Pennsylvania LICA Newsletter -SPRING 2019

CONGRATULATIONS TO OUR 2018 CONTRACTOR AND ASSOCIATE OF THE YEAR & MEET YOUR NEWEST OFFICERS!

Pictured: (left) Matt Carter from BRON, accepting the "2018 Associate of the Year Award" from board members Evelyn Cottrell and Dan Micsky

Pictured: 2019 PALICA Board of Directors: Ron Roncaglione-Treasurer, Chairman – Evelyn Cottrell, President-Chris Moore, VP – Cory Stuchal

PALICA PRESIDENT

Outgoing President Evelyn Cottrell pins incoming President, Chris Moore

CONTRACTOR OF THE YEAR

Outgoing National LICA President Mike Cook presents Cory Stuchal with the "2018 Contractor of the Year Award" (with Evelyn Cottrell, Dan Micsky & Matt Carter)

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UPCOMING EVENTS
(see the website for all the details)

- *Trench Safety/Confined Spaces/ Competent Person Class --8am--4pm-- (Monday, September 9, 2019) -@ Earthborne Equipment-Warrington, PA (N/C to members-MUST RSVP)*
- *PALICA Picnic & Scholarship Awards Presentation (July 2019-date TBA)*
- *National Summer Meeting in Vancouver, Washington (July 9-13, 2019)*
- *PA One Call Safety Days, September 19, 7am-2pm, Pittsburgh Int'l Airport, Field Maintenance Hanger Rd., Moon Twp*
- *DOT Regulations Class w/Q&A & DINNER --(Wednesday, September 25th) at Eagle Equipment, West Chester PA -6PM -MUST RSVP!*
- *Trench Safety/Confined Spaces/ Competent Person Class --8am--4pm— (Monday October 14th) @ Groff Tractor in Cranberry Township. (N/C to members - MUST RSVP)*

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PRESIDENT'S MESSAGE

Hello PALICA Members,

My name is Christopher Moore and I am very excited to be your new President. I have worked with my grandfather, charter member William Guiste, since my early teen years and became owner of Wm. A. Guiste Excavating at the beginning of 2016.

I live in a rural area outside of Clintonville, and also have part in a farm, as well as the excavating. My son Carter who is 11, and girlfriend Mandy live with me as well. New ideas are always welcome, as that is how we continue to grow in the future.

Please feel free to call or email me with any suggestions you may have for the future of PALICA. My phone number is 724-841-3577 and email is chrismoore1986@yahoo.com .

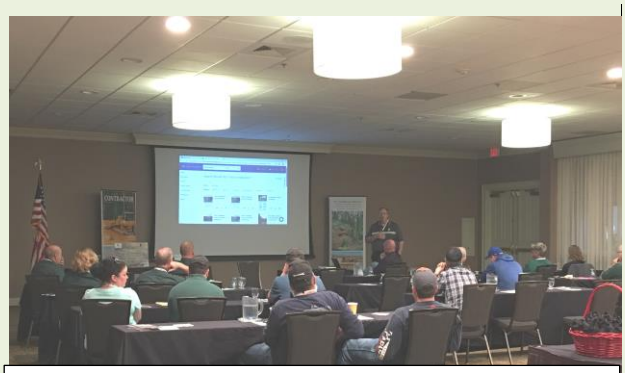
Chris Moore

2019 National LICA Summer Meeting
Vancouver, Washington
July 9th – 14th 2019

Call: 1-360-993-4500
Hilton Vancouver, WA
Reservations must be made by 6/8/19 –
Rooms aren't guaranteed to be available if you wait until the deadline.

More info available on the National website:
WWW.LICANATIONAL.COM

2019 PALICA WINTER MEETING – WAS HELD MARCH 4-15 IN HARRISBURG PA – Our auction raised over $2400 for our PALICA Scholarship Fund! Thanks to everyone who attended, taught classes, participated in Associates' Night, donated and purchased items for the auction. A special thanks to our convention sponsors: Prins Insurance/UFG, BRON and Eagle Power Equipment



Bruce Mosier spoke to the group about your rights when OSHA comes to visit your jobsite.

Monica Rakoczy of **Entertraining Solutions** did an amazing job of teaching Trench Safety! Look for Monica's classes throughout the year and at Con-Expo in 2020!

Thanks to PALICA member **Mainline Excavating from Harrisburg** for allowing us to use your machines during the DOT class!

DOT Office Brian Carpenter has become PALICA's favorite class presenter! We'll see him again in September at Eagle Equip – (CASE) in West Chester!

Thanks to our amazing auctioneer Bruce Mosier and his helpers Dave Van Essen and Mike Enz!

A great teambuilding experience – an Escape Room!

FLUID FAILURES. Lubes, coolants and greases are easy to overlook, but small mistakes can lead to big problems. A look at what you're doing wrong and how to fix it .

It's always a good idea to follow best practices in any maintenance program. But what about avoiding worst practices?

We asked two oil company experts to reveal the most common mistakes **construction equipment** fleet managers make regarding lubes, coolants and greases, and which mistakes cause the most damage. Their answers may surprise you.

Coolants

Although Shell Oil is known as a petroleum-based company, it sells, like most oil companies, engine coolants. Stede Granger, OEM technical services manager for Shell Lubricants, says coolants are often the most commonly mishandled part of a fluid management program.

"Coolants are the least understood fluids on a truck or piece of equipment," says Granger. "If they don't do this right, it can have catastrophic impacts and cost a lot of money."

Some people think all coolants are alike and interchangeable, says Granger. But there are two distinctly different types of coolant – older conventional fully formulated and the newer extended life (or organic acid **technology** or OAT). These two coolants protect engines from corrosion in different ways, and anytime you mix the two, you dilute or reduce their effectiveness.

The problem arises when someone tops off a radiator with the wrong fluid. Maybe the maintenance manager uses the right coolant. But does the operator, the field service guy, a contracted service provider, a driver or whoever first notices the low coolant level know this?

"The different additives in those different coolant chemistries don't help each other out," says Granger "In mixing the two, you are setting yourself up for possible catastrophic corrosion." And by catastrophic, Granger means corrosion that eats a hole from the coolant side of a cylinder liner to the oil side. And by the time you see coolant show up in your oil samples, it's too late. The major damage has been done.

Preventing and solving coolant problems

The solution is to make sure everybody – mechanics, operators, drivers, contract maintenance people – understands the brand and type of coolant used and the dangers of mixing two formulas. This requires training and perhaps an operator care program, and it should be your first line of defense.

The second line of defense is to monitor coolants with test strips made for your coolant type, says Granger. Wet these simple paper strips with coolant in the system. If they turn one color, you're good to go. A different color means your coolant doesn't have a high enough percentage of the right additives to prevent corrosion.

Another recommended step is to check the freeze point of the coolant with a hygrometer, or for more accurate results, a refractometer. This will tell you if your coolant is too diluted with water, which also reduces its anti-corrosion properties.

If the coolant is out of spec, it's not usually necessary to drain and refill the entire system, which on some machines can require dozens of gallons. Coolant vendors offer concentrated coolants to allow customers to bring the coolant levels to the recommended freeze points. A freeze point correction chart will show you how to adjust your coolant so that it is at the proper level. Correction fluids are used to restore additive content to recommended levels. These two procedures enable you to bring your equipment's coolant back into spec without draining the cooling system.

Your coolant vendor can help you establish these procedures. A good practice is to check the coolant every time you change the oil.

Oil contamination

This is just basic housekeeping, but too often overlooked, says Jami Melani, field engineering/HD technical services manager, Castrol. "Oil contamination is a huge problem and ongoing challenge," he says.

Continued on page 6

SAFETY FEATURE-TOOLBOX TALKS: -
Working Safely with Electricity

Generators

Generators can be a lifesaver, but can also be hazardous. Keep the following safety tips in mind:

- Store the generator outside where dangerous fumes cannot enter the building.
- Be sure the main circuit breaker is shut off before stating generator.
- Turn off the generator and let it cool before refueling.

Power Lines

Overhead and buried power lines pose significant dangers because they carry extremely high voltage. Be sure to remember the following safety considerations:

- Always watch for overhead power lines and buried power line indicators.
- Always assume overhead power lines are energized and stay 10 feet away.
- De-energize and ground lines when working near them.
- Use wood or fiberglass ladders when working near power lines.

Extension Cords

Extension cords can pose a threat if the following guidelines are not met:

- Use only equipment that is approved to match OSHA standards.
- Do not modify cords or use them incorrectly.
- Use only factory-assembled cords that are 3-wire type.
- Use cords, connection devices and fittings that are equipped with strain relief.
- Unplug cords by pulling on the plug itself, not the cord.

Equipment

Normal use of electrical equipment causes wear and tear that results in insulation breaks, short-circuits and exposed wires. Observe the following precautions:

- Use ground fault circuit interrupters (DFCIs) on all 120volt, single-phase, 15 and 20 ampere receptacles, or have an assured equipment grounding conductor program (AEGCP).
- Use double insulated tools and equipment, and make sure they are distinctively marked.
- Visually inspect all electrical equipment before use. Remove any equipment with defects such as frayed cords, missing ground prongs or cracked tool casing from service.

Electrical Incidents

Follow these guidelines avoid injuries when working with electrical equipment:

- Ground all power supply systems, electrical circuits and electrical equipment.
- Frequently inspect electrical systems to ensure that the path to ground is continuous.
- Do not remove ground prongs from cord and plug connected equipment or extension cords.
- Use double-insulated tools and ground all exposed metal parts of equipment.
- Avoid standing in wet areas when using portable electrical power tools.

Discussion Date: _____

Employee Participants:

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"A lot of times it starts with the oil delivered in drums or bulk containers," says Melani. "Drums sit outside in the rain because people think they are sealed tight. But just through everyday heating and cooling those drums will suck moisture right past the gaskets on the bungs**." A desiccant breather on your bulk lube oil tanks will go a long way toward preventing moisture contamination.**

Moving from bulk storage to the machine also introduces opportunities for contamination. "We've found some shops use a lot of dirty, open-top containers," says Melani. And sometimes technicians will use a spare container that had been used to handle other products such as coolant, transmission or hydraulic fluid. Even small amounts of these other fluids will compromise the effectiveness of your lube oil and cause erroneous readings in a used-oil analysis report.

"If you keep lubricants clean, cool and dry, you're going to get better life out of your product and your equipment," says Melani. And keeping your lubricants cool means making sure your engines don't exceed the recommended operating temperatures. "There is a basic rule of all lube oils," says Melani. "As oil temperature increases, the oxidative life of the oil decreases."

Lube oil oxidation today is a big deal for engine oils in the heavy equipment world. "Engines are running hotter all the time," says Melani. It's one of the reasons the oil industry developed a new lube oil standard, API CK-4, which requires heavy-duty diesel engine oils to better resist oxidative degradation.

Getting grease right

While greasing a machine isn't the most technical task, doing it at the right intervals and using the right products are important, says Granger. "More often than not, putting less grease in more frequently is better than putting more grease in less frequently," he say

When you pump a lot of grease through a joint, most of it is wasted, says Granger. "The amount of grease that is doing the lubrication is actually very small. Sometimes it is no more than the size of a pea. The mechanical motion of the joint tends to squeeze that grease out over time. Until it gets regreased, it's going to have no lubricant in the joint. So overextending grease intervals is not a good idea."

This is why central grease systems work so well. They give a tiny bit of grease frequently. Grease can also get contaminated, and by greasing more frequently, you purge the contaminated grease, says Granger.

Moly greases, those that contain a small amount of molybdenum, are better at sticking in a joint, says Granger. "They stay put longer while the other stuff squeezes out, but after a period of time, that goes away too."

Granger also recommends finding the OEM's specifications for all greasing applications and sticking to them. For example, a heavy-duty grease with tackifiers works better on joints under a heavy load. But those greases aren't good for things like lubricating U-joints on drive shafts, with their small needle bearings and passageways.

Move from reactive to proactive

These days it seems everybody is trying to do more with less, says Melani. In used-oil analysis, they're not taking time to look at the results. They don't read it. They put it in a drawer and forget about it, not understanding and not responding to the information given to them.

When fleet managers see a red flag on an oil analysis report, they have to pull the machine from the field and find out what's going on. But such regressive or reactive maintenance, says Melani, is expensive in terms of downtime and damage to a machine.

"Usually there is a trend line," says Melani. "Most of the time when you get a sample that shows something terribly wrong, you probably had a previous sample that gave you a hint that something was going wrong." That gives you a chance to be proactive, schedule workarounds to fix problems before they disrupt operations or become catastrophic failures.

The next step up is getting to the point where as a technician or fleet manager, your ability to read and interpret a used-oil analysis becomes as much an art as a science, says Melani. "There are so many factors. You have to look at the environment, the application, the metallurgy of the equipment, the product, the severity of the application, all kinds of factors. But there is a great payback."

The end goal is to move toward a world-class maintenance program and key to that is institutional learning. "From the top to the bottom of the organization, they have to be interested in learning and want to know how to get better," Melani says.

Do that, and the benefits and savings can be astronomical. "There is a lesser or some difference between different products," Melani says, "but there is a huge difference between the practices of a regressive maintenance program and one that is proactive."

Diesel Technician Shortages-A Perfect Storm Gathering for Decades-Part I (A copyright credit to Equipment World, a publication of Randall-Reilly.)

Today's market heights have put an exclamation point on the construction equipment technician shortage, one that's having a direct impact on contractors.

Contractors can't find the people they used to hire to take care of the equipment to the level they did in the past. Their go-to dealerships have had to raise service rates to keep up with technician pay raises, an inevitable outcome of demand outstripping supply. Plus, dealerships may not be able to get to their down machine in a timely manner.

The Associated Equipment Distributors says the heavy equipment technician shortage is costing its members $2.4 billion in revenue each year. "You take that down to the dealer level, it's costing each dealer $6 million on average," says Steve Johnson with the AED Foundation. At the technician level, the cost is over $300,000 per technician. "It's a very big problem," he says.

AED research has placed the immediate technician shortfall among AED dealers at more than 4,000. "And in the next five years or so, we're talking about adding around 20,000 technicians," says Cory Hayes with the AED Foundation. "That's just in the heavy construction equipment sector. Everyone wants the same person, so it's important for us to start finding these students as early as possible for our members."

"It's just escalating as time goes on," says Diane Benck, vice president of West Side Tractor Sales, a John Deere dealer in northern Illinois, Indiana and southern Michigan. The direct impact for dealerships such as hers is loss of revenue. **"If you can't meet their needs, they will go somewhere else," she says. "It really boils down to our ability to respond quickly because contractors are looking for the fastest response. Downtime costs them a tremendous amount of money. If we tell them they're going to have to wait a week before we can even take a look at their equipment, they are going to find another solution."**

This is not just a dealer problem. "Our customers are struggling with the exact same problem," Benck says. "They can't go out and hire someone to even do their routine maintenance work. So they are relying more on the dealer channel to do their maintenance work."

And stealing techs from another dealer or contractor does nothing to fix the problem, Benck asserts. "It just solves an immediate need."

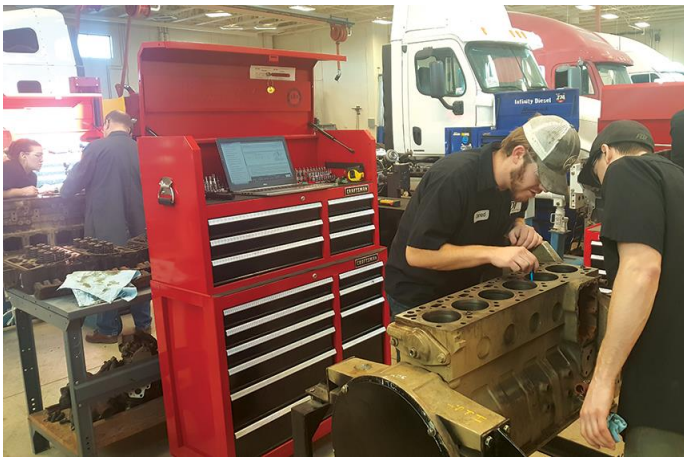
Raises in technician pay have resulted in increased shop rates, says Steve Meadows with Berry Companies, a Bobcat and Komatsu distributor with 33 locations in six Midwestern states. "We always want to be able to keep our great technicians. You've got to keep an eye on where your pay is, or your technicians will get picked off by a competitor. We need these people to be both good at their jobs and satisfied with what they're doing."

"We're presently looking for five to 10 mechanics to hire in the next year," Vazquez continues. "If we could hire five today, I'd be extremely content."

Kim Rominger, CEO of the Equipment Dealers Association, says that most of the group's members need at least three more technicians each.
"There's just a huge shortage," he says. "And the market is pretty thin. It's not just equipment dealers. It's auto dealers, over-the-road trucking firms. Everybody is looking for techs."

Continued on next page

DIRTY, DARK AND DANGEROUS…NOT



Diesel technician students at Western Dakota Tech learn that today's complex machine electronics require technicians to go beyond the wrench by using specialty tools, laptops and diagnostic software.

"None of the three D's – dirty, dark and dangerous – are really true these days," Benck says. "Today the most important tool that our technicians have is their laptop. It really takes highly skilled people to fix the machines of today. It's not anything like it was 25 years ago."

"Today's shops are often well-lit, well-tooled and good working environments," says Wayne Brozek, aftermarket vice president for 21st Century Equipment, a John Deere dealer serving Nebraska, Colorado and Wyoming.

"You don't just come in and replace greasy, dirty parts. You use your laptop, you train well, you get paid well.

A good technician after three to five years in an efficient, well-run shop – where the tech's job is spent working billable hours and not sweeping floors or other menial tasks – can make a six-figure salary, Rominger says**. Dealers are also offering to pay for training, as well as offering tool reimbursement and other bonuses and incentives.**

"The tech is kind of like an accountant or a lawyer, the only thing he has to bill is his time," Rominger says. "So the more time he spends working, doing what he's supposed to be doing and billing that time out, the better for the dealership and better for the tech."

Brozek says that when he goes into local high schools to recruit young talent, he often finds deep misconceptions about the career opportunities for a technician. But when he brings in technicians who can tell how they started out making $35,000 and now make $100,000-plus, the mindset changes.

"It blows people's minds," he says. "When we go out and educate our high school counselors and teachers, they're like, 'What?'"

MAKE 'EM ROCK STARS

Derek Dassel, who's been with Berry Companies' White Star Machinery division for 4.5 years, tackles a machine fix with an open laptop.

Brozek tells them: "Do you realize I will pay your student $20 an hour and pay for all his school, all his tools and guarantee him a job for four years?"

Many believe the industry hasn't done a good enough job of getting that message out.

Keaton Turner is the president of Turner Mining Services, a company that specializes in recruiting and retaining millennial and Gen Z workers using social media. When it comes to attracting techs, the industry is failing not due to lack of effort, but from poor branding, he says.

"They need to make their technicians rock stars and part of their branding and marketing," Turner says. "I don't think there is anybody out there who is making the career of a diesel technician appear to be sexy."

Janet Goble faced a similar image problem when she took over as the director of Career and Technical Education at the Canyons School District in Sandy, Utah. The district's diesel technician training program had suffered from benign neglect, and students and their parents had an indifferent view of the profession.

The program had just two diesel engines for 25 to 30 students to work on, and those were Tier 0 engines. And despite the area's booming mining and energy resources, the students were not connected with the industry as potential employees. (Con't)

So the district formed a Diesel Industry Partnership program with trucking and construction vendors such as Cat, Komatsu and Cummins. Cummins donated 12 newer engines to the program. The partners took students to their workplaces and let them job shadow technicians. **The high schools coordinated their curriculum with the community college so students could get college credit for advanced technician training in high school.** As a result, the industry is getting more technicians trained at a higher level, and the district's diesel training program has a waiting list of students to get in.

And when these partners visited parents and students they wore button-down shirts and talked about the pay and job prospects, especially as it compares to the four-year college route. "Once they understand what the environment for a diesel mechanic is like today, they're usually 100 percent on board," she says.

Despite the improvements, the demand for diesel technicians in the Salt Lake City area will not be fully met in the foreseeable future, Goble adds. "We're doing the best we can to offset it. But we just don't have the facilities or the teachers to accommodate the demand. A majority of the teachers here come from industry. There is a severe national shortage of teachers, and everybody is looking for ways to address that."

COMPLICATED MACHINERY, LOW EXPERIENCE

The Think BIG program, sponsored by three Caterpillar dealers at the Florence-Darlington Technical College in Florence, South Carolina, includes a paid dealer internship every semester.

As a diesel technician, Dan Ammon has seen all facets of the industry, from washing parts and changing oil as an apprentice to working at Cat and Deere dealerships.

He's also worked jobs with oilfield services company Schlumberger and engineering-construction firm AECOM. At AECOM, he got involved with the Association of Equipment Management Professionals and became the chairman of the AEMP Workforce Development Committee. When the opportunity arose about a year ago to teach diesel mechanics at Western Dakota Tech, he jumped at it.

One of the reasons the country is facing a shortage of techs is the complexity of the equipment, says Ammon. This has made the job harder to fill and potential recruits less skilled, he says.

"For years you could take a hose off, run down to the local shop and have a new one made, put it back on and away you'd go," Ammon says. Now with today's complex machine electronics, you need specialty tools, laptops and diagnostic software, and that often means a dealer service call and fewer opportunities for independent mechanics.

Source: Dakota County Technical College

Likewise, today's cars and trucks are more complex than they were 20 years ago, and that has an impact on young people coming into the trade, says Ammon. In the past, it was typical for a young person who wanted to be a mechanic to have some experience tearing down engines or rebuilding cars. On their first day of vocational school, they already knew their way around the engines and tools. Now that's not necessarily the case.

Topcon upgrades 3D MC Max for 4-way dozers, improves blade wear calibration and accuracy

Mast-free GPS machines are taking over the machine control world and **Topcon** has been at the forefront of this design revolution. Now the company has announced an upgrade to its flagship 3D dozer machine control system, the 3D MC Max.

Mast-free systems eliminate the tall, blade mounted poles on which the receivers for the first generation of 3D machine control systems were mounted. While these systems got the job done, the poles (or masts as they are referred to) were vulnerable to damage from earthmoving debris, overhanging branches and the like. Plus the receivers had to be dismounted and secured against theft at the end of the day. Mast-free systems use receivers on the top of the cab, sensors and inertial measurement units (IMUs) built into the machine to achieve the same results.

Topcon's **original 3D MC Max system** was introduced in 2016 with support for six-way dozer blades. The upgraded Topcon 3D MC Max system has been designed to support the four-way pusher class of dozers from multiple manufacturers. The update also includes an optional third IMU that enables pitch controlled blade systems support.

The optional third IMU improves performance when moving material in environments where large inclines add challenges to the job site, says Murray Lodge, senior VP construction.

In previous GPS technology, a system had to be recalibrated as the blade on the dozer wore down—an inch less steel on the cutting edge of the blade would result in your built surfaces being an inch off unless you recalibrated. With the new 3D MC Max system, "A calibrated machine can better hold its accuracy with incremental field adjustments by accounting for blade wear," says Lodge.

And, if you already have the older version of Topcon's 3D MC Max installed, you can upgrade it with the third IMU option configured.

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Contractors expect to use more tech in 3 years, including drones and wearable sensors

With the HoloLens-fitted hard hat, workers can see 3D images of a layout on the ground or the design of a building and all its layers, structures and utilities. The images are based on CAD drawings that are streamed to the device from the cloud using Trimble Connect software.

Commercial construction contractors appear to be more receptive to new technology, especially drones, equipment tagging and wearable sensors, according to the fourth-quarter **USG Corporation + U.S. Chamber of Commerce Commercial Construction Index**.

According to the index, 54 percent of responding contractors use some type of advanced technology, such as wearable sensors, drones, equipment tagging and virtual reality. But 74 percent of those surveyed said they plan to adopt technology over the next three years.

Wearable technologies are expected to grow the most out of the various technologies available for the jobsite. The index reported that only 6 percent of contractors use them now, but that will grow to 23 percent in three years. The reasons cited for the growth: improve safety, 83 percent; workforce management, 56 percent; and productivity, 36 percent.

Overall, most types of construction technology are expected to increase in use in the next three years. Improved labor productivity was cited as the top reason for an overall growth in technology, at 66 percent. The index noted that 58 percent of contractors reported difficulty finding skilled workers, which is the highest level for 2018.

Drones are the most prevalent technological advancement being adopted, with 34 percent using them now and 39 percent anticipating using them in three years. **Equipment tagging** came in second at 16 percent, jumping to 30 percent in three years. Wearable tech was third.

Despite the increased interest in technology noted in the index, the construction industry needs to do more, says one of the index's sponsors.

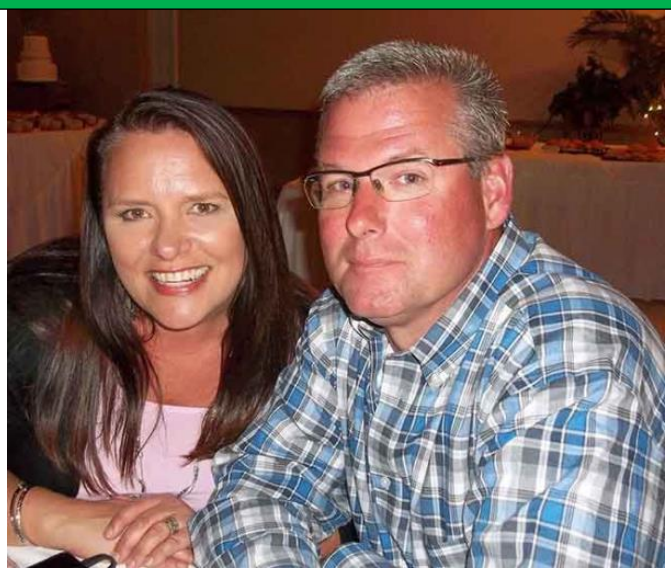
"The construction industry has historically lagged behind others in productivity, and when confronted by the labor shortage, there is an even greater need to identify meaningful solutions that will lead to growth and innovation," said Jennifer Scanlon, president and CEO of USG Corporation. "To achieve the expected growth, it is important that contractors, architects, and designers invest in understanding how technologies like robots and 3D printing can transform jobsites and impact businesses in the near- and long-term."

Overall, the Commercial Construction Index came in at 75, the same as the third quarter. That indicates contractors remain optimistic about the outlook for commercial construction. The index, compiled by Dodge Data & Analytics, is based on a scale of 0 to 100

The CCI consists of the following indicators:

- **New business –** Optimism that new business opportunities will continue into the next year was 76, an increase of 2 points from the third quarter.
- **Revenue** – Expectations of increased revenue for next year remain steady at 69, the same as the previous quarter.
- **Backlog** – The ratio of actual to ideal job backlog dropped from 81 to 80. The average backlog is 10 months, down 0.3 months from the third quarter.

MEET ONE OF OUR NEWEST ASSOCIATES!
BOWER'S GREAT LAKES INTER DRAIN



It was an eventful summer for the folks at Bower Tiling Service Inc. *Drainage Contractor* first introduced readers to the company three years ago, when they profiled the then 112-year-old business in their Spring 2012 issue.

Now, after an exciting few months that saw two retirements and two successions transferring ownership of established businesses from one generation to the next, we're checking back in with Bower Tiling Service to find out what's new with this fourth-generation family business.

But first, a quick re-cap: George W. Bower founded the Clyde, Ohio, based company in 1900 with a steam-powered Buckeye Trencher. In time his sons, Richard and William, formed a partnership with their father. All three worked together until approximately 1955, when Richard bought William's share of the business. When George retired in 1958, Richard was left to run the company. Six years later, another partnership was formed – this time with Richard's sons, Jack and Tom. In 1976 it was Richard's turn to retire, leaving the family business safely in the hands of a third generation of Bowers. By 1980, the company had grown into one of the largest agricultural drainage contractors in the United States, installing more than four million feet of tile every year.

To those in the drainage contracting world, the story so far – of family working with family and a business being passed down from one generation to the next – may sound familiar.

But under Jack and Tom's leadership, the Bower Tiling Service story unfolded a little differently.

In 1985, the brothers formed Great Lakes Inter-Drain Inc. – the first Inter-Drain distributor in the United States. A decade later, Tom left Bower Tiling Service to head up Great Lakes Inter-Drain; Jack remained at the helm of Bower Tiling Service.

That arrangement stood until earlier this year, when both Jack and Tom decided to retire from their businesses. The brothers have handed the reins of their companies over to Jack's daughter, Wendy Jett, and her husband, Jim. The Jetts, who were already involved in the day-to-day of Bower Tiling Service, bought Great Lakes Inter-Drain over the summer. They were in the middle of the ownership transition in late August, when they spoke with Drainage Contractor.

Wendy expects the move will be good for both businesses. For Great Lakes Inter-Drain customers, the change in ownership will mean purchasing parts and equipment from a fellow contractor wrestling with the same opportunities and challenges they're facing in their own businesses – one who's also in the field working with the same equipment it sells and services.

Merging the two companies is also expected to bring benefits for Bower Tiling. "It will give us something to do in the winter when we're frozen out," Wendy says. "We'll have the parts and the machine sales to focus on."

"The last two winters and springs have been the worst in a long time, and that affects our business because we can't get out there and get anything done," she adds. "That puts our log behind; we're always playing catch up."

Purchasing an Inter-Drain 2040 GP a little over a year ago has helped make up lost time when the weather wreaks havoc on their plans. The company also operates an Inter-Drain 2050 GT and an Inter-Drain 2028 trencher.

Continued on next page

NEW ASSOCIATE BOWER'S GREAT LAKES INTERDRAIN (CON'T)

Wendy expects this equipment will be put to good use soon, as construction gets underway on three natural gas pipelines planned to be built in Ohio. The Rover, Nexus and Utopia pipelines are expected to disrupt the existing tile systems of a number of landowners in the area. These drainage systems will have to be patched up and re-routed around the new pipelines. With work on the pipelines set to begin next year, Bower Tiling is taking a "wait and see" approach to the anticipated up-tick in demand for their services.

"We'll have to see as the work comes in what we're going to have to do, and whether we're going to have to hire more people," Wendy says. Any new staff will very much be getting in on a family affair. Current staff include Wendy's aunt and uncle, Michelle and Joe Picciuto, and her brother, Jay. As well, a fifth generation, that includes Wendy's two teenaged sons and her nephew, work for Bower Tiling.

And even though he's supposed to be enjoying his retirement now, Wendy says her father is still very much a part of the business. In the weeks after the Jetts acquired Great Lakes Inter-Drain, Jack and his daughter continued to work together, getting parts packaged and shipped to customers.

Image 1 of 1 Tom (left) and Jack Bower (right) circa the 1970s. Photos courtesy of Bower Tiling Service Inc.

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Reading, PA 19609
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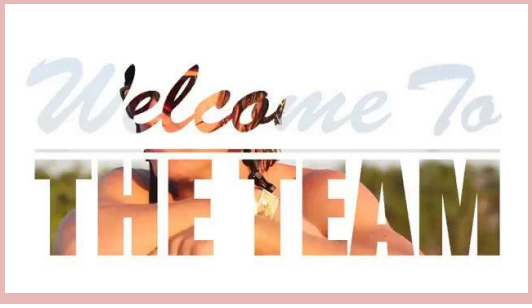

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Hauling headaches

Know your load limits when trailering equipment

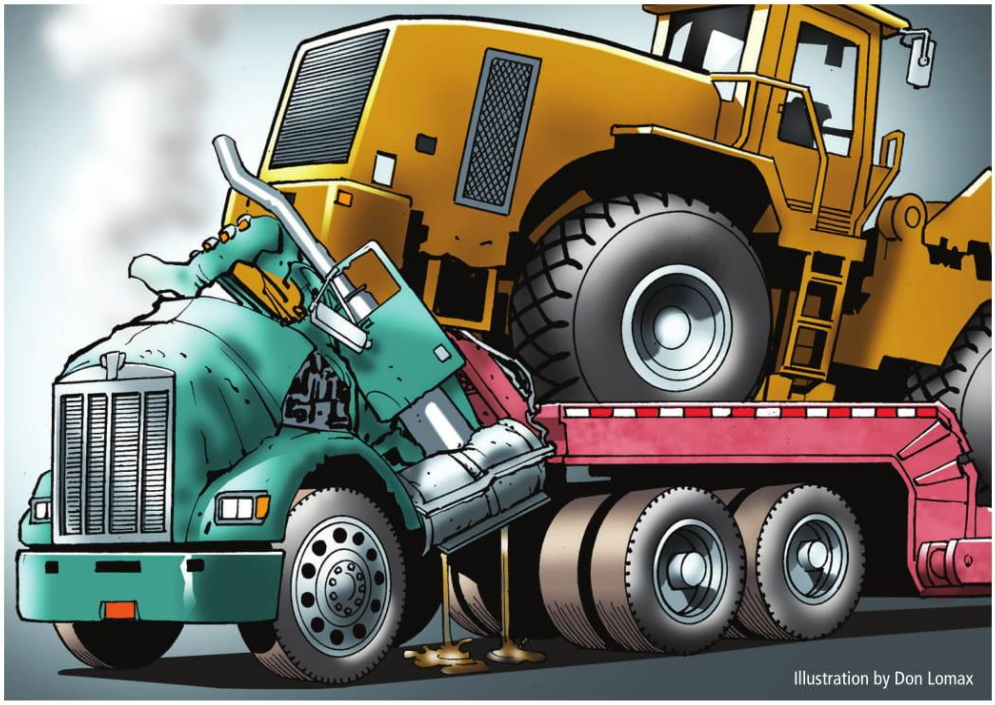
Illustration by Don Lomax

The accident: A driver was transporting a wheel loader weighing approximately 65,000 pounds on a lowboy trailer, secured by four 3/8-inch chains. During transport, the driver was forced to stop suddenly. The chains broke, allowing the loader to roll forward, over the fifth wheel and onto the top of the truck cab, crushing the cab and killing the driver.

The bottom line: A post-accident investigation determined the load exceeded the aggregate working load limit of the chains used in the tiedown assembly, which were rated at 6,600 pounds. Furthermore, at least one chain was improperly attached to the loader, and another was improperly attached to the trailer bed, using the trailer deck instead of the trailer's "D" rings. Failure to properly secure the loader allowed for both longitudinal (forward/backward) and lateral (side-to-side) movement, enabling the machine to roll over the truck's cab.

Know the load limits – Although sometimes traffic accidents cannot be prevented, properly securing trailered equipment can help ensure you and other drivers are not injured in the event of a traffic problem.

Before you transport a piece of equipment, find out the working load limit of your tiedown assembly. This indicates the lowest working load limit of the entire assembly, including the associated connector or attachment mechanism and the anchor points, not just the chain itself. The WLL will be marked on the tie down material, and the Federal Motor Carrier Safety Administration tables can also be used. The aggregate working load limit must be at least 1/2 times the weight of the article. In this accident, the tiedowns used had a combined WLL of 26,400 pounds; meaning the load could not have weighed more than 52,800 pounds and be transported safely.

Tiedown tips – Once you know your tiedown assembly is properly rated for your load, you still must take additional steps to secure the machine on the trailer bed. Completely lower any attachments and secure them to the trailer, and ensure that articulated machines are prevented from articulating while in transit. The trailer's "D" rings are designed to minimize chain slack and reduce the possibility of load movement. Closely examine the equipment you're transporting for readily identifiable attachment points for the tiedown assembly. If none can be found, your supervisor should contact the manufacturer for recommended attachment points. Always remember, the entire tiedown assembly is only as strong as its weakest component.

Information for this Safety Watch is from an accident report, the Center for Disease Control's NIOSH Fatality and Control Evaluation program and the Federal Motor Carrier Safety Administration's Rules and Regulations Part 393. It is meant for general information only.

Date of safety talk:_____ Leader:_____
Attending:_____

LEARNING THE LOGISTICS OF DEF

Contractors starting to figure out which systems work best for their needs

With the Tier 4 Final era up and running, use of **diesel exhaust fluid** (**DEF**) in the off-road market is growing at 30 to 40 percent a year. If you haven't started using it yet, it's likely you will eventually. It's worth your while to learn how to handle this essential fluid, so a shortage won't interrupt your operations.

DEF fluid is used in most of today's diesel engines over 75 horsepower to reduce exhaust emissions in selective catalytic reduction systems (SCR). Without it, these new engines will not run.

You can get DEF in everything from gallon jugs to 330-gallon totes or have it delivered by tanker truck, says Luke Van Wyk, vice president of sales, Thunder Creek Equipment. The tote is typically kept in the shop, and machines are either topped off there or the DEF is pumped into a truck or trailer mounted transfer tank ranging from 20 to 100 gallons and distributed in the field.

Many contractors, however, are still getting by with 2.5-gallon jugs, says Van Wyk. Since the DEF burn rate is typically calculated at 3 to 5 percent of the diesel-fuel burn, those will suffice for small operators But there is a price penalty to pay. At retail, you'll pay as much as $4 a gallon for DEF, while bulk purchases in totes can cost as little as $2 a gallon, he says.

It took the industry awhile to settle into a pattern for DEF delivery and distribution. The original thought was that fuel suppliers would put DEF tanks on their fuel trucks and deliver the two side by side.

But for a lot of reasons, that hasn't become the dominant distribution strategy. The margins on DEF are low and cost of the capital equipment is high, says Van Wyk, and the volume of DEF they are selling is a fraction of what they sell in diesel fuel.

"It depends on fleet size, but for most of the contractors we talk to, 100 gallons of DEF is enough to get them through the week," he says. "Most of the fuel jobbers distributing DEF are doing it in package units, jugs or IBC totes."

Running out of DEF, in the shop or on a machine, isn't as simple as running out of diesel fuel. If you ignore the warning lights and let the machine derate or stop, it may require a dealer technician to come out to the field to reset the machine's electronic control module. "You can't simply put more DEF in the tank and start it back up," says John Cleary, key accounts manager – rental at Western Global. "You will get a warning, but the EPA does not want people to subvert an environmentally friendly device."

One of the most important things to remember about DEF is to buy it from a reputable supplier. "There are still quite a few backyard blenders out there," Van Wyk says. "Don't buy your DEF on price alone or just where you can get it."

DEF purity is essential to the effective functioning of an SCR system. Even a teaspoon of contamination in 5,000 gallons can cause problems with your equipment.

The most reliable guarantee for DEF purity comes from the American Petroleum Institute – the same people that certify lube oil standards. The API first got involved in testing and certifying DEF in 2009 after an SCR stakeholders group formed by SAE asked them to implement a licensing program, says Kevin Ferrick, a senior manager at API. Since then, API has gone on to grant 91 licenses in six countries and for 174 DEF products.

Continued on next page

Quality suppliers and contamination control

The qualifications for meeting API's licensing standard is ISO specification 22241-3. But ISO just sets the standard.

Transfer tanks in the back of a pickup truck bed are an excellent way to move DEF from a storage tote at the shop to machines in the field.

API uses aftermarket audit contractors to do the sampling and verifying that products meet the spec, says Jeff Harmening. "We will try to sample and test every licensed product that we have at least once a year, more if we can," says Harmening. As with its lube oil certification, API allows vendors that meet the requirements to put an API logo or seal of approval on their products.

To avoid any contamination issues, only buy DEF that has the API logo or states that it meets ISO 22241-1. Although you probably won't run into it, there is a different spec, ISO 18611, for DEF used in marine and some railroad and stationary power applications. This DEF formulation has a higher concentration of urea (40 percent versus 32.5 percent for on- and off-road DEF) and should not be used in your equipment or trucks.

Dirty jugs

And while the API license will ensure the DEF meets purity standards, the biggest source of DEF contamination still comes from indiscriminate use of containers, says Van Wyk. "Operators refill from the tote and use whatever jugs are lying around and contaminate the product from whatever was in the container before," he says.

The damage this causes will vary depending on the amount of contamination and the length of time the machine or truck runs on dirty DEF. "Most of the contamination issues we see in the field can be fixed with a flush or maybe changing out some components," says Van Wyk. But long-term exposure to contaminated fluid could poison the catalysts used in an SCR system and require an expensive replacement, he adds.

The key is to buy quality DEF, use DEF-compatible containers to move it and store it where it's not subject to extreme heat or cold. Do your diligence on the supplier and how they bring the product to you. In addition to specifying DEF purity, ISO 22241-3 can give you detailed specifications for DEF handling, transportation storage and refilling.

As for handling DEF, always transfer it in a dedicated and appropriate container – stainless steel, polypropylene or high-density polyethylene. Do not reuse old plastic jugs or build your own DEF dispensing systems out of off-the-shelf steel components. Keep refill sites and equipment clean and dust free. Store your DEF where it won't freeze. (Freezing won't hurt it, but it will make it impossible to pump until it thaws.) Keep tabs on the shelf life. DEF can be stored in colder climates for 18 to 36 months. In warmer climates that may only be 12 to 18 months.

DON'T IGNORE THE IMPORTANCE OF TRENCH SAFETY!

Don McLoud, Equipment World, March 2019

A Pennsylvania contractor faces $208,560 in fines for several safety violations, including failing to protect workers from **trench collapse**, according to the U.S. Department of Labor's **Occupational Safety and Health Administration**.

The violations allegedly occurred August 17 at a construction site in Philadelphia.

Etna Construction of Warminster, Pennsylvania, did not install cave-in protection inside the excavation, according to OSHA. The company failed to provide a safe way to enter and exit the excavation and had not trained employees on excavation hazards.

Workers were also not wearing hardhats, the agency reports. The company also did not correct excavation deficiencies and did not properly guard protruding reinforced steel, OSHA said.

"Employees can be seriously or fatally injured in a matter of seconds when a trench collapses," said OSHA Philadelphia Area Office Director Theresa Downs. "Trench-related injuries are preventable when employees are trained properly, and the required protections are in place."

In a separate incident, the company also faces $10,365 in fines for four serious violations related to failing to provide proper fall protections May 2 on another jobsite in Philadelphia, according to OSHA

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