THIRD ISSUE 2012

FOCUS

MUSCLING THEIR WAY TO THE TOP

- KCM CELEBRATES 50TH ANNIVERSARY
- PORT AGGREGATES, INC.
- INTERIM TIER 4 ENGINE — FILL 'ER UP!

Kawasaki

42ZV-2

- Wrap-around counterweight lowers the center of gravity increasing stability
- Universal Quick Coupler allows a wide range of attachments
- Interchangeable with skid steer attachments
- Limited Slip Differentials provide additional traction for applications requiring extreme traction control
- Bucket Leveler
- Reliable Kubota Engines, supported locally
- Third spool hydraulics, standard
- High Ground Speed, standard

45ZV-2

- Wrap-around counterweight lowers the center of gravity increasing stability
- Eco Mode provides a fuel efficient setting resulting in better fuel economy without affecting productivity
- Electronically controlled HST stabilizes engine speeds providing smooth acceleration and deceleration
- Bucket Leveler
- Reliable Kubota Engines, supported locally
- Third spool hydraulics, standard
- Cab access on both sides of machine
- High Ground Speed, standard

www.kawasakiloaders.com

Kawasaki

A HERITAGE OF INNOVATION

Kawasaki is the most experienced manufacturer of articulated wheel loaders in the world. Since introducing our first models in 1962, we have maintained a leadership position in technology, service, and support. With a heritage grounded in innovation through Kawasaki Heavy Industries, KCMA Corporation's focus on wheel loaders translates into real benefits for you and your business.

Kawasaki articulated wheel loaders incorporate innovative design features coupled with extensive knowledge and experience gained from real-world applications. Since 1978 Kawasaki has been listening to, and learning from, customers and dealers in the North American market. As a result, Kawasaki wheel loaders continue to evolve with a constant focus on one thing — producing the most durable, most efficient, most dependable wheel loaders possible.

YOUR WHEEL LOADER SPECIALISTS

Kawasaki offers a full range of wheel loaders to handle virtually any task. Combined with a complete selection of attachments, or special options packages, your Kawasaki wheel loader can be equipped to tackle the most demanding applications or environments.

- **15 Models**
- **45 HP – 720 HP**
- **.78 cu. yd.– 13 cu. yd.**

Sam Shelton, Editor – Kawasaki
(770) 499-7000 • SShelton@KCM-America.com

Kawasaki

ONE FOCUS. COMPLETE SOLUTIONS.

KLD7 (1966)

90Z5 (2010)

KLD5P (1962)

KCM CORPORATION CELEBRATES 50TH ANNIVERSARY

Half a century has passed since the KCM factory (once known as "Banshu-works") located in Hyogo Prefecture, Japan, started its production of wheel loaders back in 1962.

Since then, Kawasaki wheel loaders have shipped out and worked in more than 60 countries worldwide.

During KCM factory's 50-year-long construction manufacturing history, several types of construction equipment have been manufactured, including Load Haul Dump and Concrete Paving Machines, and Snow Removal Dozers.

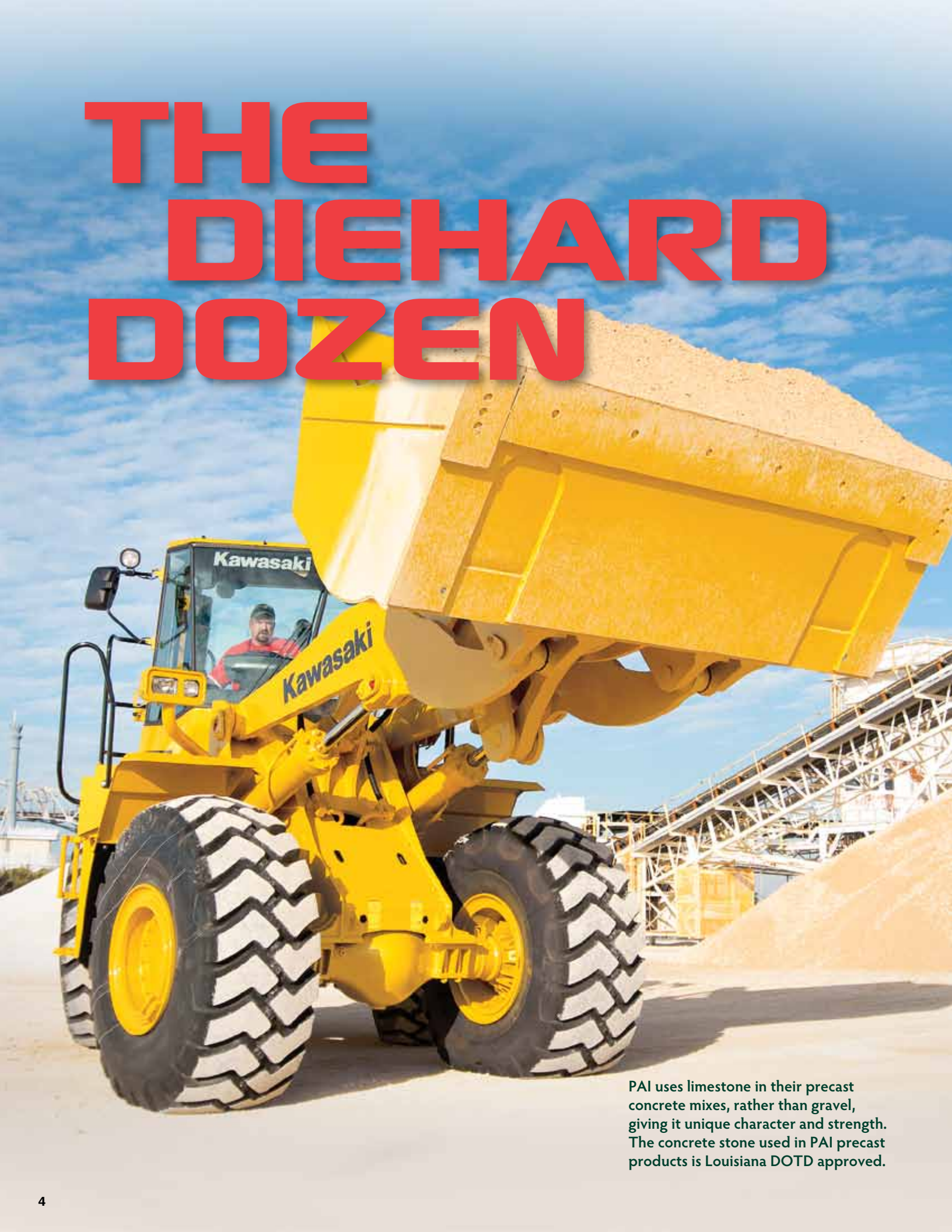
We are currently extremely proud to be known as the ***"Kawasaki — Wheel Loader Specialist"*** Manufacturer.

In fact, more than 50 kinds of wheel loaders have been developed, manufactured, and delivered from this factory.

As we move from this generation into the next generation, we will continue to aggressively pursue the engineering, development, and manufacturing of our wheel loaders, offering you one of the most Efficient, Powerful, Intelligent and Comfortable wheel loaders on the market...
a complete line of E.P.I.C. wheel loaders!

1960
Kawasaki Rolling Stock Mfg. Co. entry into construction-machinery field was launched with the opening of the Hyogo Works plant to manufacture tired rollers.
1962
Kawasaki Banshu Works commenced operation. Manufacturing of Wheel Loaders began.
1966
Started to sell "KLD6, KLD7" series, and started exporting overseas.
1981
KLI (Kawasaki Loaders, Inc.), a subsidiary sales distribution company, was established in Georgia, USA.
1982
Recorded the largest volume of daily production at Banshu-works in 50-year history.
1986
Developed world's largest wheel loader with a 24.85 cu. yd. bucket capacity.
1987
KLM (Kawasaki Loaders, Manufacturing Corp., U.S.), a subsidiary, was established in Georgia, USA.
2000
Introduced the "135ZIV" wheel loader with a 12.69 cu. yd. bucket capacity, total weight 80 tons.
2009
Established KCM Corporation, separating from Kawasaki Heavy Industries Ltd.
2010
Started selling "Z5" series to the international market.
2012
Introduced new model "Z7" series to USA market to comply with Tier 4 Interim emission standards.

THE DIEHARD DOZEN



PAI uses limestone in their precast concrete mixes, rather than gravel, giving it unique character and strength. The concrete stone used in PAI precast products is Louisiana DOTD approved.

Southern Louisiana — with its joie-de-vivre Cajun culture and cuisine, warm hospitality, and even warmer, humid subtropical weather so thick you can cut it with a knife — is utterly unique. Geographically, it is a fascinating intermingling of swamps, bayous, lakes, rivers, and areas of dry land that barely perch above sea level.

Despite the abundance of waterways, few are navigable to the Gulf Coast. So the Intracoastal Waterway spans the southern end of the state, connecting all those bayous and rivers to major ports. A bit further inland, Interstate 10 also bisects the state. Between the two, area industries have a huge and rather unique advantage — the ability to move product by water or truck.

Port Aggregates, Inc. (PAI) takes advantage of both forms of transportation. Based in the city of Lake Charles (southwestern corner of the state), but with operations dotted all over southern and central Louisiana, it's not surprising that some of the company's sites are located near water. For example, their oldest facility currently leases 7.7 acres of waterfront property in the Mermentau River Harbor and Terminal District, retailing an average 100,000 tons of aggregates a year.

PAI's specialty is concrete and concrete products. Whether limestone, ready-mix, or precast concrete curbs, barriers, bridges, oil-rig platforms, wharfs, or walkways, PAI has supplied not only the oil and natural-gas industries, but also coke-fueled power plants, the Louisiana Department of Transportation and Development (LADOTD), U.S. Corp of Engineers, U.S. Forestry Service, and other governmental and private entities.

"Port Aggregates was started as a way to supply Guinn Brothers, our family's construction company," explains Tim Guinn, Executive Vice President and General Manager. "We'd been working with a small limestone supplier and they just couldn't meet our needs. So we found some property across the river from them and started quarrying our own. Eventually the three Guinn brothers spun PAI off to expand retail sales of aggregate."

That proved to be a wise decision, because several years later, PAI was able to form a relationship with Vulcan Materials, distributing product from that company's Mexican quarry. Nicknamed bluewater material, as it arrives via ship, it is offloaded at PAI's own custom-built receiving dock at the Port of Lake Charles. They also receive River Rock from a Vulcan quarry in Kentucky.

"The Vulcan relationship has been so good, we have a contract with them through the year 2035," says Guinn. "They presented a silver plaque to us, thanking us for being the first customer to receive 10 million tons out of the Mexican quarry. We work hard to achieve long-term relationships with our suppliers."

Present to honor the receipt of the 12 loaders are Mark Witt, Regional Sales Manager, KCMA Corporation; Ed Theriot, Sales, Port Aggregates; John Roseberry, Regional Director of Sales, KCMA Corporation; Floyd Degueyter, President, CLM Equipment; Dennis Hardy Jr., Site Manager, Port Aggregates; and Chris Guinn, Corporate, Port Aggregates.

Tim Guinn, Executive V.P. & GM of Port Aggregates; Brandon Cormier, Equipment Operator, Port Aggregates; and John Roseberry, Regional Director of Sales, KCMA Corporation.

Two brand-spanking new Kawasaki 85ZV-2s, first day on the job at PAI's Westlake location.

Some of PAI's 12 new ZV-2s lined up, ready to be delivered to one of several PAI locations.

Kawasaki 80ZV-2 loader charges a hopper at the company's Lake Charles ready-mix plant. Note the white PAI concrete mixing trucks.

The company has its own delivery trucks plus the facilities to load limestone on barges for distribution throughout Southwestern Louisiana.

VENTURING INTO READY MIX AND PRECAST

Beyond stone, PAI also has 26 ready-mix plants. "We try to keep our plants established around our stone facilities so it is economically feasible to feed our own plants with our own stone," explains Guinn. "Our customer base is statewide, so we are taking our ring of operations and moving it outward.

"Surprisingly, our customers like a one-stop shop. It's less complicated for them. They like to deal with one company to get as many materials as possible. They buy stone, concrete, and precast. And we like that a customer will buy most of their products from us. We supply them good service, and we pride ourselves in being on time with our ready-mix operations. Because we have a construction mentality, we know what they are looking for."

Interestingly enough, the precast side of the business was established before they got into ready mix. When the ready-mix supplier stopped buying PAI's rock for use in PAI's mixes, the company decided to set up their own. Now that they have total control over what goes into their precast products, they can easily create custom mixes to meet customer specs, as well as create their own special products.

"Precast products are poured concrete we can ship anywhere," says Guinn. "It allows us to sell ready-mix in the hard state at a distance that wouldn't be possible any other way. Our biggest manufacturing and fabrication is for bridges. Thanks to our construction background, we've all been in the bridge-building business. We've had new contractors come along that don't have that experience, and they're bidding these jobs to keep their employees busy and to diversify. Since we've all done it, we can guide them through the process. That's a comfort to the contractor.

"And we have the same situation with our stone. Our sales people have a very good understanding of the stone, the uses, the gradations. So we pride ourselves on the educational side of it, and our customers appreciate that it isn't just a product to us."

Guinn also explains there are several plants that buy their limestone just for the chemical makeup. For example, a power plant burns a coke-type material. By crushing the stone, which is high in calcium, and spraying it into their system, it captures the sulfur that is generated, reducing the amount released into the air.

"We look for challenges. Most supply companies are leery of just grabbing a job and running with it, because you have to meet whatever mix design comes in from the customer. But we're not afraid! We'll even see if we can tweak it and make it better."

KAWASAKI MEETS THE CHALLENGE

Because the company was expanding the number of sites, plus factoring in the aging of their existing Kawasaki fleet, PAI ordered 12 new ZV-2s: eight 70s, one 80, and three 85s. So how are the new ZV-2s surviving the brutal heat, humidity, and dusty jobsite conditions?

"Loaders are the heartbeat of our business," states Guinn. "When they go down, you're down."

"The machines have been pretty good for us," answers Kirk Trahan, Vice President, Operations. "We've been running Kawasaki for about 10 to 12 years now. We had a little 65 with 16,000 hours on it. We called it the little Kawasaki that could. It had to climb a ramp to dump, and it worked at our most productive concrete plant. We've just put in a new 80ZV-2 there to replace it, to better match the size of the hoppers.

"All the operators had smiles on their faces when we delivered the new machines. Some went from 65s to 70s and they were extremely happy. The transition went smoothly. Those Kawasakis are nice to run. There are some days our operators loaded over 10,000 tons with just two loaders. That's a pretty good day!

"Kawasaki puts out a good product, and I'm not blowing smoke because you guys are in here, I mean we wouldn't have bought them for the 14 years that we have. And CLM Equipment (the local Kawasaki dealer) tends to us. We're adamant about service. We run a limestone operation. If the loader goes down, I can't load rock; I have no income."

Despite the country's overall sluggish economy, PAI is sitting pretty — thanks to specialization in products that are in high demand, strategic growth, and the reliability of Kawasaki wheel loaders.

"We have been blessed to have good relationships and a good business, even through hard times," concludes Guinn. "We have a great customer base. Like I say, we make it more personal. Customers like the personal touch."

As the Cajuns would say, "Laissez les bon temps roulez!" — Let the good times roll!

Port Aggregates, Inc. is served by CLM Equipment throughout Louisiana.

INTERIM TIER 4 ENGINE

FILL 'ER UP!

Diesel-fuel cleanliness becomes more critical as fuel systems in low-emissions engines are designed with increasingly precise tolerances and operate at higher pressures.

Has your company given serious consideration as to how emissions will affect future fleet-asset management? If you are interested in alternative fuels, can your new Interim Tier 4 equipment work with them?

If you've already thrown your hat into the Interim Tier 4 ring, or are about to, you need to be aware of what this technology requires from you on your end.

One concern expressed by some contractors is that Interim Tier 4 engines are finicky.

Well, if finicky means less tolerant of contaminants, then yes, it is true. But good filtration and common sense will go a long way to stopping any problems before they have a chance to do harm to your new equipment.

THE ULSD LOWDOWN

Interim Tier 4 engines require Ultra Low Sulfur Diesel (ULSD), which has a sulfur content of less than 15 ppm. Large refiners and importers have been required to meet this criteria by the U.S. Environmental Protection Agency (EPA) since June 2010. However, small refiners have until June 2014. They can continue to supply Low-Sulfur Diesel (LSD), which is anything between 500 ppm and 16 ppm. Non-road diesel over 500 ppm from any supplier is prohibited.

So contractors need to shop carefully, paying attention to what ppm they are putting in their fleet's engines. Never, ever put LSD fuel in an Interim Tier 4 engine.

What harm can too many ppms do? Plenty, so read on.

SULFUR IS YOUR ENEMY

Nitrogen oxides and particulates are the two most harmful diesel-pollutant emissions. The new "clean diesel" technology relies on a two-part punch to take care of these: ULSD fuel and exhaust after-treatment, such as a diesel particulate filter (DPF) and a diesel oxidation catalyst (DOC). Too much sulfur (above 15 ppm) causes more-than-normal regeneration within the DPF as it tries to get rid of the extra sulfur. Too much sulfur also eventually deactivates the catalytic converter as well as irreversibly damages the particulate trap, nullifying their control benefits.

"Deactivate" is a bit neutral. Think more along the lines of: too much sulfur creates a

ticking time bomb that will lead to a major failure and the need to replace expensive components.

So, in essence, ULSD is what makes the other aspects of "clean diesel" work. And in case you were wondering, engine and equipment manufacturers are NOT responsible for damages caused by the improper use of fuel. Warranties will be voided.

KEEPING IT CLEAN

Because Interim Tier 4 engines operate at extremely high pressures, they are not tolerant of the kind of contaminants that typically hide in diesel-fuel tanks: water, microbes, and byproducts of the fuel-aging process.

Do not rely on your equipment's own fuel filter to take care of the problem; you need to go much further back in the fuel-supply chain. Processes used ten years ago won't work now.

START WITH YOUR BULK STORAGE CONTAINERS

Consider using the smallest tank practical, and store bulk fuel inside, away from temperature extremes. This helps prevent condensation and microbial growth, and ensures frequent turnover in fuel so it stays fresh. When fuel is first delivered, put a sample in an approved container. If it is hazy or has floating debris, there is a problem.

Fuel should be filtered as it is transferred into bulk-storage tanks. The goal is to have fuel cleanliness at ISO 4406 contamination codes 14/13/11 or better. Diesel fuel typically arrives at 22/21/18. The outflow of bulk tanks should be filtered as well.

Storage tanks should be installed on a gradient to allow water to collect at the low end for easy removal via a water separator. Use of desiccant breathers for tank ventilation will help keep water out of the tank. Galvanized tanks should be avoided. Diesel fuel reacts with the zinc and zinc alloys to form unstable compounds that can result in engines that are rough running and low powered.

If you currently have an underground storage tank, you might want to consider changing over to an above-ground one. This allows for easier filtration and water removal.

Consider tank cleaning when filters get plugged at an alarming rate. Carefully screen companies that offer this service as cleaning a tank properly can be difficult.

IN ADDITION...

Approach fuel additives with caution. Fuel cannot contain additives that use metals. Metals commonly found in many fuel additives, such as zinc, calcium, phosphorus, and molybdenum, will quickly plug the DPF and destroy the DOC. Use of a biocide to control microbial growth is recommended.

Always check with the engine manufacturer to see what additives meet their approval. In addition to biocides, some other additives to explore are a cetane improver, flow improver, wax crystal modifier, anti-icer, lubricity enhancer (sulfur is a lubricant, so less sulfur means less lubricity), and a storage/anti-oxidant stabilizer.

You should also check with the manufacturer as to the use of biofuels or fuel blending. Biodiesel, which is also a surfactant, creates major problems for the use of fuel water separators.

Best practices when storing diesel fuel involve filtering fuel as it enters the bulk-storage tank (1), controlling water via proper tank breathers (2) and perhaps a proprietary drying system (3), and filtering fuel when dispensed into vehicles.

Photo courtesy of Donaldson Filtration Solutions.

Photo courtesy of Donaldson Filtration Solutions.

FILLING THE MACHINE

If a portable tank is used to ferry fuel to the field, be sure to mount it at an angle with a drain at the low end to eliminate water. You might even consider not using any fuel from the bottom quarter of the tank, to reduce the probability of suctioning up water and debris.

The portable fuel-tank outlet filter should have the ability to deliver fuel at ISO 14/13/11. Even then the onboard filter must filter it to meet the engine manufacturer's recommended cleanliness, usually one to two times cleaner. By using a high-efficiency filter on the outlet prior to dispensing, most contaminants or fuel-related issues that would plug onboard filters are prevented from being transferred.

But even as some contaminants may make it through the bulk filter system, the levels will be drastically reduced and give your equipment its best chance at making it to the next service interval, eliminating the high costs of unplanned downtime.

On the machine, proper fuel-system maintenance is critical. Replace fuel filters at the manufacturer's recommended intervals. Drain the primary filter as often as needed. Follow guidelines for periodically draining off water. Keep the fuel tank's debris screen in place. Periodically replace the fuel tank breather.

Fuel filters cannot for any reason be "pre-filled." Pre-filling fuel-filter bowls allows for contaminants to bypass the fuel filter and enter the high-pressure fuel system where they will cause damage.

Lastly, be sure to clean debris around the fuel tank's cap — there is no point going through all the earlier filtration steps if you let dirt and debris on the machine itself fall into the fuel tank.

CONCLUSION

The results of the new Interim Tier 4 technology for diesel engines are quite remarkable — especially when compared to traditional diesel technology. Particulates are more than 100-fold lower. NOx and PM mass emissions are now comparable to compressed natural gas and gasoline. For example, organic carbon emissions have been reduced by 96 percent; elemental carbon by 99 percent; metals and elements by 98 percent; alcohols and organic acids by 81 percent. Even the particulate matter itself is now chemically different than before.

One California study found that commercially cooked hamburgers emit more particulate matter than 2007-2012 model-year clean-diesel trucks! The study showed that the majority of particulate emissions now come from brake and tire wear, with diesel emissions making up a small and declining

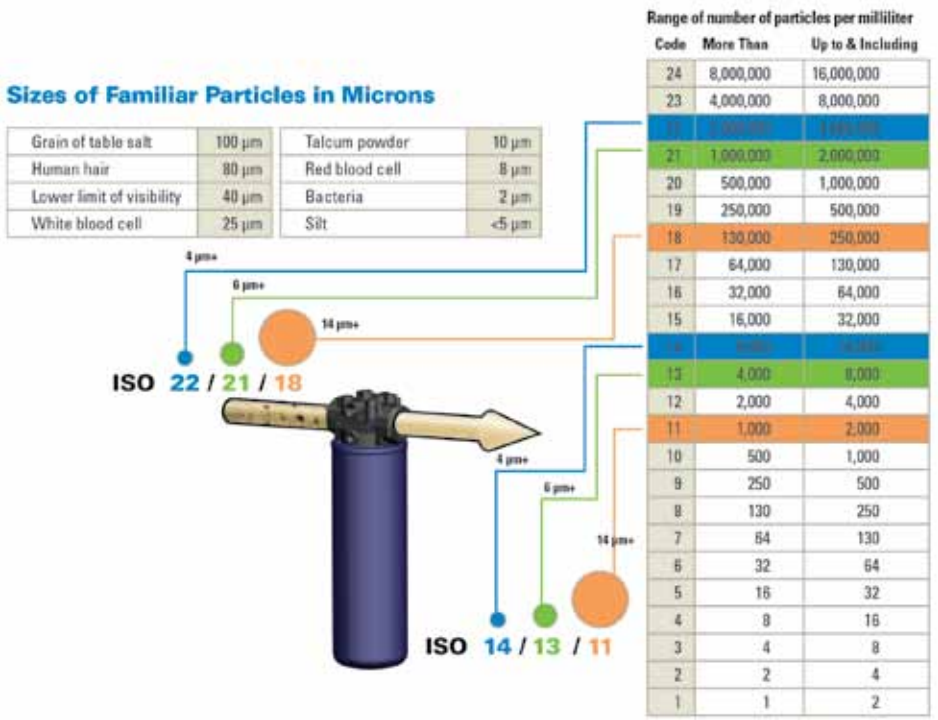
Typical cleanliness of diesel fuel arriving for bulk storage is ISO 22/21/18 and target cleanliness when dispensed should approach ISO 14/13/11, says Donaldson.

factor. And the key part of this reduction is due to the shift to ULSD fuel.

So the finicky nature of Interim Tier 4 engines as it comes to fuel cleanliness is well worth the extra filtration.

In a future article, FOCUS will take a look at the diesel particulate filter and how regeneration works.

The material in this article came from a variety of sources including Construction Equipment magazine, Cummins' service bulletins, Association of Equipment Distributors/Diesel Technology Forum, EMA Truck and Engine Manufacturers Association, U.S. Department of Energy, Donaldson, AEMP, and Kawasaki Wheel Loaders.



Z7 INTRODUCING A NEW E.P.I.C. GENERATION

Kawasaki

Kawasaki pioneered the Z-Link design to provide unmatched utility, high breakout force and efficiency in its loaders. The Z7 generation implements brand-new patented technology, industry exclusive innovation, and input from owners and operators all over the world. We've engineered the Z7 series from the ground up!

- **15 Models**
- **.78–13.5 cu.yd.**
- **45 HP–720 HP**

EFFICIENT

Quick Cycle functions and PowerTrain Efficiencies work together through the IntelliTech Operating System to improve operating efficiency and reduce operating costs.

POWERFUL

Custom Operating Power Modes, made available through the IntelliTech Operating System, maximize a High Engine Power Rating to provide power on demand.

INTELLIGENT

The Kawasaki IntelliTech Operating System uses logic and intelligence to adjust the operating characteristics of the loader. Our intuitive system captures every aspect of working conditions and operating demands to adjust the powertrain and hydraulics for best application requirements. All of the IntelliTech features are designed to maximize performance.

COMFORTABLE

The new Z7 operator compartment features a low-profile dash, full-length glass doors, panoramic front window, standard rearview camera and well-organized storage areas — plus much more. We have total operator comfort in mind!

KCM

KCMA Corporation

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Kennesaw, Georgia 30144
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www.kawasakiloaders.com

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Kawasaki pioneered the Z-Link design to provide unmatched utility, high breakout force and efficiency in its loaders. The Z7 generation implements brand-new patented technology, industry exclusive innovation, and input from owners and operators all over the world. We've engineered the Z7 series from the ground up!

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