will probably be equipped to warn operators when urea gets low and shut down if the tank is empty. You will have to train operators to prevent this.

Changing Vendors

2010 emissions are forcing major changes in the heavy-duty chassis market, which may mean some changes to Guzzler’s most popular chassis offerings. Here’s the scoop.

International Navistar plans to build an EGR heavy-duty engine, MaxxForce, and Guzzler expects to offer that option.

Daimler Trucks, which owns Detroit Diesel and Sterling, plans to discontinue the Sterling brand after March 2009. It will make up the difference by offering more Freightliner and

Western Star models. All Daimler Trucks engines will be SCR.

Caterpillar says it will not make a 2010-compliant, on-highway engine. Earlier this year, though, Cat partnered with International to build a severe service truck to sell through its dealer network. The Cat-branded truck may use Navistar’s EGR technology. “We plan further talks to see how this evolves,” Lee says.

Several other companies also plan to make 2010-compliant engines. Cummins has announced that it will use EGR for heavy-duty engines. Volvo and Paccar (Kenworth and Peterbilt) will go the SCR route.

“One of the key issues with SCR in the United States is developing the infrastructure needed to distribute DEF. It’s a work in progress. Right now, we’re talking with everyone and will keep reviewing alternatives so we can offer the best combination of EGR and SCR to our customers,” Lee says.

New Solutions Centers, New Capabilities

The Federal Signal Environmental Solutions Group has opened its sixth FS Solutions Center in Gonzales, La., and now provides authorized repair and service for **StoneAge** equipment in Toledo, Ohio, and Long Beach, Calif.

Gonzales. Gonzales, between Baton Rouge and New Orleans, is the sixth FS Solutions Center. In addition to stocking parts and accessories for Jetstream and other waterblasters, it also provides authorized service and repairs, as well as safety and productivity training.

Equally important, Gonzales makes it more affordable for contractors to add new capacity when they need it. In addition to a rent-to-own program, the facility rents equipment to companies with short-term and seasonal

contracts, and sells used waterblasters.

Gonzales joins other FS Solutions Centers in Birmingham, Ala.; Long Beach, Calif.; Houston; Toledo, Ohio; and Streator, Ill.

StoneAge. FS Solutions Centers in Toledo and Long Beach now do authorized service and repairs on StoneAge waterblasting and sewer-cleaning equipment, including the Hurricane 3D vessel and tank cleaning tool, Barracuda 20,000 and 40,000 psi rotary nozzles, and Warthog sewer cleaning tools.

“The technical sales specialists at FS Solutions have been fully trained by StoneAge engineers and are uniquely suited to answer customer questions about which StoneAge tools to use to remove specific

materials in specific applications,” says Bill Shires, StoneAge sales and marketing vice president.

FS Solutions also has the technical expertise to repair StoneAge’s high-tolerance tool components, Shires adds. This service gives contractors a local repair and rebuild option, so they do not have to send parts back to StoneAge’s Durango, Colo., location for authorized service.

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Vactor Receives “Green” Certification

This past spring, auditors recertified Vactor/Guzzler Manufacturing’s Streator, Ill., plant to ISO 14001, an international standard of environmental stewardship. This is good news for Vactor/Guzzler and everyone who uses Federal Signal Environmental Solutions Group products.

“We tell our customers we’re an environmental company, so we want to walk the talk,” says Brian Mascal, Vactor/Guzzler’s environmental health & safety manager. “We want our customers to be able to say that their equipment is built to the highest environmental standards.”

The ISO 14001 certification is part of the Environmental Solutions Group’s efforts to reduce, reuse, and recycle the energy, water, and materials used in manufacturing to cut waste and carbon output.

ISO 14001

ISO 14001 covers policies and procedures to minimize environmental impact. Of course, anyone can write a procedure. To receive ISO 14001 certification, a plant must allow a team of independent auditors to make sure those words are translated into action.

Vactor/Guzzler has been at the process for nearly five years, says VP/GM of manufacturing Dan Schueller. The ISO 14001 implementation went smoothly because the plant was able to build on its ISO 9001 certification, a standard for quality management.

“First we implemented ISO 9001 to make sure our quality processes stayed true and lined up with customer expectations,” Schueller explains. “The ISO 9001 processes are similar to ISO 14001, and we used them to improve our environmental performance.”

Vactor/Guzzler targeted five areas for environmental improvement. Two involved energy. The plant took action to conserve electricity (and cut carbon emissions generated by power production). It switched to energy-saving fluorescent light bulbs and made sure workers used the right tips and nozzles on the compressed air system. It also mobilized employees to shut off electrical equipment when they left at night.

Painting Energy Savings

Natural gas was Streator’s biggest energy expense, and the paint booth was responsible for most of it. In a typical booth, operators spray on

paint, then bake the parts to cure the paint. “We started making sure our booths were always full so we didn’t cure eight parts when we had room for 12 or 16,” Schueller says. “We also made sure we turned down the temperatures when not in use.”

The facility now recovers, distills, and reuses paint solvent. This slashes solvent costs and also emissions of volatile organic compounds (VOCs). Vactor/Guzzler cut water consumption by finding and fixing leaks and installing waterless urinals. Each urinal saves 50,000 gallons of water per year.

Vactor/Guzzler also cut back on the solid waste it sent to the landfill. “We analyzed it and found that for every truck we manufactured, we were generating 1,450 pounds of miscellaneous waste. That’s not even counting scrap steel or fluids,” Schueller says.

Vactor/Guzzler worked with vendors to reduce parts packaging and found a company to recycle damaged pallets. Workers recycle cans, wire, newsprint, and office paper. Today, the factory generates 1,040 pounds of solid waste per vehicle and plans are in the works for dramatic reductions in months and years to come.

Future Improvements

ISO 14001 calls for continuous improvement, and Vactor/Guzzler is always looking for new ways to reduce, reuse, and recycle. Once the company completes its plant expansion, Mascal says the facility will have enough room to recycle cardboard and additional plastics.

Streator is not the only Environmental Solutions facility to embrace a green future. Jetstream’s Houston plant has reorganized its safety committee to include environmental planning. The team is now recycling steel, pallets, cardboard boxes, and office paper. It is also replacing the plant’s lighting with a more efficient fluorescent system, and has assigned several employees to recycle cans within the building.

The goal is the same in both cases. “We want to obey all the laws, and then go beyond them to reduce, reuse, and recycle the energy, water, and materials we use in our plant. We want to be a true environmental solutions company and good partner for our community,” Schueller concludes.



Vactor/Guzzler saves thousands of gallons of water for each truck that it tests by recirculating water from a holding tank (shown above) instead of using potable water from a spigot.

Guzzler NX a Birthday Hit

Most 9-year-old boys would be delighted with a birthday party at Chuck E. Cheese or an expedition to an amusement park. Not Luke Petite. He wanted a party at home so he could show his dad’s Guzzler NX to his friends.

Luke’s father is Rhett Petite, an owner-operator of Speed Industrial Service in Gonzales, La., just outside Baton Rouge. Rhett is an expert in vacuum technology and an early supporter of the NX’s vacuum recovery technology, which lets you clean out the baghouse while still vacuuming.

Luke has a real passion for Guzzler trucks. Not only does he talk them up with his friends and draw the picture (below), but he has watched the NX training video more than 100 times and even helped trained a crew on its operation.

Clearly, here’s a young man who is up to speed on the latest vacuum technology.



Follow Common Sense When Cleaning Trucks

Some vacuum and vacuum excavator trucks are equipped with high- and low-pressure handguns. They clean catch basins, wet material for easier pick-up, flush streets, and clean ladders and ledges.

You also can use them to clean your truck, but you have to follow some common sense guidelines.

Know what you can clean. In addition to the truck exterior, you can use the pressurized handguns to clean the inside of the debris body, screens, floats, and rear door seal.

Know your guns. Assemblies consist of a handgun, hose, and quick-connect system. The low-pressure handgun is often found in the vehicle's toolbox. It has a relatively short barrel, about as long as a man's arm.

High-pressure handguns are found on systems intended for hydroexcavating and industrial cleaning. The barrels are longer than arm's length to reduce the risk of workers spraying themselves.

Control your pressure. When washing a truck, keep output below 600 psi and 20 gpm. Don't rev the engine more quickly than what is needed for 600 psi or you could damage the hose or handgun. Start with the nozzle at least 2 feet from the wash area. Work more closely only after making sure the pressure washer is not peeling off labels or damaging equipment.

Take safety precautions. High-pressure water guns can slice through skin and clothing like a knife. Never point the handgun at or near anyone. Wear a face shield, safety goggles, gloves, and toe boots even when cleaning a truck. Never attach a low-pressure handgun or other connectors to the high-pressure system. Always bleed pressure from the handgun before disconnecting it.

Watch for damage. High-pressure water can damage or remove safety decals, vents, and paint. It can wash out lubricants from bearings and damage seals and other soft components, so use caution. And never spray on or around electrical boxes and components.

Use the right hose. Never use sewer cleaning hose or lateral cleaning hose for any purpose outside of a sewer.



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1621 South Illinois St.
Streator, IL 61364

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