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SEWER & WATER™

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

February 2014

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OUT OF YOUR WORKPLACE

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Chris Bieker,
Upper Thompson Sanitation
District Manager,
Estes Park, Colo.

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FLUSHED AWAY

Colorado sanitation district rebuilds after
floods destroy collections system



indianapolis
FEBRUARY 24-27 2014

PRODUCT PREVIEW PAGE 48

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Franklin Township (NJ) Sewerage Authority

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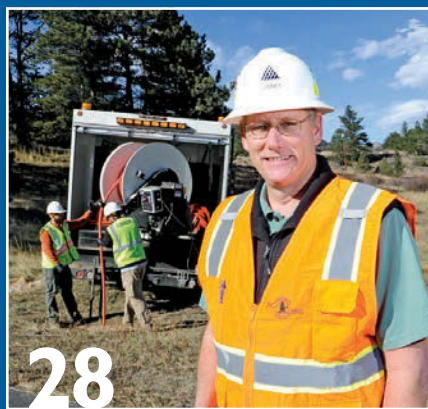
INSIDE:

MAINLINE TV INSPECTION



ON THE COVER:

Upper Thompson Sanitation District Manager Chris Bieker oversees a job site where crew members Dustin Tedder, left, and Ben Hardendorf prepare to jet a section of the original sewer line along Fish Creek in Estes Park, Colo. The district has been working day and night to restore a collections system that was largely washed away after major flooding in September. (Photography by Eric Lars Bakke)



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To conquer FOG you have to understand how problems develop and what you can do to limit the buildup in your system.

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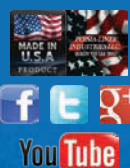
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TELLING A DIFFERENT STORY

Sewer and water utilities show resolve and creativity in handling major issues



FROM THE EDITOR

Luke Laggis

This month's issue of *MSW* features some utility profiles that go beyond the standard subject matter, from dealing with disaster to making big community improvements through the use of recycled water.

The floods that ravaged communities north of Denver, Colo., in September of last year made national headlines for weeks. Storms that dumped 8 to 12 inches of rain over a three-day period swept away buildings, bridges, roads and a host of other infrastructure. Several communities were crippled, including Estes Park, served by the Upper Thompson Sanitation District.

While we typically highlight progressive utilities and the best systems, sometimes a different story needs to be told. The Upper Thompson Sanitation District is one of those stories. That's not to say it isn't a progressive utility, but the September floods destroyed much of the collections

system, and the story of how that utility's dedicated workers responded and began putting everything back together is the one that unfolds on these pages.

Much of the district's collections system was damaged or gone altogether. People had no sewer service. Roads were impassable or completely washed away, but still, district officials kept the public informed and found ways to begin piecing things back together. They brought portable restrooms into neighborhoods. They bought 15,500 feet of PVC pipe to start putting the system back together. They planned and began building temporary sewer systems that in some cases could be later converted to permanent sewers. They also sought the help of other utilities who lent equipment and materials.

There is much work still to be done in the Upper Thompson Sanitation District, but the story of how the utility responded to this disaster is a good one.

Further north, Dawson Creek, British Columbia, has another good story to tell. The city is seated in an area prone to drought and relies on surface water from a local river. The water system was strained by the demands of cattle ranches and the oil and gas industry.

To create a more sustainable system, they got creative. A significant drought in 2006 forced the city to look for a new way to meet the growing demand for water for the oil and gas industry's nearby fracking operations. They eventually decided to use their treated effluent as a resource, and came up with some conceptual designs for a treatment plant to divert some of the 6,000 cubic meters of effluent they were discharging every day.

When representatives from Shell, one of the companies operating in the area, heard about the plan they approached Dawson Creek with a proposal. If the city would set aside a certain volume of reclaimed water for their use, the company would fund a substantial portion of the construction budget of the new facility.

Shell funded \$16.5 million of the project's \$18 million price tag. In exchange, the company received rights to the first 3,400 cubic meters of water reclaimed each day. Shell now relies exclusively on the reclaimed water, and the city is generating revenue from the sale of remaining water, all due to a partnership that provided most of the required funding.

I hope these stories can provide you some insight and inspiration for your own utility operations.

Enjoy this month's issue. ♦

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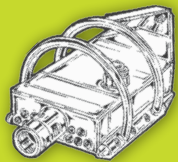
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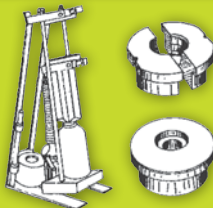
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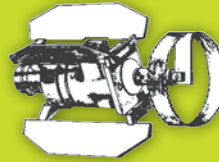
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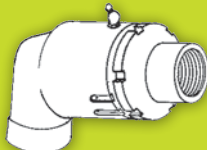
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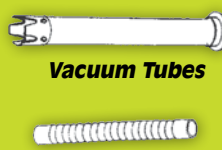
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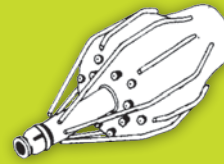
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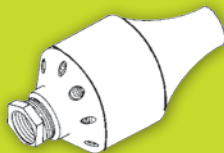
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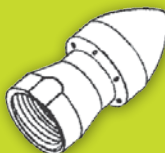
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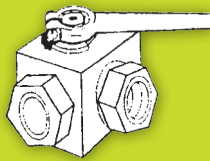
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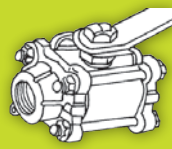
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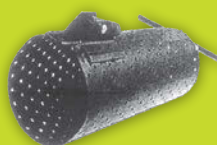
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OVERHEARD ONLINE

“It gets frustrating because I know the programs and technology exist, but the funding for a system as small as ours is hard to come by.”

3 Challenges to Collecting Water Quality Data
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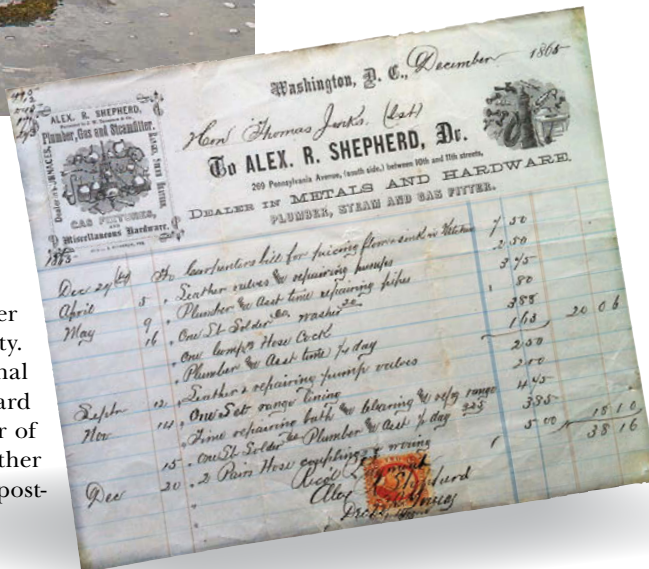


TIME TRAVEL

The Plumber Who Saved Washington

Wander back in time to the year 1865 and discover how one plumber changed the course of a city. Alexander R. Shepherd, who began his professional career as a plumber, became head of the D.C. Board of Public Works, and later, was elected governor of the District of Columbia. Now known as the “Father of Modern Washington,” he revitalized the city’s post-Civil War water and sewer infrastructure.

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GETTING SCHOOLED

Water Program Creates Fresh Talent

How do you attract youth to the water and wastewater industries? According to Steve Christianson, founder of The Water School in O’Neals, Calif., the answer lies in paving a career path for high school graduates. Find out how his exciting new program builds curriculum, provides a path to certification and trains future water industry employees. It’s got municipalities talking.

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ALASKA WATER AND SEWER CHALLENGE

DECENTRALIZING

Alaska Issues Water/Sewer Challenge

When it comes to challenging environments, Alaska has the lower 48 trumped, especially when you’re talking about delivering water and sewage disposal services. Find out how the Alaska Department of Environmental Conservation hopes to improve the health of its rural residents via the new Alaska Water and Sewer Challenge.

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FOCUS: WATER

WATER FOR ALL

Dawson Creek's commitment to sustainability is reflected in such projects as a reclaimed water plant, built through a unique partnership with Shell

By Peter Kenter

The City of Dawson Creek is located in northwest British Columbia on the western edge of the prairies, almost 750 miles from Vancouver. In a region susceptible to drought, the city's water supply must sustain more than 11,000 people, along with cattle ranches and local industries, including oil and gas.

A focus on sustainability — both financial and environmental — is helping the community prepare for the future and has generated a novel partnership with energy company

Shell to develop its reclaimed water resources.

The area was first settled in the late 1800s and the city grew on grain and the construction of a railroad by the Northern Alberta Railways in 1930. During World War II, Dawson Creek became Mile Zero of the Alaska Highway, a transportation corridor built to connect Alaska with the U.S. mainland.

Newer infrastructure benefits city

"Much of our sewer and water infrastructure was built after the U.S.

Army established the town as its base in World War II," says Kevin Henderson, the city's director of Infrastructure and Sustainable Development. "With a relatively new infrastructure, we're in a unique position to learn from the infrastructure problems in older cities such as Toronto and Montreal."

The water system is 75 percent PVC and 25 percent asbestos cement. "We used to use cast iron, but that was replaced in the 1970s and 1980s," says Henderson. "The high sulphate content of the soil eats up cast iron like crazy."

Water lines must be buried at least 9 feet deep to avoid frost. Underneath roads, frost is driven particularly deep, putting extra pressure on water pipes. There, pipes may be buried as deep as 12 feet. Leaks are rare, however, and are identified by visual inspection or the department's supervisory control and data acquisition (SCADA) system.

"We're in a good spot now," says Henderson. "We may only have to respond to couple of mainline leaks per year."

Internal crews handle the repairs, but rely on outside contractors to

The new state-of-the-art water reclamation project in Dawson Creek, British Columbia, the result of a partnership between Shell and the city, is meeting the water demands of the area's growing oil and gas industry.

PHOTO COURTESY OF THE CITY OF DAWSON CREEK

PROFILE:

Public Works, City of Dawson Creek,
British Columbia, Can.

YEAR UTILITY ESTABLISHED: 1960

CUSTOMERS SERVED: 4,900

AREA SERVED: 9.6 square miles

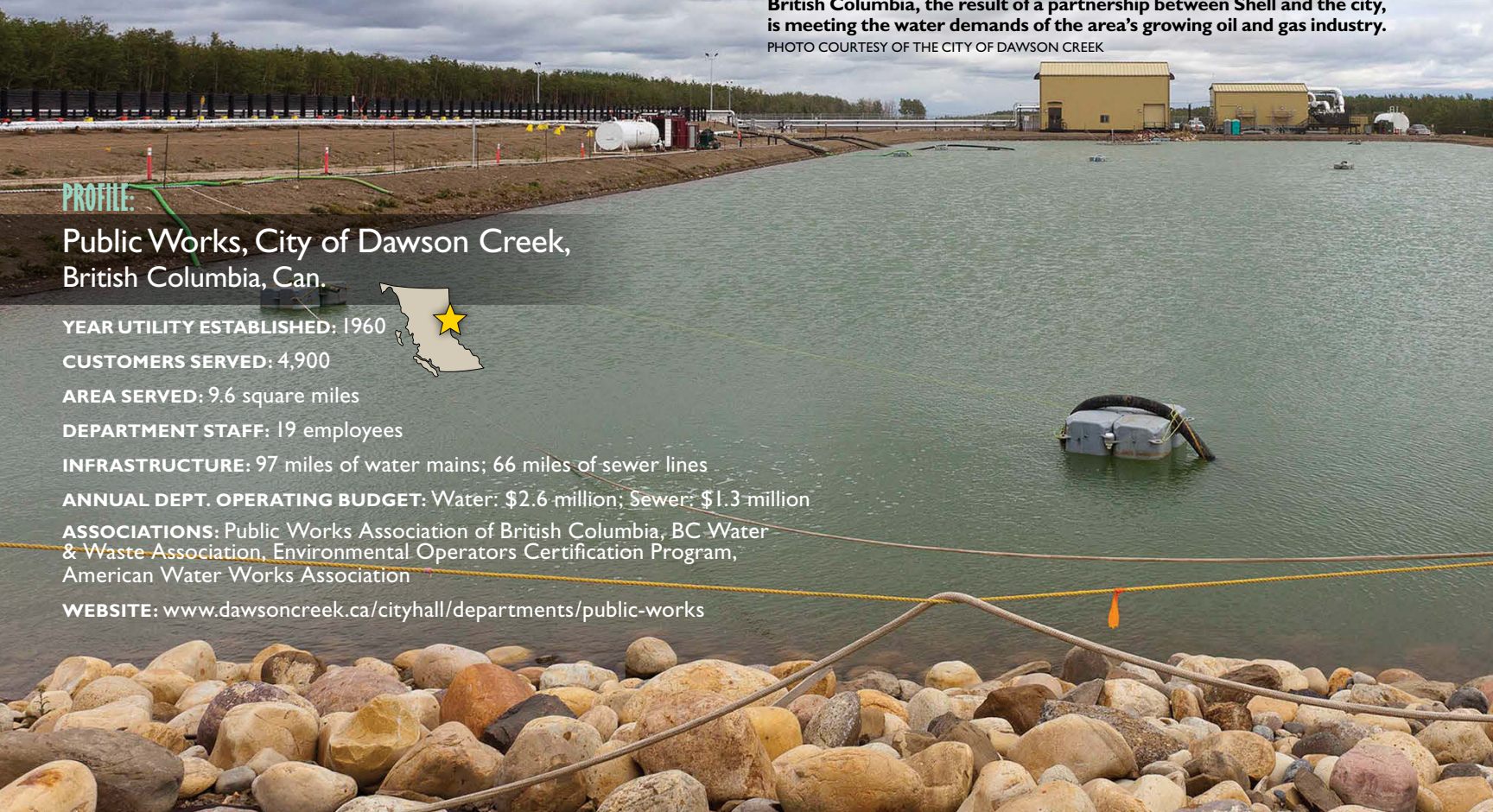
DEPARTMENT STAFF: 19 employees

INFRASTRUCTURE: 97 miles of water mains; 66 miles of sewer lines

ANNUAL DEPT. OPERATING BUDGET: Water: \$2.6 million; Sewer: \$1.3 million

ASSOCIATIONS: Public Works Association of British Columbia, BC Water & Waste Association, Environmental Operators Certification Program, American Water Works Association

WEBSITE: www.dawsoncreek.ca/cityhall/departments/public-works





Kerry DeVuyst, water treatment plant operator, takes a sample from the mainline. (Photography by Trent Ernst)

two aerobic ponds and one large wetland polishing pond before being released to nearby Dawson Creek, the waterway after which the city was named.

Oil and gas pushes growth

The region relies primarily on four economic drivers — retail, tourism, agriculture, and oil and gas. Unconventional oil and gas exploration began to ramp up in the area in 2003. Companies such as Shell are bringing major economic benefits to the area and employing local residents. Shell is pursuing the production of natural gas from the Montney shale gas formation in the Sunset-Groundbirch area about 30

“When Shell heard about the opportunity to partner with the City of Dawson Creek we saw an innovative project that would not only address residents’ concerns about water use and truck delivery traffic, but would meet our overall objective of reducing the amount of fresh water we use in our operations.”

Carson Newby

miles west of the city. However, energy companies are also major water customers, using significant volumes of potable water for hydraulic fracturing.

“After a significant drought in

provide shoring and excavation, considering the depth of the mains. New mainline construction is also outsourced.

Three pumping stations convey water to three reservoirs with a capacity of more than 190 million gallons — about a three-month supply. After the water is processed at the city’s Class IV water treatment plant, a fourth reservoir can hold up to 2 million additional gallons of treated water. During hot summer months, water demand can approach 3 million gallons per day.

Water is precious

The community relies on surface water drawn from the Kiskatinaw River, a shallow waterway susceptible to drought.

“The river level may fluctuate and with a good rain come back up again, but we recognize that water is a precious commodity,” says Henderson. “City Council has been very

progressive in supporting efforts at sustainability across all departments. While we’re active on the education side in promoting water conservation, metering all accounts and pricing water to reflect our costs provides the most significant way to promote careful use of water. Sustainability is not only important as an environmental concept, financial stability is essential to running an efficient water system.”

The city’s wastewater infrastructure consists of almost 70 miles of sanitary sewer pipe ranging from 8 to 30 inches in diameter. An entirely separate stormwater collection system consists of 22 miles of pipe ranging from 12 to 48 inches in diameter. The system also includes a Vactor truck dumping station where domestic wastewater is hauled in from rural areas for disposal and treatment.

All wastewater is first treated through a sewage lagoon system. It passes through two anaerobic ponds,



SCALE MODEL: FISH THRIVE IN DAWSON CREEK’S TREATED EFFLUENT

The City of Dawson Creek’s reclaimed water plant represents a unique partnership between the city and Shell. Some additional partners — koi, stickleback and a lingcod — live in an aquarium inside the plant 24/7.

“We thought this would provide an excellent visual to demonstrate the high quality of the effluent that enters our reclaimed water plant after treatment in our SAGR [Submerged Attached Growth Reactor] cells,” says John Kalinczuk, water resource manager at the City of Dawson Creek. “This is the same water that is further treated to the level of tertiary reclaimed water, which is then transferred to Shell.”

The demonstration aquarium proves that ammonia, which is lethal to fish, has been effectively removed from the effluent. The quality of tank water is monitored regularly and topped off with new effluent.

“The fish are fed by the operators on a daily basis,” says Kalinczuk. “When the seasons permit, part of the feeding even includes bugs.”



The Dawson Creek Public Works team includes, from left, Kevin Henderson, director of Infrastructure and Sustainable Development; John Kalinczuk, water resource manager; and Kerry DeVuyst, water treatment plant operator.

PHOTO COURTESY OF THE CITY OF DAWSON CREEK



The agriculture and oil and gas industries are two of the primary economic drivers in the Dawson Creek area, and the partnership between the city and Shell helped meet the water demands of both industries.

2006, we were looking for ways to supply the oil and gas industry and struck on the idea that we could use our treated effluent as a resource, if we provided some additional tertiary treatment that would make it an acceptable product for hydraulic fracturing,” says Henderson. “We then came up with some conceptual designs for a treatment plant to divert some of the 6,000 cubic meters of effluent we discharged each day.”

Shell representatives heard about the plan and approached Dawson Creek with a proposal. If the city would set aside a certain volume of reclaimed water for use by Shell, the

company would fund a substantial portion of the construction budget of the new facility.

“When Shell heard about the opportunity to partner with the City of Dawson Creek we saw an innovative project that would not only address residents’ concerns about water use and truck delivery traffic, but would meet our overall objective of reducing the amount of fresh-water we use in our operations,” says Carson Newby, Groundbirch community affairs with Shell Canada Energy. “Our partnership with Dawson Creek is unique for the area and a first for Shell Canada.”

SAGR cells for additional treatment

The additional treatment required to prepare the water for use in hydraulic fracturing involves processing the effluent through three Submerged Attached Growth Reactor (SAGR) cells supplied by Nelson Environmental of Winnipeg, Manitoba. A newer technology used for municipal water treatment, the cells employ a gravel medium supplied with air and microorganisms. The treatment breaks down any stubborn bacteria and neutralizes remaining ammonia. The cells have a layer of insulating mulch at the surface which prevents ice formation in the bed, allowing the system to treat wastewater that is near freezing (less than 0.5 degrees C).

That treated water is pumped into what is now known as the Dawson Creek Reclaimed Water Project, where it’s subjected to further treatment through chemical coagulation, mechanical mixing and disc filtration. After the addition of sodium



Kerry DeVuyst reads the truck flowmeter.

hypochloride, the water is collected in a wet well and pumped to a nearby Shell building.

The plant was designed to produce 4,500 cubic meters of reclaimed water per day. Under an agreement negotiated in 2010, Shell would fund \$16.5 million of the plant's \$18 million price tag. In exchange, Shell would receive the rights to the first 3,400 cubic meters of water reclaimed each day.

"Under the agreement, we could keep the additional reclaimed water as needed, sell it to other customers, or use it for the city's own purposes," says Henderson. "On days that Shell couldn't use its allotment, ownership of that volume of water would revert to the city."

Shell pumps water to gas fields

The Shell building is a self-contained pumping station, designed to pump the water directly to the gas fields through a 30-mile carbon steel pipe surrounded by an HDPE continuous fused liner. The pipeline completely eliminates trucking of water from the city to the drill site, which totaled about 2 million miles driven annually.

Despite the benefits offered by the deal, not all residents initially approved of the idea.

"Some people felt we should have built the plant ourselves so that we could collect all of the revenue

"Some people felt we should have built the plant ourselves so that we could collect all of the revenue from the sales of reclaimed water. It was our contention that Shell was taking all of the risk while we would still collect the revenue from additional reclaimed water sales — a solid win-win."

Kevin Henderson

from the sales of reclaimed water," says Henderson. "It was our contention that Shell was taking all of the risk while we would still collect the revenue from additional reclaimed water sales — a solid win-win."

Dawson Creek was required to amend its municipal sewage discharge permit with the British Columbia Ministry of Environment to allow the use of reclaimed water for fracking.

"Although we wanted to use some of that reclaimed water for park irrigation, dust control, cleaning and our municipal sanitary sewer flushing program, for now, the permit only allows us to use it for hydraulic fracturing," says Henderson. "The regulatory aspect of the program is a learning curve."

The plant was commissioned in September 2012. To date, Shell has frequently drawn less than its daily allotment from the reclaimed water plant, leaving the city free to sell the water to other energy companies.

For its part, Shell now relies exclusively on the

reclaimed water for its oil and gas operations nearby.

"With respect to our Groundbirch venture, the Peace River some 30 miles away was a significant natural water source," says Newby. "But in light of Shell's move to intensive recycling of fracture fluids and the reclaimed water supply from the City of Dawson Creek, we no longer draw from natural water sources for hydraulic fracturing activity in Groundbirch."

Dawson Creek continues to sell its excess reclaimed water to other energy companies operating in the area.

"The only glitch we've run into so far is that some drilling companies are very specific about the water they want to use for their fracturing," says Henderson. "One company has told us they'd like the water to contain fewer sulphates. We occasionally still discharge reclaimed water into the creek when there are no customers for it, but the water we do discharge is of much higher quality than anything we were discharging before. It's a beautiful thing." ♦

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EVERYTHING IS CONNECTED

From your hotel to the classrooms and exhibit floor, focus on getting the most out of your time in Indy

By Luke Laggis

It's Expo time. Soon the Indiana Convention Center will be filled with the newest and best tools and equipment the industry has to offer. Contractors and utility operators from across the globe will be in attendance, and you should be too.

This will be my third trip to the Pumper & Cleaner Environmental Expo, and I'm excited to get back to Indianapolis and see so many industry professionals together in one place. Even a casual observer could learn a great deal over the four days of the Expo, and if you spend some time on the show floor and attend a few education courses, you'll get enough out of the show to keep breathing new life into your business all year long.

The thing about the Expo, and its venue in downtown Indianapolis, is that everything is connected and the opportunities to grow in your industry are everywhere, from the moment you leave your hotel room to the very end of the night. In the elevator on the way down to the lobby, at breakfast, on the walk to the convention center and all throughout the day, you'll have no problem striking up conversations

with your peers wherever you go.

And don't forget to give in the give-and-take. Just as you can learn from your peers, there are plenty of other operators out there who could benefit from your story and the insight you have to share.

Above all, whether you're walking the show floor or sitting in a classroom, the Expo is about education. My advice: Pick a few topics you'd like to learn more about and focus on those as you plan your week in Indy. Whether it's hydroexcavation techniques and equipment or nozzles and new jetting technology, seek out opportunities to learn every-

thing you can about those subjects. There's no better place to get a thorough education.

Use the online planning tools at www.pumpershow.com to get familiar with the schedule of education seminars, event schedules and the vendors who will be exhibiting.



The Indiana Convention Center



Skywalk

If you want to learn about nozzles and new jetting technology, you can start out first thing Monday morning, Education Day, with **Preparing for Your First High Pressure Water-jetting Job**. In the afternoon, you can learn about the business end of jetting systems with **Nozzle Application: What, Why, Where, When and How?**

When the show floor opens Tuesday morning, take your first walk and note the tools and equipment you really want to see and learn more about. If the vendors are swamped with the initial blitz of contractors vying for their time, mark

Pick a few topics you'd like to learn more about and focus on those as you plan your week in Indy. Whether it's hydroexcavation techniques and equipment or nozzles and new jetting technology, seek out opportunities to learn everything you can about those subjects. There's no better place to get a thorough education.

it on your map and stop back later. Then just before lunch, check out **Nozzle Explanation and Selections**. After three classes on the subject, you'll have a much better idea of how you might like to incorporate the technology in your business, and you'll know what questions to ask as

you begin searching for the right equipment.

Armed with all that knowledge, you can head back to the show floor, talk to manufacturers and find the tools that will help you improve your utility. And that's what the Expo is all about.

Take the time to plan out your Expo visit so you can get the most



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LIGHTING THE WAY

UV CIPP provides Delaware's New Castle County with efficient, nondisruptive infrastructure rehabilitation

By Mary Schafer

Wilmington, Del., was the first permanent Old World settlement in the Delaware River Valley. Discovered by the Swedes in 1638, it became the main port of America's First State. Now the old city's municipal sewer and water collection and conveyance system is showing its age, its earliest extant parts dating from 1907.

Wilmington joins nearby Newark and Middletown in an area about a third of the tiny state's size, whose sewer and water needs are served by the New Castle County Department of Special Services. Serving 118,000 sewer customers who generate 50-plus million gallons of wastewater daily, the county maintains more than 150 pump stations, 43,000 manholes, and more than 1,700 miles of sanitary sewer pipe.

Department Civil Engineer II Kevin Penozza is responsible for maintaining the aging infrastructure. He had to decide recently how to repair parts of the system, which began as vitreous clay pipe in 1907 but is mainly a post-WWII system updated from the 1940s to the '70s. They began putting clay back in some areas along with other materials, creating a melange of pipe types to consider when planning repairs.

(continued)

The New Castle County Department of Special Services contracted Abel Recon to line over 13,500 feet of 8- and 10-inch sanitary sewer lines in a residential neighborhood.



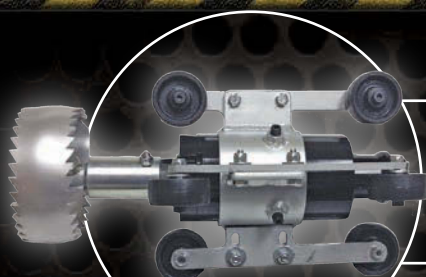
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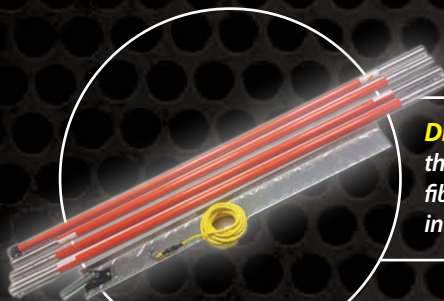
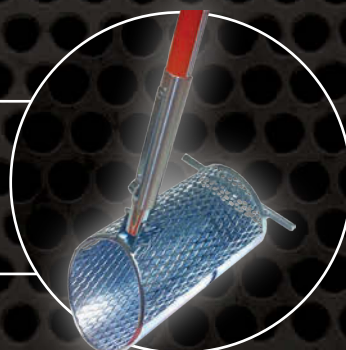


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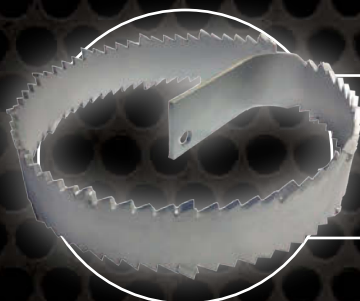
Puma Hydraulic Root Cutter Motor. This motor provides up to 215 lbs. of torque. Able to be used in 4" lines and up. Here it is pictured with adjustable wheeled skids from 8" to 10" and a concave saw in front. This motor is available in kits that can be adjusted to fit your size requirements.

Debris Grit Catcher Baskets. These are almost a must on every jetter. Don't let the debris flow down the line to cause a problem elsewhere. These Grit Catchers not only catch debris but also the fine sand and grit since they have covered bottom and half-moon back. Here is seen using our fiberglass pole system in any length you need.



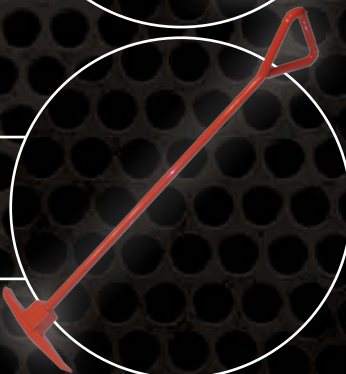
Drop Manhole Bridge Kit. The kit include the Drop Bridge that bridges the gap for your nozzle or camera over the drop hole. It comes with 24' of fiberglass poles that connect up easily. The bridge has a 25' rope to lift in into the pipe. Comes in widths of 5" or 6" and is 48" long.

Quick-Mount Fiberglass Pole Carriers. These carriers are a great way to store fiberglass poles on your truck. Can be used with poles, hooks and similar round handled tools. Made of cast aluminum and powder coated. The rubber uv protected flex-draw latches firmly holds the pole in place.



Carbide Tipped Root Saws. These saws have a carbide tip every 5th tooth on the front and every 10th on the back. Used for cutting out collapsed liners and super hard roots and grease. Available in any sizes from 4" to 20", concave or flat.

Pook. This patented design is the toughest on the market. One side is a pick to chip away asphalt and one side is a hook to flip open the manhole cover. Hence the name "POOK" a pick and a hook. Strong 3/4" handle. The whole unit is heat treated and powder coated safety orange.



Debris Basket with Rope. The baskets are lowered into place with a 25' rope. Eliminated the need for the poles and is easily retrieved at a 45° angle to avoid any spillage when lifted out of the invert.

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Big problems, limited options

The oldest part of the system is in a gentrified neighborhood called Brandywine Hundred, covering about 10 miles from the Pennsylvania state line to Wilmington, between the Delaware and Christina Rivers and historic Brandywine Creek. Slicing through this narrow corridor is Interstate 95, the East Coast's busiest roadway, juxtaposing pressing modern needs with the constraints of historic surroundings.

Inflow & infiltration issues were rampant here at the turn of this century, causing residential basements to flood and illegal surface discharges to local waterways during storms. The state Department of Natural Resources and Environmental Conservation (DNREC) issued a Secretary's Order to Penozo's department to eliminate these SSOs.

Such an order is roughly the state level equivalent of a federal consent decree, so a solution had to be found, and quickly. The high-traffic, historic locale meant projects would require innovative technologies to rehabilitate the sewer system as economically and with as little disruption of the activities and properties of residents and business owners as possible.

Inspection and evaluation

The system was inspected with



An Abel Recon crew works on a pipe relining project in Wilmington for New Castle County.

closed-circuit TV and meters installed at critical measuring points. Much of the capital program CCTV inspection is contracted out, but the county does most of the preventive work in-house. Its three CUES trucks are custom-fitted with Cobra Technologies cameras and data tracking software.

Once evaluations were completed, 60 structured overflows had been identified. Extensive observations revealed that rainwater and groundwater were entering the system

through leaking collector sewer pipes and manholes, streams flooding over sewer manholes and cross connections to storm sewer pipes. Clearwater connections, including sump pumps, roof drains, punctured floor drains and foundation drains from buildings unlawfully connected to the sanitary sewer system were also major contributors to the I&I-induced capacity overflows.

DOUBTS AND DEMONSTRATIONS: KEEPING YOUR OPTIONS OPEN

Tom Wyatt and Kevin Penozo had heard good things about UV-cured relining systems, but weren't sold on considering UV as a viable option for their own trenchless needs until Abel Recon was asked by KCI's Tom Wyatt to do a demo line for New Castle County on one of their bad line segments. They got to watch an installation of the Reline America system, which Abel believed would be a great solution for New Castle County.

The men attended a controlled, above-ground demonstration in a local parking lot as well, during which they were able to see the entire process. The most impactful advantage they noticed was the ability to inspect a formed UV liner before curing.

"Anybody that's done a lot of liners knows that's your biggest fear [using felt systems], because you don't know what you're going to get until you open everything up. But with UV cure systems, we've actually pulled it back out and reinstalled it, or you might have a little adjustment you can do. You can't do that with the other types, and I think that's a big selling point. When Abel did the demo, [the county decision makers] got to see that it's a lot more true, there's no guessing."

Wyatt is also pleased that the UV systems play nice with other systems, such as felt "top hat" lateral connections. However, they're not resting in their constant search for the right technologies for the right job. "We're experimenting with the Janssen Process [Pipeline Renewal Technologies]. We've actually done a big project with it, and we're going to use it more, because the county does like it."

The Janssen Process addresses the underlying cause of lateral connection failures: inadequate bedding and structural support. Fast-curing resins are robotically pressure-injected into cavities around a lateral, creating bedding that permanently eliminates root intrusion, infiltration and voids. It also seals the liner to the mainline at the lateral interface, preventing seepage between the two.

It's another technology the county discovered through a demonstration by its German manufacturer, and it won't be the last they find this way.

PROFILE:

New Castle County (Del.) Department of Special Services, Sewer Division

YEAR ESTABLISHED:
1907

COMMUNITIES SERVED:
Wilmington, Newark and Middletown

ACCOUNTS SERVED:
118,000

DEPARTMENT STAFF:
394 (includes all four Special Services divisions)

INFRASTRUCTURE:
1,700 miles of sanitary sewer pipe, 43,000 manholes, 150 pump stations

ANNUAL DEPARTMENT BUDGET:
\$72 million

WEBSITE:
www2.nccde.org

Phased plan prioritizes work

The result was the CSO Elimination Plan for Brandywine Hundred Sewer Rehabilitation, the goal of which was to reduce peak flow rates in the sewer system by 35 percent. The program prioritized problems most critical for flow conveyance, along with those determined to contribute the most inflow to system volume, in Phase 1. Four major sewer studies are ongoing now, informing Phase 2, which will take place from 2015 to 2018, continuing the effort in areas where sewer pipes haven't

(continued)

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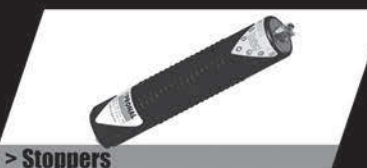
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deteriorated to a critical stage, but are still a measurable source of intrusion.

Phase 1 began in 2002 to eliminate or reduce the worst of the SSOs in the Brandywine Hundred neighborhood. This work is scheduled for completion this year, but significant progress has already been made, with only 10 or 15 overflows still remaining. Areas outside the neighborhood had also been identified as needing similar attention, and would require something other than traditional dig-and-replace.

Mutually beneficial cooperation

Tom Wyatt, a consulting engineer with KCI Technologies Inc. out of Newark, Del., serves as a project manager on this comprehensive rehabilitation effort. He points out the special considerations of doing underground work in New Castle County, including the fact that many sewer lines cross major thoroughfares.

"Between I-95 and 495, there are 12 crossings just from Naamans Road to Wilmington. There are 12 on other parts of 95, and on 495 there are nine more," Wyatt says. "For us to go and dig up everything would cost us a fortune, especially when you get into redoing the roads."

"Most pipelines were in neighborhoods, so we had to be sensitive to the hours we worked. Because some locations had quite a few laterals going into the mains, we had to make sure we had enough time to line the pipe and then reinstate all the laterals."

Hap Witmer

So, Penozza explains, "Tom and I started a coordination program where DelDOT, which is responsible for all the roadways, would provide us with lists of what roadways they were going to pave the following year. That would give us an opportunity to go TV all the sewer lines and try to make our sewer repairs before their contracts came out. With our repairs being already done, we weren't digging up newly paved roads, which makes everyone happy. From the residents to the state representatives, coordination works and saves money.

"As a result of all that TV work, we were doing the traditional dig-ups needed, but we had started compiling lists of lines we knew we could rehabilitate trenchlessly. This was the first time we got the funding to start installing liners on some of the lines we identified as not needing to be dug



up, but that were going to become problems down the road. So we're able to rehabilitate them now."

Neighborhood considerations

One such area identified outside Brandywine Hundred was more of a residential neighborhood. "On this particular job, we bid 12,377 feet of 8-inch pipe, and 1,250 feet of 10-inch," Penozza recalls.

These 52 sanitary sewer main segments were aging and deteriorated. All were suffering infiltration problems, some of them significant.

ABOVE: New Castle County chose the Blue-Tek UV-cured lining system from Reline America to solve its I&I and CSO problems. Officials saw the ability to inspect a formed liner before curing as a big advantage. BELOW: An Abel Recon crew member operates the controls of the UV curing system.

into a backyard, so that is a huge advantage to a UV system."

Wyatt concurs. "With UV, they can carry the compressor and winches to the manholes in the smaller sizes. I actually had kind of pushed the Blue-Tek a little bit. I've been to their plant. I like the process of the way resins are put into the fiberglass. I just think the product is a lot better. It's a lot easier to work with, thin-



ner, stronger and seeing the liner before curing with UV makes for a consistent liner application. We don't have to worry about hydraulics and losing any kind of capacity. Also Reline America not only trains their installers, they trained our engineers and our inspectors. They also were present on the project periodically to help if needed."

Demanding specs

As it turned out, cost and written specifications were on Blue-Tek's side. "I don't know if there was another technology that could have met these specifications," Penozza says. "Their resins are a little different."

Wyatt explains, "By law, we had to go with the low bidder," so the job went to Abel Recon of Mountville, Pa., a contractor specializing in infrastructure rehabilitation.

Abel Recon's project manager,

Dustin Squires, took a crew out into the field to measure the actual "pull run" and depth of each pipe. Those measurements, along with pipe diameter and deterioration conditions, soil density around the pipe, the area's water table, and intensity of infiltration, determined the design thickness of each liner.

"With this project, we went in using RA-75 for most of the 8-inch pipe lining," Squires says. "We used a little bit of RA-120, primarily on the 10-inch pipe."

In and out

New Castle County set a 90-day time frame for completion of the project, which began the second week of June. "Most pipelines were in neighborhoods, so we had to be

sensitive to the hours we worked,” says Hap Witmer, Abel Recon’s general manager. “Because some locations had quite a few laterals going into the mains, we had to make sure we had enough time to line the pipe and then reinstate all the laterals.”

The crew would show up on site around 7 a.m. with two trucks — one staged at the entry and one at the exit manhole. They would first set up traffic control measures, then reroute wastewater flow to bypass the pipes involved. They would TV inspect and clean the pipes, then install a slip sheet for the liner.

The liner was pulled into place with a constant tension winch and then inflated with a blower powered by the service truck’s hydraulic PTO (power take off), the inner film acting as a bladder to hold the air and create the pressure needed to press the liner open against the pipe walls. The UV light train and bottom rollers were assembled and a pre-curing video of the formed, uncured liner was made and viewed to be sure the liner properly formed before curing. When everything was ready, crews fired up the lights, pulled the train through to cure the liner, and the inner “bladder” film was subsequently removed. By 1 p.m. they were usually restoring lateral services by cutting through the new liner with a Dominator 430 reinstatement cutter from Bowman Tool Company. Work stopped at 7 p.m. each day to prevent unnecessary neighborhood disruption.

Ahead of schedule

“One major advantage of the Blue-Tek system is its ability to be installed even while some dampness remains after cleaning, or a bit of infiltrated water remains in low spots,” says Witmer. “You can pull the liner in place and not have to worry about [remnant water] emulsifying or washing any resin out of the fiberglass, because it’s protected by the outer film.”

This helped the crews finish nearly 20 days ahead of schedule.

There was one other major factor that contributed to such a smooth project: an on-site inspector who understood how the liner system design, manufacturing controls, structural design and construction controls work together to ensure that the as-built complies with the as-specified and results in a successful project.

“It’s a benefit because — especially when you’re doing your pre-inspection before starting the lining process — if you come across unforeseen obstacles like an offset joint or protruding lateral, we can discuss that with the inspector and decide whether it’s something we should still line,” explains Squires. “If the inspector’s there, it saves time.”

Witmer sees another advantage to having an inspector onsite. “With a new technology, it educates the inspectors and engineers by having them there to understand the good points about a product. They can also see for themselves that some of the problems we might have with it aren’t that big a problem, so they understand [the realities of the product]. It’s a valuable education for them.”

In fact, each use of such new trenchless technologies becomes a valuable education for everyone involved as they gain more experience and knowledge of improving tools of their trade. And the advantage accrues right down to the service customer, who may not fully comprehend the benefits of an effective solution to infrastructure issues that affect everyone’s quality of life. ♦

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THE NO-JERK RULE

Is a resident bully demoralizing your workplace? The negative effects may be more far-reaching than you realize — and here's how to stop it

By Ken Wysocky

The odds are that you'll see pigs fly before you ever discover a totally jerk-free workplace. Like the proverbial rotten bad apple in the bunch, there seems to be at least one bad actor lurking in every organization, wreaking havoc on co-workers and managers alike. Or even worse, the jerk is your manager.

Bob Sutton shares your pain. In fact, he wrote a best-selling book about the subject, indelicately titled *The No A****e Rule: Building a Civilized Workplace and Surviving One That Isn't*. The book, which was a spin-off from an immensely popular essay he wrote for the Harvard Business Review in 2004, touched a nerve. After its publication in 2007, Sutton — a professor of management science and engineering in the Stanford University School of Engineering — says he received thousands of emails from readers.

"In fact, I still get emails," he notes. "And the book still sells."

Just how pervasive are workplace jerks (to use a less blunt and more politically correct term than Sutton's)? It's a persistent problem, he says. There's actually a group called the Workplace Bullying Institute (www.workplacebullying.org) that has performed surveys on the subject; the results show that about 35 percent of American workers will be bullied at some point in their career — and usually by a boss, he notes. Moreover, 10 to 12 percent of American workers are victims of workplace bullying at any one time.

The good news is that organizations are getting much better at dealing with bad behavior, thanks to hostile-workplace lawsuits. The result is an ever-growing body of

case law that makes it more expensive, as well as more socially unacceptable, to turn a blind eye to workplace bullying. "Being an equal-opportunity a*****e used to be a defense, but not so much any more," Sutton notes. "The intense focus on school bullying plays a role, too — it's become part of the national zeitgeist."

On the other hand, workplace jerks — whom Sutton defines as people who treat colleagues badly and leave them demeaned and de-energized — create a quantifiable negative ripple effect throughout departments and workplaces. Sutton says that there's very good evidence that employees are less productive and creative, as well as more anxious, when they must work with, um, jerks.

"There's a physiological response," he says. "People don't feel well, and they leave jobs at a higher rate. So if you want to keep your best employees, that's a real problem. When people get treated badly, they don't work as hard ... they don't care as much about the details. They'll come in late, leave early and take more sick days. In short, they're doing less to help their organization."

Moreover, there's a financial cost, too; while it may be harder to quantify, common sense dictates that somewhere along the line, jerkism affects organizational bottom lines. To back up that assertion, Sutton tells a real-life story about a high-performing salesman he calls Ethan, a one-man demoralization wrecking crew who was kept on board because of his excellent sales results.

But the company's fed-up human resources department finally calculated the cost of Ethan's terrible

behavior at about \$250,000 a year. Cost factors included the continual rehiring and training of new secretaries for Ethan, the higher "battle-pay" salaries required to entice people to work for him, decreased production and time wasted by managers dealing with the aftermath of Hurricane Ethan. (Sutton's book even reveals a formula for calculating the TCA, which stands for the total cost of, well, jerks.)

Strategies and solutions

What can beleaguered co-workers do to survive workdays with the resident jerk? First of all, organizations should do their utmost to screen out jerks during the job interview process. But given the numbers of workplace jerks that exist, that approach doesn't always work too well; it's too easy for a jerk to play nice in an interview. Sutton does say, however, that he's heard of companies that ask hotel desk clerks about the behavior of job candidates who stay overnight for interviews.

Organizations also need to train managers better so they can more effectively deal with jerks, as well as let managers know in no uncertain terms that tolerating bad behavior from "star" employees is not acceptable. "Anyone who's a star and seemingly irreplaceable is a big problem for an organization," Sutton says.

But in the end, many employees are left to fend for themselves in dealing with the Ethans of the world. Here are some jerk-survival tips from Sutton that may make the task a little less daunting:

1. Hit the eject button. Escape by quitting and taking another job. That's not always an option in a

We invite readers to offer ideas for this regular column, designed to help municipal and utility managers deal with day-to-day people issues like motivation, team building, recognition and interpersonal relationships. Feel free to share your secrets for building and maintaining a cohesive, productive team. Or ask a question about a specific issue on which you would like advice. Call editor Luke Laggis at 800/257-7222, or email editor@mswmag.com.

stagnant economy, but it's the easiest way out of what might be a totally unbearable situation.

2. Try a little tenderness. Attempt to have a polite conversation with the jerk about his or her offensive behavior. "You have to know their personalities well enough to do this," Sutton advises. "Sometimes it's better to have someone they respect more than you — like a peer or a boss — do the talking ... you have to figure out the dynamics and politics of your situation."

3. Dear diary. Document in detail all abusive behavior. Keep a running diary and save any emails that back up your case. "If you can get colleagues to help you document behavior and then complain en masse, you put yourself in a more powerful position," Sutton points out.

4. Find your happy place. Use emotional detachment to deflect the abuse.

5. Go to court. As a last resort, hire an attorney and file a lawsuit. This is a significant step that poses many difficulties, not the least of which is massive legal bills. "Anyone who resorts to litigation should go in with their eyes wide open," says Sutton. "Big companies might go to great lengths to protect their reputations or star performers. In a David-versus-Goliath battle, you often lose."

But in the end, doing what you can to make your little corner of work a jerk-free zone can yield untold benefits, such as dramatically better morale, increased productivity and greater profitability. ♦

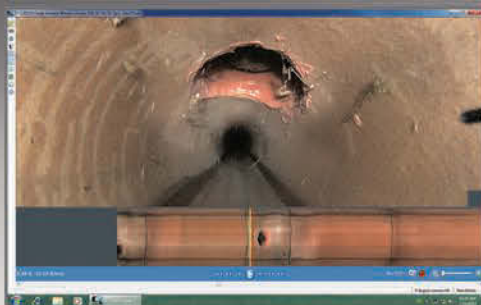
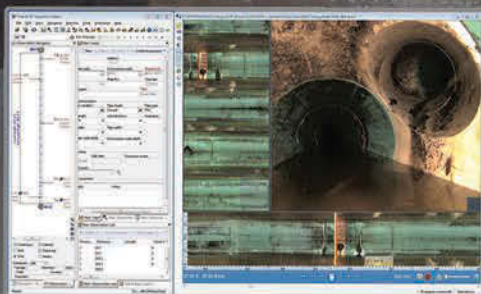


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ENHANCE YOUR KNOWLEDGE BASE

Expo education courses provide the latest information on technology, techniques and safety for sewer and water professionals

By Craig Mandli

The Pumper & Cleaner Environmental Expo features the newest equipment in the industry and opportunities to network with peers, but it also has a strong education component. The 2014 Expo is no different, as a plethora of valuable educational opportunities and workshops are scheduled to help you improve your utilities.

The Expo kicks off Monday, Feb. 24, with the annual Education Day. Tracks of workshops are sponsored by a variety of professional organizations, including the National Association of Wastewater Technicians (NAWT), National Environmental Health Association (NEHA), Southern Section Collection Systems Committee (SSCSC), National Association of Sewer Service Companies (NASSCO), National Onsite Wastewater Recycling Association (NOWRA), Waterjet Technology Association/Industrial & Municipal Cleaning Association (WJTA-IMCA), Portable Sanitation Association International (PSAI) and the National Precast Concrete Association (NPCA).

The following days will feature a variety of additional workshops and roundtable-type discussions covering a range of safety and pipe lining to manhole rehabilitation, fleet tracking and going completely “paperless” in your department.

All of the education workshops will be held at the Indiana Convention Center in meeting rooms adjacent to the Expo exhibit halls. For more information on seminar

times, locations and speakers, visit www.pumpershow.com.

Seminars of interest to municipal service providers include:

Education Day, Monday, Feb. 24

“Preventing Tank Truck Roll-overs,” by John Conley, past president of the National Tank Truck Carriers trade association: Discuss efforts by the industry and government to eliminate tanker rollovers and other trucking safety and operations issues.

“What’s New with OSHA Safety Requirements,” by Anthony Kuritz, an experienced OSHA Compliance Officer in Indiana: Learn new GHS requirements for businesses, truck and driver safety guidelines and other regulations pertaining to workplace safety.

“Nozzle Application: What, Why, Where, When and How?” by Duane Johnson, vice president of Affordable Pipeline Services: This class will look at a variety of cleaning situations and discuss the precise types of nozzles needed to efficiently clean in each of these situations.

“Understanding the Nuances of a Quality CCTV Inspection Program,” by Jim Aanderud, an experienced CCTV pipeline inspection operator: This class will clearly define the makeup of a quality pipeline inspection, and discuss the steps that must be taken to produce a superior video.

“In the Trenches with Trenchless Pipeline Repair and Renewal” by Mark Hill, P.E., a registered civil engineer in California: This

class takes a look at the benefits and drawbacks of some of the most common and innovative pipeline repair and renewal technologies currently on the market.

“Personal Safety,” by John Chadwell, the western regional

manager for EHS International: This class will provide an overview of industry safety issues such as workplace violence and personal safety, as well as the tools necessary to deal with the challenges of working with the public and with fellow employees.

tages and practical uses, including as a valuable tool for CCTV, cleaning and rehabilitation projects.

“Getting the Most out of your Combination Unit,” by Rick Lewis, a 20-year veteran of the wastewater collections industry: Participants



Education Day will kick off the 2014 Pumper & Cleaner Environmental Expo on Feb. 24, at the Indiana Convention Center in Indianapolis.



“Preparing for Your First High Pressure Waterjetting Job,” by Gary Toothe, a board-certified environmental safety and health trainer: Participants will explore what needs to happen before the wheels ever start rolling for that

“Stop It!” by Denis Pollak, one of the founding members of the California Water Environment Association Southern Section Collections System Committee: Participants will take a close look at plugging, and discuss its advan-

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first (or any) waterblasting job.

"Vacuum Truck Operation and Safety," by Gary Toothe: Participants will explore the basics of liquid vacuum truck operation and safety on materials from water up to flammable liquids.

"Hydroexcavation: Getting the Best Bang for Your Buck," by Neil McLean, a hydroexcavation consultant for companies throughout the United States and Canada: This program will discuss options like multiple wands and the right nozzle design to increase performance.

"Lessons Learned During Sewer Rehabilitation on Public and Private Property," by Scott Belz and Robert Kelly, P.E.: Belz specializes in Inflow and Infiltration (I/I) identification and removal projects. Various rehabilitation techniques, materials and methods will be discussed.

"Pipe Bursting: a Mature and Diverse Trenchless Technology," by Matt Timberlake, Vice President of Ted Berry Company Inc.; and Matt Werth, who has a background in engineering, estimating, sales and management of business related to trenchless technology: This presentation will describe current pipe bursting practices and assist those involved in pipeline replacement and/or rehabilitation projects to evaluate the capabilities of pipe bursting.

"Resurgence of Chemical Grout Industry: Niche Business Opportunities," by Richard Schantz P.E., of the Aries Grout Boot Camp, and Donald Rigby, director of marketing for Avanti International: This presentation will include an overview about small business opportunities doing specialty grouting in the utility and construction industry.

"Chemical & Biological Control of FOG in a 2,500-Mile Collection System," by Brian Conroy of Duke's Root Control, mobile reverse osmosis innovator Jim Elliott, and wastewater engineer Rich Schici: This session will review a treatment plant-friendly method of grease elimination from a sewer collection system.

"Lateral Rehabilitation, What's Available?" by Jacob Trapani, who has over 27 years of management and construction experience in the trenchless pipe rehabilitation

industry: This session will offer an overview of all lateral and main/lateral connection rehabilitation technologies available.

"Fiber Optic Temperature Sensing Technology for CIPP Cure Quality Control," by Don Barnhart, Janssen Technology Product Manager for Pipeline Renewal Technologies: This session will discuss how fiber optic technology offers a quantum leap in temperature resolution to assist contractors in revealing and overcoming heat sinks inhibiting cure.

Tuesday, Feb. 25

"Don't Fear the Shapefile," by Mark Hill, P.E., a senior project manager with Michael Baker Corp., where he has led the Pipeline Assessment Group: This class will address what to do with GIS mapping data, how to import it into common CCTV inspection software, and how to link data to it for a submittal.

"1 + 1 = 14: Cleaning and Inspection Equipment Working as an Entity," by Jim Aanderud: Participants will look at the relationship between combination units and CCTV inspection vehicles, and discuss the importance of the working relationship between their crews.

"Get and Keep the Best Coworkers," by David Heimer, chief operating officer for Service Roundtable: Heimer will show attendees how to build a recruiting pipeline, attract the kind of employees they want and keep them for years.

"OSHA Confined Space and Fall Protection Untangled" by Chris Cira, managing partner and president of MTech: This session presents a different and unique high-level overview of confined space, air monitoring and fall protection regulations.

"Take Control of Inflow & Infiltration in Manholes," by William Goff, a former water & sewer superintendent for the City of Myrtle Beach, S.C., and co-author of the South Carolina Voluntary Certification: This presentation will give attendees a closer look at infiltration identification and methods and products to use for correction and remediation of infiltration and rehabilitation.



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"DC Water is Utilizing Perma-Liner to Rehabilitate the Nation's Capital," by Muminu Badmus, construction projects manager for the District of Columbia Water and Sewer Authority, Department of Sewer Services: This session will provide an overview of DC Water's look at a cured in place pipe (CIPP) solution as a possible alternative to the traditional open-trench method.

"Nozzle Explanation and Selections," by Scott Paquet, president/CEO of NozzTeq: Participants will discuss the different types of nozzles available on the market today, including how you make your selection and what to look for in a nozzle.

Wednesday, Feb. 26

"Sewer Cleaning 101," by Ken Billingham, international product specialist for KEG GMBH, a German manufacturer of pipe cleaning tools and camera systems: This session discusses the understanding of how the crew, equipment and nozzles are integral to the successful completion

of the task at hand.

"Underground Coatings — Restore Deteriorated Infrastructure," by Stewart Nance, Quadex's VP — sales & marketing manager for concrete and epoxy coatings and the Interfit lateral connection rehabilitation system: Discuss how cementitious and epoxy liners, and the combination of both, have proven effective in permanently and economically restoring and protecting deteriorated structures, and thus eliminating infiltration.

"How Small Contractors Can Make Big Money Doing Manhole Rehabilitation," by Bill Shook, president and founder of AP/M PERMAFORM: This session discusses the variety of techniques that are presently available to seal, reinforce and protect old block, brick/mortar and corroded precast manholes to better than new condition without digging.

For more information on the Pumper & Cleaner Environmental Expo, visit www.pumpershow.com or call 866/933-2653. ♦



FOCUS: SEWER

FLUSHED AWAY

Colorado sanitation district works to repair and replace thousands of feet of sewers after monster flood wreaks havoc

By Steve Frank

Mid-September usually finds relaxed tourists ambling through early fall sun in the Rocky Mountain National Park gateway town of Estes Park. They browse for food, souvenirs and sights. Elk coming down from the high country and wandering through the town often supply the latter.

But Sept. 12, 2013, found residents ducking inside to avoid the rain. September rainstorms — if they come at all — are usually 30-minute-to-an-hour affairs. About an inch and a half of precipitation is typical for a northern Colorado September.

A low pressure system stalled along the foothills and Front Range east of the Rockies in September 2013. The unusual weather system

dumped 8 to 12 inches of rain in the area over the next three days — about a year's supply of water.

Eighteen Colorado towns experienced flash floods. Roads and bridges washed out. Homes were destroyed. And people were stranded.

The floods wiped out sewers or water distribution systems in several Colorado towns, including Lyons, Longmont, Jamestown, Boulder,

Evans and Estes Park.

The Estes Park population is about 5,850. The Estes Valley population is about 12,000. The Upper Thompson Sanitation District — one of two in the area — serves 4,000 accounts, or about 9,000 people.

Concerns about the system

As the rain continued to fall, Upper Thompson Sanitation Dis-



LEFT: New temporary sewer line sections lie ready for connection next to a flood-damaged manhole and a broken section of the original line along Fish Creek. **RIGHT:** Upper Thompson Sanitation District crew member Dustin Tedder, left, connects a KEG head while Ben Hardendorf holds the line before jetting a section of the original sewer line. (Photography by Eric Lars Bakke)

trict Manager Chris Bieker became increasingly concerned.

"I called the plant," says the 26-year district employee. "The chief operator was already there and was diverting flow into an empty 250,000-gallon clarifier. We always get bad I&I when it rains."

Bar screens were blinded as the rain continued into the evening. Bieker's concerns about the collection system grew. He called his lines superintendent, Todd Krula.

"Todd and I went out and started checking the collection system," he says. "We mobilized the lines crew the night of Sept. 12."

**"I called the plant.
The chief operator was
already there and was
diverting flow into an
empty 250,000-gallon
clarifier. We always get
bad I&I when it rains."**

Chris Bieker

The district has more than 85 miles of collection system and interceptor sewers. They carry the flow by gravity to two lift stations. Their combined pumping capacity of 9.72 mgd pumps the flow to the plant.

"The rain got worse the next morning. The collection system washed out," he says.

By Sept. 13, Bieker had issued a statement telling customers that heavy flows of silt and debris had made the Fish Creek and Thompson River lift stations and treatment plant inoperable.

"Preliminary observation shows thousands of feet of pipe and manholes located along the Fish Creek Road area either damaged or missing. There is also evidence that the District's Big Thompson River and Fall River collection systems north and west of the treatment plant



has suffered damage," Bieker's statement said.

Portable toilets ordered

Thousands of people were without service. The district issued a "No Flush" order and set to work getting portable toilets into key areas.

"The main areas were in the Fish Creek and the Fall River corridors," Bieker says.

The floods caused a shortage of portable toilets in Colorado. "Lyons, Sterling and Evans needed them, too, and the company that supplied them to us had to ship ours in from Arizona," he says.

Managing portable toilets presented problems of a sort not normally faced by a sanitation district.

"It's costing us between \$45,000 and \$50,000 a month for portable toilet rental," Bieker says.

Distributing the toilets was a challenge, too. Everyone wanted their own toilet, but there just weren't enough to go around. Several toilets would often be located together in a neighborhood, but some people rented their own.

"We also realized we had to sched-

ule pumping. It was not something we were expecting to have to do," Bieker says.

Another problem was the wind. "It blows hard in Estes Park. It blew over a lot of the portable toilets," Bieker says. As a result, the toilets had to be tied down, but it didn't solve all the problems. "Nobody wanted to use those that had been blown over. It was a public relations nightmare."

Communication woes

Which brings up communication. Bieker and other staffers had attended a presentation about communication in response to an emergency at the annual joint conference of the Rocky Mountain Water Environment Association and the Rocky Mountain Section of AWWA just a few days before the floods hit.

"I brought all the materials back to review," Bieker says. "Then this happened. At least we had some notion of what to do."

The district put information out to its customers and the media using flyers and its website to keep them up to date. Bieker also spoke at town meet-

PROFILE: Upper Thompson (Co.) Sanitation District

YEAR ESTABLISHED:
1971

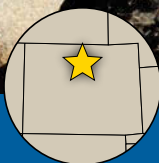
ACCOUNTS SERVED:
4,000

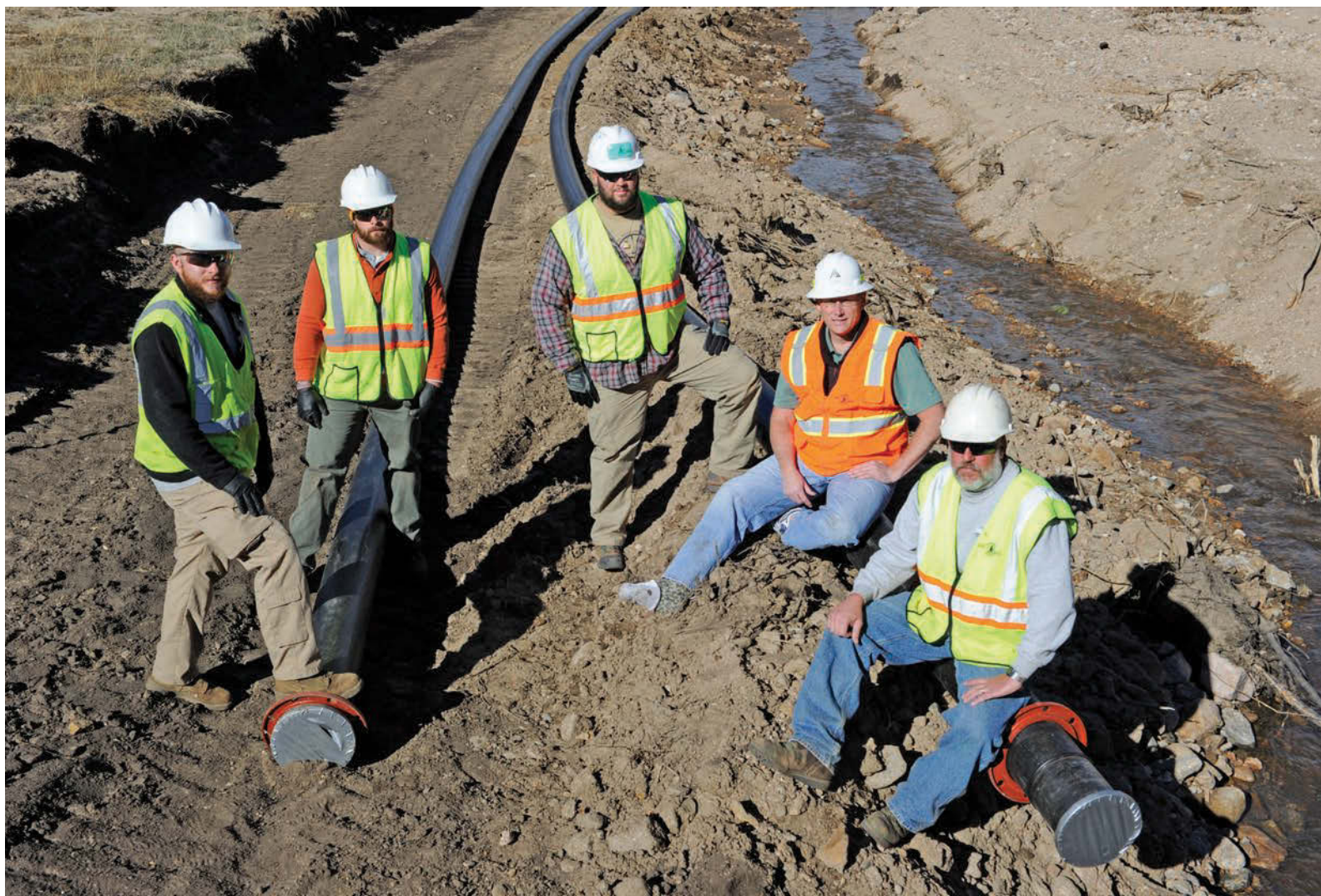
DEPARTMENT STAFF:
15

INFRASTRUCTURE:
85-plus miles of pipe

**ANNUAL DEPARTMENT
BUDGET:**
\$2.6 million (pre-flood)

WEBSITE:
www.utsd.org





Upper Thompson Sanitation District staff includes, from left, Dustin Tedder and Ben Hardendorf, lines crew operators; Matt Allen, lines crew foreman; Chris Bieker, district manager; and Todd Krula, line superintendent, with a section of new temporary sewer line along Fish Creek in Estes Park.

“The worst part about this whole thing has been keeping up with all the demands. It’s been a challenge keeping our customers updated, and we continue to make point repairs where we can.”

Chris Bieker

ings hosted by the town of Estes Park.

“I’m no public speaker, but it got easier over time,” he says. “Everyone wanted to hear from the sewer guy.”

Recovery effort

Recovery is divided into two main parts: temporary service restoration and permanent system repairs. The district is well on its way to getting all of its affected customers reconnected, with about 75 percent of affected customers reconnected by early November.

One of the toughest obstacles was a shortage of construction materials, including fill. It just wasn’t available.

Another was a severe shortage of qualified construction firms. The district eventually was able to hire Western Summit to work on the temporary repairs.

The final obstacle was the inexorable march of time: The coming of winter and the snow.

“The worst part about this whole thing has been keeping up with all the demands,” Bieker says. “It’s been a challenge keeping our customers updated, and we continue to make point repairs where we can.”

“We’ve had to react with a staff of just 15. From day one, the number one concern has been the sewers. We still can’t get to some of the breaks, but we’re making progress.”

Going forward

The need to stay ahead of the cold and snow has caused the district to move forward quickly. It has already purchased some 10,000 feet of 12-inch PVC and 5,500 feet of 8-inch PVC.

Bieker said one of the best things the district ever did was invest in a geographic information system in 2008.

“It’s great. We’d have been in such bad shape without it,” he says. GIS has enabled them to do quick, accurate planning. “From a management standpoint, every utility should invest in GIS.”

The district began hydraulic modeling in 2012. Because of it, they know key pieces of information such as peak flows and volumes.

“Between our hydraulic modeling and our GIS, we know how our lines work,” Bieker says. “We can predict the effects of proposed changes without having to guess.”

To illustrate the point, he described making a connection from

one drainage to another using modeling data rather than guessing. “It’s quicker and more accurate.”

Redundancy a must

Another “must have” is redundancy. At times, especially early in the emergency, there were no phones — neither cell nor landline. The server went down, as did computers, email and Internet service.

“Trying to do business between here and Denver was hard,” Bieker says.

Power also went out periodically — but not for too long at any one time — and the printer/copier broke down, adding to the public relations nightmare, Bieker says.

“You need redundancy. It might cost a little more to have it, but it’s

(continued)

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Upper Thompson Sanitation District employees examine the temporary sewer line along Fish Creek.

“You need redundancy. It might cost a little more to have it, but it’s absolutely essential. It about gives you a nervous breakdown when you can’t get the simple things done.”

Chris Bieker

absolutely essential. It about gives you a nervous breakdown when you can’t get the simple things done,” he says.

Different approaches examined

When Bieker and the district’s engineer, Hatch Mott McDonald, began working on what to do about their collections system problem, they started by looking at portable treatment units and their availability. Portable units were very expensive, were not available for 12 weeks and the district would have had to buy them.

“Then I’d be stuck with them,” Bieker says.

They also explored siting vaults at the bottom of sewer drainages, collecting sewage there and trucking it to the plant for treatment. That idea proved impractical as well, so they got busy figuring out how to build temporary sewers that in some cases, such as along Fall River Road, may be later converted to permanent sewers.

Part of the district’s answer involved correspondence with regulators. David Kurz of the Colorado Department of Public Health and Environment “has been really cooperative and understanding of our situation,” Bieker says.

The Corps of Engineers has also been helpful, but permitting can be a nightmare when sewer alignments cross multiple jurisdictions because the river or creek carved its own path without regard to land ownership or

city, county or federal jurisdiction.

One huge boost has been the help the district has gotten from other wastewater entities under CoWARN, Colorado’s statewide Water/Wastewater Agency Response Network (WARN).

“We got help from a number of utilities, including a 4-inch pump with floats and a hose from Littleton/Englewood Wastewater Treatment Plant,” Bieker says. That pump allowed them to get three schools and the emergency evacuation center reconnected quickly.

They received assistance from Eagle River Water and Sanitation District, Fort Lupton, Platte Canyon, Estes Park Sanitation and others, too.

High repair costs

Notwithstanding all the help, the cost of repairs will be a burden on ratepayers. FEMA (the Federal Emergency Management Agency) will reimburse them for up to 75 percent of emergency repair costs under ideal conditions, and the state will pick up another 12.5 percent, Bieker says. But they haven’t seen any FEMA money yet.

That leaves the district with at least a \$1.6 million repair bill it was not anticipating. That expenditure will affect other needs in the future, but the support from the community “has been great,” Bieker says.

“The community understands the magnitude of the problem,” he adds, noting that the Lions Club furnished staff meals on several evenings and was helping canvas



Chris Bieker uses a district map to illustrate the department’s various connectivity and future plans in the wake of the September 2013 flood in Estes Park.

neighborhoods to distribute “You Can Flush Now” flyers. The Estes Park Rotary Club also provided assistance with notification. “Many of our customers have also volunteered their time on behalf of the district, making mobile flush signs and alerting residents, getting the word out they can now flush,” he says.

To make life even more complicated for Bieker personally, he had ankle replacement surgery in mid-October. He’s been hobbling around with a walker and a wheel chair, and couldn’t drive for several weeks.

The future looks busy for Upper Thompson Sanitation District. Bieker praised the district’s board and its employees, who have been putting

in 18-hour days, with some even sleeping there. And they’re 13 days ahead of schedule overall.

“We have a tightly knit family and group here,” he says. “We get the job done.” ♦

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De Neef Construction Chemicals
Del Vel Chemical Co.
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Standard Cement Materials, Inc.
Standard Equipment
Statewide Supply, Inc (Bio Clean)
StoneAge, Inc.
Strategic Telecom Solutions
Sturgeon Tank & Equipment
Stutsman
Subsurface Instruments
Sunbelt Rentals
Sunrise Environmental
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Superior Signal Company LLC
Supervac 2000
Surco Portable Sanitation Products
Surpreur 4S Inc.
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EDUCATION DAY

MONDAY FEBRUARY 24, 2014

NASSCO NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES

- 8 a.m. Lessons Learned During Sewer Rehab on Public and Private Property
- 9:30 a.m. Pipe Bursting a Mature and Diverse Trenchless Technology
- 11 a.m. Resurgence of Chemical Grout Industry: Niche Business Opportunities
- 1:30 p.m. Chemical & Biological Control of F.O.G. in a 2,500-Mile Collection System
- 3 p.m. Lateral Rehabilitation, What's Available
- 4:30 p.m. Fiber Optic Temperature Sensing Technology for CIPP Cure Quality Control

NEHA NATIONAL ENVIRONMENTAL HEALTH ASSOCIATION

- 8 a.m. DEER in the Headlights
- 9:30 a.m. Basic Chemistry of Onsite Wastewater Treatment Systems
- 11 a.m. Making the Most of Experience: Training and Credentials for Wastewater Pros
- 1:30 p.m. Winners Communicate
- 3 p.m. Best Available New Technology
- 4:30 p.m. Best Available New Technology: How to Get Your Regulators on Board

NPCA NATIONAL PRECAST CONCRETE ASSOCIATION

- 3 p.m. 7 Things About Design, Installation & Maintenance of Precast Concrete Tanks
- 4:30 p.m. Grease Interceptors: A Slick Solution to a Greasy Problem

WJTA-IMCA WATERJET TECHNOLOGY ASSOCIATION INDUSTRIAL & MUNICIPAL CLEANING ASSOC.

- 8 a.m. Preparing for your First High Pressure Waterjetting Job
- 9:30 a.m. Vacuum Truck Operation and Safety
- 11 a.m. Hydroexcavation: Getting the Best Bang for Your Buck

SAFETY SESSION JOHN CONLEY

- 8 a.m. Preventing Tank Truck Rollovers

PSAI PORTABLE SANITATION ASSOCIATION INTERNATIONAL

- 9:30 a.m. State of Global Sanitation
- 11 a.m. Industry Image
- 1:30 p.m. Visions of the PSAI and the Education Initiative
- 3 p.m. What's New with OSHA Safety Requirements
- 4:30 p.m. An Introduction to Entering the Federal Government Contracting Arena

SALES & CUSTOMER SERVICE FRANK TACIAK

- 8 a.m. Be Always Profitable: Setting up the Sale
- 9:30 a.m. Be Always Profitable: Your Best Sales Presentation
- 11 a.m. Be Always Profitable: Servicing Your Sale
- 1:30 p.m. Be Always Profitable: Our Attitude to Success

NAWT NATIONAL ASSOCIATION OF WASTEWATER TECHNICIANS

- 8 a.m. CSA 2010 Implementation/Impact on Carriers/Drivers
- 9:30 a.m. DataQ's: When and How to Challenge
- 11 a.m. US DOT Update/Recent, Upcoming and Proposed Regulations
- 1:30 p.m. What is a Good Septic System Inspection?
- 3 p.m. The History of the PSMA Hydraulic Load Process
- 4:30 p.m. Improving Arizona's Inspection Program to Meet Modern Challenge

NOWRA NATIONAL ONSITE WASTEWATER RECYCLING ASSOCIATION

» SITE EVALUATION AND DESIGN OF ONSITE WASTEWATER TREATMENT SYSTEMS

- 8 a.m. Why Do We Care About Soils?
- 9:30 a.m. Design for Dummies
- 11 a.m. How to Do a Good Site Evaluation
- 1:30 p.m. Designing for Tough Sites
- 3 p.m. Wastewater and Soils: Clean It Up AND Get It To Go Away
- 4:30 p.m. Good Installation for Long-Term User Satisfaction

» FROM INSTALLATION TO MARKETING YOUR BUSINESS AND EVERYTHING IN BETWEEN

- 8 a.m. Look Out for Gophers! Taking Care of Mound Systems
- 9:30 a.m. ATU's - How to Make them Work
- 11 a.m. Rest Stops: A Case Study of Challenging Wastewater
- 1:30 p.m. Troubleshooting Onsite Systems
- 3 p.m. Installation Mistakes: How to Avoid and Fix Them
- 4:30 p.m. Marketing & Customer Service for Small Business Owners

SSCSC SOUTHERN SECTION COLLECTION SYSTEMS COMMITTEE

- 8 a.m. Personal Safety
- 9:30 a.m. Understanding the Nuances of a Quality CCTV Inspection Program
- 11 a.m. In the Trenches with Trenchless Pipeline Repair and Renewal
- 1:30 p.m. Nozzle Application: What, Why, Where, When and How?
- 3 p.m. Stop It! A Closer Look at Plugging
- 4:30 p.m. Getting the Most out of Your Combination Unit

BUSINESS TRAINING & MARKETING SUZAN CHIN

- 1:30 p.m. Marketing on a Shoestring
- 3 p.m. Getting Some...Brand Recognition
- 4:30 p.m. The Online Marketing Toolbox

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FEBRUARY 24-27, 2014

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TUESDAY SESSIONS

February 25, 2014

SSCSC TRACK

- 8 a.m. Don't Fear the Shapefile
- 9:30 a.m. What's Important for Your Company; Is it Size, or Profit or Both?
- 11 a.m. 1 + 1 = 14: Cleaning and Inspection Equipment Working as an Entity

NAWT LAND APPLICATION TRACK

- 8 a.m. Be Ready to Land Apply
- 9:30 a.m. Soils and Cropping Systems
- 11 a.m. Land Application Rates and Nutrient Management

SAFETY COMPLIANCE TRACK

- 8 a.m. OSHA Confined Space and Fall Protection Untangled
- 9:30 a.m. Air Monitoring Application for the Liquid Waste Industry
- 11 a.m. Waterjetting Hose and Nozzle Safety

MUNICIPAL TRACK

- 8 a.m. Sealing - Take Control of Inflow & Infiltration in Manhole Sealing Systems
- 9:30 a.m. DC Water is Utilizing CIPP to Rehabilitate the Nation's Capital
- 11 a.m. Nozzle Explanation and Selections

INSTALLER TRACK

- 8 a.m. Septic Tank Bells and Whistles
- 9:30 a.m. Aeration Units for On-Site Septic Systems
- 11 a.m. Understanding ATU's, their Service Requirement, and Maintenance

GENERAL TRACK

- 8 a.m. Portable - The Best of Both Worlds - Liquids vs. Portion Control Deodorizers
- 9:30 a.m. Vacuum Loaders - Taking the Mystery out of Vacuum Truck Operation
- 11 a.m. DOT Compliance - The Value of DOT Certification for Vacuum Trucks

CUSTOMER SERVICE & EMPLOYEE DEVELOPMENT

- 8 a.m. Gen Y + Gen X + Baby Boomers = #@S%???
- 9:30 a.m. Get and Keep the Best Co-Workers
- 11 a.m. Win, Win, Win in Residential Service Contracting

WEDNESDAY SESSIONS

February 26, 2014

BUSINESS TRACK

- 8 a.m. Improving Profitability through Tracking
- 9:30 a.m. How Paperless Operations Save Time and Money
- 11 a.m. Book More Calls - Wow More Customers

PORTABLE TRACK

- 8 a.m. Deodorizers and Making the Right Choices
- 9:30 a.m. Oh Shift! 6 Future Trends You Must Gear Up For to Compete and Succeed
- 11 a.m. Portable Restroom Service Units

MUNICIPAL TRACK

- 8 a.m. Sewer Cleaning 101
- 9:30 a.m. Underground Coatings - Restore Deteriorated Infrastructure
- 11 a.m. How Small Contractors Can Make Big Money Doing Manhole Rehabilitation

LIQUID WASTE TRACK

- 8 a.m. Right Sizing Your Pump System
- 9:30 a.m. Make More Money by Using a Biological Product with Your Services
- 11 a.m. Septic Drainfield Restoration

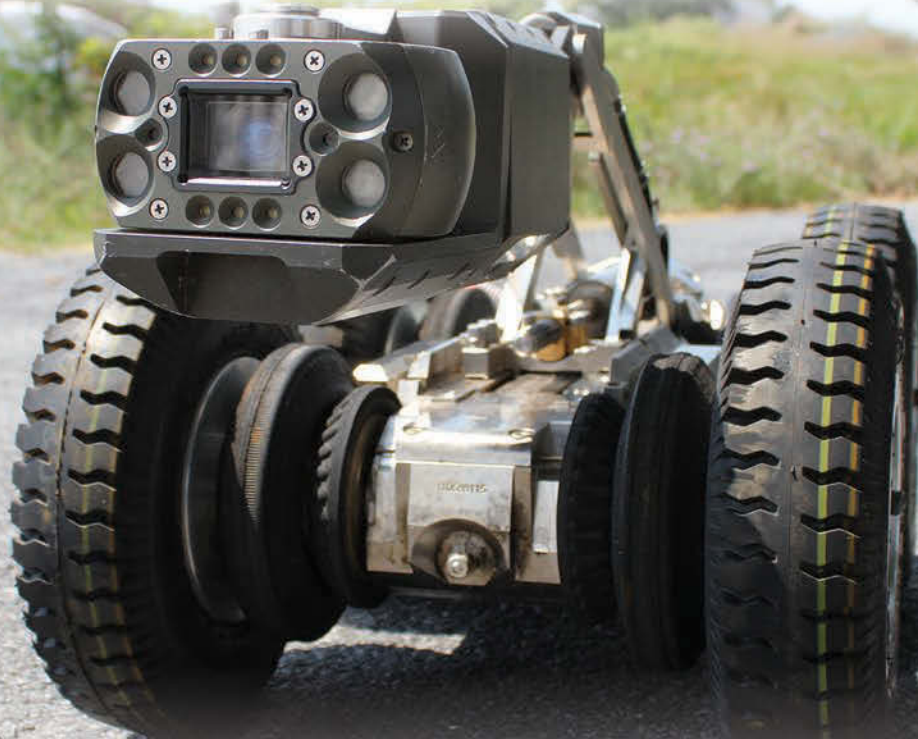
ADVERTISING & MARKETING TRACK

- 8 a.m. Advertising and Marketing for Service Companies
- 9:30 a.m. Getting Sales Personnel to Properly Price and Present
- 11 a.m. 7 Incredibly Effective Ways to Improve Your Sales



ONSITE INSTALLER COURSE

- 8 a.m. - 5 p.m. All Day Installer Course
Jim Anderson and Dave Gustafson
Sponsored by COLE Publishing and Onsite Installer Magazine

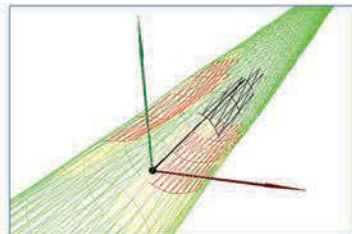


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CMA Song of the Year award-winner Lee Brice will perform at the 2014 Pumper & Cleaner Environmental Expo's Industry Appreciation Party.



"My thing is, I just have a ball doing what I do. I grew up watching a lot of shows. I saw Garth Brooks one time, and I just loved that he could come out and rock you in your face, and then all of a sudden just break down to a guitar and sing to you ... kind of like a roller coaster dynamic."

Lee Brice



A PASSION FOR THE STAGE

Fresh off CMA Song of the Year award, Lee Brice brings his hits to the Expo's Industry Appreciation Party Feb. 26

By Craig Mandli

The timing couldn't be better for country star Lee Brice to arrive in Indianapolis for the Pumper & Cleaner Environmental Expo Industry Appreciation Party. Fresh off his Song of the Year award for "I Drive Your Truck" at the 2013 Country Music Association Awards in November, Brice is quickly becoming one of the brightest and most sought-after performers around.

"Winning the CMA award was definitely toward the top," says Brice, when describing where the prestigious honor ranks among his career highlights. "It is simply amazing!"

While this will be Brice's first trip to the Expo, it's entirely possible that, had things gone a bit differently a decade ago, he would be a regular attendee. Brice attended Clemson University on a football scholarship and majored in engineering, fully intending to

become a civil engineer. In fact, while Brice grew up in a musical family and has always had a passion for performing, he wasn't focused on music right away. It wasn't until a forearm injury forced him to step away from his role as the long snapper on the Clemson football team that he decided to take a serious look at a music career.

Becoming a Nashville hit-maker

Brice latched on as a songwriter with Curb Music Publishing, cowriting some 150 songs his first year. Some of his writing credits include "Still" for Tim McGraw, "Not Every Man Lives" for Jason Aldean, "Crazy Days" and "What it Takes" for Adam Gregory, "More Than A Memory" for Garth Brooks, and "Crazy Girl," which became one of 2013's biggest hits for the Eli Young Band. Brice holds eight of the 13 writing cred-

its on his newest album, "Hard 2 Love," and considers writing a big part of who he is as an artist.

"It's awesome! That is one thing that never gets old," says Brice of the feeling he gets hearing another popular artist perform one of his songs on the radio. "It is always cool to hear people take what you wrote and give life to it in their own way."

Driving your truck

While Brice writes much of his own music, it was a song he can't take the writing credit for, "I Drive Your Truck," that took the big CMA honor. Cowritten by Connie Harrington, Jessi Alexander and Jimmy Yeary, the song could have been recorded by a number of major Nashville acts, but Brice was forward-thinking enough to know a powerful song when he heard, and felt it.

"The first time I heard the song, it absolutely slayed me. It

brought me to tears," says Brice. "It became personal to me the very first time that I heard it, and I had a feeling that people were really going to be moved by it. The writers took a broad subject on a specific event and made it accessible for anybody to listen to and connect with through lyrics, and everybody does."

The tune was inspired by a National Public Radio report on the sacrifice of Army Sgt. 1st Class Jared Monti, who died in Afghanistan while trying to save a fellow soldier. Jared's father, Paul, keeps the memory of his son alive by regularly driving Jared's Dodge Ram pickup. Brice's label threw a party to celebrate the song reaching No. 1 on the country charts last May, and Paul Monti was there to meet Brice and the writers whose work has made his son an inspiration to millions.

"It was a very moving experience to meet Paul. There is such a

INSIDE THE INDUSTRY APPRECIATION PARTY

For more than 30 years, COLE Publishing has thrown an Industry Appreciation Party at the Pumper & Cleaner Environmental Expo to recognize the hard work and dedication of those in the liquid sanitation industry. This year's party, slated to begin at 5 p.m. on Wednesday, Feb. 26, at the JW Marriott Hotel Grand Ballroom, promises to be another high-energy celebration. We recently sat down with COLE Publishing Founder Bob Kendall to discuss the history of the party, and find out what's in store this year.

Q: Why do you throw a party every year?

Kendall: The whole idea is to recognize the attendees for the hard work they do throughout the year. Often what they do goes unrecognized. They are the focal point of the industry, and deserve to be celebrated.

Q: You've had some big-name entertainers perform in the past. Who stood out to you?

Kendall: Just a few include the Oak Ridge Boys, Big & Rich, Montgomery Gentry, Neal McCoy, Dierks Bentley, Lonestar, Trace Adkins, Rodney Atkins. Craig Morgan did a great job last year. I love Sawyer Brown, and we've had them back several times. Jeff Foxworthy was a lot of fun, too.

Q: How do you choose which artist you'd like to perform?

Kendall: We always look for country talent that's on the rise. We've had the privilege of working with one of Nashville's premier booking agents, Autumn Farrell of Prime Source Entertainment Group, for several years, and she's always gotten us great names.

Q: Another highlight of the Party is, of course, the 25 cent tap beers. How did that come about?

Kendall: That's all part of the party. We've always offered choice refreshments to our attendees as a way to recognize and appreciate what they do.

Q: This year's performer, Lee Brice, fresh off his big CMA Song of the Year win, is one of the most sought-after performers in country music right now. How did you land him?

Kendall: Having Lee at the 2014 show is certainly great timing. We actually booked him months before his CMA award, and I have to admit I was pretty excited to see him take home that huge honor in November. That will certainly add to the excitement of the evening.

Q: You've switched the night of the party to Wednesday this year, after holding it on Tuesday evening for several years. Why is that?

Kendall: Wednesday is always the most well-attended day of the Expo, and we wanted to accommodate as many Expo attendees as we could. The evening is a terrific way for attendees to network with both their peers and exhibitors in a more laid-back setting, preferably over a frosty cold one.

Q: Why should attendees plan to attend the Industry Appreciation Party?

Kendall: First off, it's free with full registration. All they have to do is show their badge at the door. Second, the JW Marriot Grand Ballroom is a great setting. These are performers who are typically used to performing in front of sold-out arenas and stadiums, and our attendees can get right up next to them. It's a very intimate setting. That's what makes it the must-attend event for our industry.

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personal story attached to the song that you cannot forget Paul, and Jared's service to our country," says Brice. "It is such a positive song about being able to connect with that someone you've lost in your life. Already knowing the story, being able to meet the family was just even more powerful and added more inspiration for the song."

A family man at heart

While Brice continues his passion for his music, he is even more passionate for his family — wife Sara, and two young sons. A tireless writer and performer, Brice took the entire month of December off to spend with his growing family.

"My family is everything to me," says Brice. "They inspire me to be my best, and I'm fortunate enough to get to do what I love and have a supportive wife and family behind me. I want to do well and continue doing well for them."

In his downtime, Brice enjoys hunting and watching football. "The usual guy stuff," he says. "I can also always be found writing,

listening to and recording music. It's my passion and I enjoy it even in my spare time."

A show with energy and emotion

When Brice takes the stage Wednesday, Feb. 26, at the JW Marriott Grand Ballroom in Indianapolis, Expo attendees can expect a mix of his upbeat hits such as the catchy "Parking Lot Party," "Four On The Floor," "Hard To Love," and "Carolina Boys," along with heartfelt, emotional tunes like "Love Like Crazy," "Beautiful Every Time," "See About A Girl," "A Woman Like You," and, of course, "I Drive Your Truck."

"My thing is, I just have a ball doing what I do. I grew up watching a lot of shows. I saw Garth Brooks one time, and I just loved that he could come out and rock you in your face, and then all of a sudden just break down to a guitar and sing to you ... kind of like a roller coaster dynamic," says Brice. "That's what I like to do ... what I try to do anyway." ♦

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INDUSTRY NEWS

FEBRUARY 2014

E/One Sewer Systems earns ISO certification

Environment One Corp. (E/One) received ISO 9001:2008 Quality Management System Certification after completing audits and assessments of its sewer systems business.

Tata & Howard acquire Leach Engineering

Tata & Howard acquired Leach Engineering Consultants, a civil engineering consulting firm in St. Johnsbury, Vt. Leach specializes in environmental engineering and wastewater solutions. Gary A. Leach, P.E., founder and chief executive officer, will continue to lead the Vermont office as vice president of Tata & Howard.

Mueller Water Products plant receives OSHA recognition

The Mueller Water Products plant in Albertville, Ala., received Star certification from the U.S. Occupational Safety & Health Administration (OSHA). Star level is the highest recognition presented by OSHA's Voluntary Protection Program.

HIP opens expanded manufacturing plant

High Pressure Equipment Co. (HIP) opened a 43,000-square-foot manufacturing plant in Erie, Pa. HIP manufactures and markets products to the waterjet cutting and oil and gas industries.

FER-PAL opens Illinois office

Canadian-based FER-PAL Infrastructure, manufacturer and provider of water main pipeline rehabilitation technologies, opened an Illinois headquarters for its U.S. subsidiary in Elgin, Ill. The company also has a U.S. satellite office in Taylor, Mich.

Guardair receives Pro Tool Innovation Award

Guardair Corp.'s Lazer Palm Switch safety air gun kit received the 2013 Pro Tool Innovation Award from Pro Tool Reviews magazine as the most innovative air compressor accessory in the pneumatic tools category.

TT Technologies expands pipe ramming gear inventory

TT Technologies expanded its in-stock inventory of pneumatic pipe ramming gear to accommodate 4-inch through 120-inch casing installations.

Electric Eel celebrates 75 years

Electric Eel Mfg. celebrates its 75th anniversary in 2014. The manufacturer of professional quality drain and sewer cleaning equipment has been based in Springfield, Ohio, since 1939.

Vacuworx Global names VP, managers

Vacuworx Global named James F. Pfeiffer vice president of sales, Keith Rhodus district sales manager and Joe van Wyk general manager of Vacuworx Africa, based in Johannesburg, South Africa. Pfeiffer will be responsible for worldwide sales and Rhodus, based in Florida, will cover the Southeast Region of the U.S. ♦

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|  Aries Industries, Inc. 550 Elizabeth St., Waukesha, WI 53186 800-234-7205 262-896-7205 Fax: 262-896-7099 www.ariesindustries.com sales@ariesindustries.com See ad page 17 | | Aries | 6" to 120" | 100' to 2000' | Flash Drive/ USB Thumb Drive, SD Card, DVR, DVD | YES | YES | YES | YES | YES | YES |
| See ad page 67 | Central Oklahoma Winnelson 5037 NW 10th St., Oklahoma City, OK 73127 888-947-8761 405-947-8761 Fax: 405-947-1934 www.centralwinnelson.com krjones@winnelson.com | RIDGID General Wire | 3/4" to 12" | 30' to 325' | Flash Drive/ USB Thumb Drive, DVD | | YES | YES | YES | | YES |
|  Cobra Technologies 4806 Wright Dr., Bldg. C, Smyrna, GA 30082 800-443-3761 770-435-8991 Fax: 770-435-0402 www.cobratec.com sales@cobratec.com See ad page 40 | | Cobra | 6" to 200" | 600' to 5000' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD | YES | YES | | | YES | |
|  CUES 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 407-849-0190 Fax: 407-425-1569 www.cuesinc.com salesinfo@cuesinc.com See ad page 25 | | CUES | 2" to 200" | 100' to 4000' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | YES | YES | YES | YES | YES |
| See ad page 69 | Electric Eel Mfg. Co., Inc. 501 W. Leffel Ln., Springfield, OH 45501-9985 800-833-1212 937-323-4644 Fax: 937-323-3767 www.electriceel.com info@electriceel.com | Electric Eel | 3" to 10" | 200' | Flash Drive/ USB Thumb Drive | | | | | | YES |
|  Envirosight 111 Canfield Ave., Unit B3, Randolph, NJ 07869 866-936-8476 973-252-6700 Fax: 973-252-1176 www.envirosight.com office@envirosight.com See ad page 2 | | ROVVER X, DigiSewer, QuickView, Haloptic, JetScan, VeriSight, WinCan | 2" to 96" | 130' to 1640' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | YES | YES | YES | YES | YES |
| See ad page 69 | MTech 7401 First Place, Cleveland, OH 44146 800-362-0240 440-646-0996 Fax: 440-646-9953 www.mtechcompany.com sales@mtechcompany.com | CUES | 2" to 96" | 100' to 2000' | HDD, Flash Drive/ USB Thumb Drive, SD Card, DVR | YES | YES | YES | YES | | YES |
|  Pipeline Analytics 200 Cedar Ridge Dr., Ste. 207, Pittsburgh, PA 15205 877-626-8386 Fax: 412-489-6471 www.pipelineanalytics.com wincan@pipelineanalytics.com See ad page 70 | | WinCan | 3" to 96" | 100' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | | | | | |
|  Pipellogix, Inc. PO Box 14014, Palm Desert, CA 92255 866-299-3150 760-779-1700 Fax: 760-406-6023 www.pipellogix.com joan.stone@pipellogix.com See ad page 15 | | Pipellogix Software | | | HDD, CD, DVD | YES | | | | | |
|  RapidView IBAK North America 1828 W Olson Rd., Rochester, IN 46975 800-656-4225 574-224-5426 Fax: 574-223-7953 www.rapidview.com info@rapidview.com See ad page 31 | | RapidView IBAK North America | 2" to 300" | 100' to 2000' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | YES | YES | YES | YES | YES |
| See ad page 37 | Rausch Electronics USA, LLC 4757 Innovation Way, Chambersburg, PA 17201 877-728-7241 717-709-1005 Fax: 717-709-1009 www.rauschtv-usa.com reusa@rauschusa.com | Rausch | 5 1/2" to 60" | 1000' to 1700' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | YES | YES | YES | YES | YES |
|  RS Technical Services, Inc. 1327 Clegg St., Petaluma, CA 94954 800-767-1974 707-778-1974 Fax: 707-778-1981 www.rstechserv.com sales.info@rstechserv.com See ad page 23 | | RS Technical Services | 2" to 200" | 100' to 3000' | HDD, Flash Drive/ USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS | YES | YES | YES | YES | YES | YES |
|  Spartan Tool, LLC 1506 W. Division St., Mendota, IL 61342 800-435-3866 815-539-7411 Fax: 888-876-2371 www.spartantool.com customerservice@spartantool.com See ad page 11 | | Spartan Tool SparVision 200 | 2" to 8" | 100' to 200' | Flash Drive/ USB Thumb Drive | YES | YES | YES | YES | | YES |

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Indianapolis skyline

DINING OUT

When you get a hunger on at the Pumper & Cleaner Expo, grab a bite at one of these popular Indy eateries

By Judy Kneiszel

Indianapolis
FEBRUARY 24-27 2014
INDIANA CONVENTION CENTER

The Pumper & Cleaner Environmental Expo International gives attendees the chance to check out the latest offerings from equipment manufacturers. It also provides the opportunity to check out the latest food offerings from Indianapolis restaurateurs. When your head is swimming with new information and your stomach is growling with hunger, you've got countless options for dining in the Circle City. Here are a few interesting Indy eateries to get you started.

Note, price ranges are a per person estimate not including tax, tip or beverage.

Bazbeaux Pizza
334 Massachusetts Ave.
Phone: 317/636-7662
www.bazbeaux.com

Voted Indy's best pizza every year since 1986, you can buy it by the slice or get a whole pie. Choose white or wheat crust; thin or thick. If you can make it past the menu's 13 meat pizzas and 11 vegetarian options, Bazbeaux also has sandwiches, salads, an array of appetizers and several Italian dessert choices.

HOURS: Sunday through Thursday, 11 a.m. to 10 p.m.; Friday and Saturday, 11 a.m. to 11 p.m.

PRICE RANGE: Slices range from \$2.50-\$3.25; whole pies from \$7.25 for a 10-inch; \$22.95 for a 16-inch large specialty pizza. Sandwiches range from \$6.95 to \$8.95.

Menu sampling: Bazbeaux special pizza with fresh basil, garlic and sun-dried

tomatoes; Colossus pizza with pepperoni, Italian sausage, ham, mushroom, red onion, green pepper, black olives; Stromboli stuffed with Italian sausage, green pepper, mushroom and onion, baked with tomato sauce and cheeses; sorbet and gelato desserts.

Dick's Bodacious Bar B Q
50 N. Pennsylvania St.
Phone: 317/916-9600
www.dicksbbq.com

This place looks and feels like Texas but when you walk out the door you'll still be in Indiana! From barbeque chicken on the bone to pulled pork and beef brisket ... you name it, they smoke it and you can get it in a sandwich, as a plate or on a salad. Just don't get it on your shirt if you're going back to the Expo.

HOURS: Monday through Thursday, 11 a.m. to 9 p.m.; Friday and Saturday,

11 a.m. to 11 p.m.; Sunday noon to 8 p.m.

PRICE RANGE: \$5-\$18

Menu sampling: Loaded smoked baked potato, chili cheese nachos, smoked salmon salad, barbeque chicken wings, pulled pork sandwich, ribs, sugar cream pie.

Slippery Noodle Inn
372 S. Meridian St.
Phone: 317/631-6974
www.slipperynoodle.com

Established in 1850, the Slippery Noodle is the oldest bar in Indiana, and has been called one of the nation's top blues bars by Rolling Stone magazine. The Noodle serves up a full menu as well as live blues seven days a week.

HOURS: Full menu available till 11 p.m. nightly; late night menu offered. Open every day at 11 a.m.

PRICE RANGE: \$8-\$20

Menu sampling: Shooter of shrimp, BBQ chicken quesadillas, whiskey pepper cheeseburger, filet mignon, Southern style pork barbeque, chicken and broccoli Alfredo, toasted turkey sub.

Harry & Izzy's
2153 South Illinois St.
Phone: 317/635-9594
www.harryandizzy's.com

Created by the owners and

operators of the legendary St. Elmo Steak House, Harry & Izzy's provides a more casual, updated environment, but features some of the same items St. Elmo is famous for, like the "World Famous St. Elmo Shrimp Cocktail." Harry & Izzy's has something for every budget from four different \$5 sliders to a \$50 steak.

HOURS: Lunch: Monday through Saturday, 11 a.m. to 4 p.m.; Sunday, 10:30 a.m. to 4 p.m. Dinner: Monday through Thursday, 4 p.m. to 11 p.m.; Friday and Saturday, 4 p.m. to 12 a.m.; Sunday, 4 p.m. to 9 p.m.

PRICE RANGE: \$5-\$45

Menu sampling: Prime rib sandwich, brick oven baked pizzas, 14-ounce New York strip steak, smoked pork chops, roasted half chicken, shrimp po boy sliders, blackened catfish, bread pudding.

Shapiro's Delicatessen
808 S. Meridian St.
Phone: 317/631-4041
www.shapiros.com

Named one of the Top 10 delis in the country by USA Today, Shapiro's is a must for corned beef fans! Quick cafeteria-style service means more time to savor your sandwich, contemplate dessert from their full service bakery or simply get back to the Expo!

(continued)

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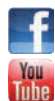


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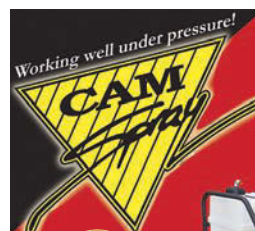
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8555 N. River Road

Phone: 317/569-0975

www.oceanprimeindy.com

If your party can't decide between steak and seafood, Ocean Prime is the place for you. "Prime" refers to the quality of steaks and seafood, as well as their handcrafted cocktails and award-winning wines. Ocean Prime also features a raw bar, and offers a menu of gluten-free dining options.

HOURS: Monday through Thursday, 5 to 10 p.m.; Friday and Saturday, 5 to 11 p.m.; Sunday, 5 to 9 p.m.

PRICE RANGE: \$30-\$50

Menu sampling: Lobster bisque, oysters on the half shell, Chilean sea bass in champagne truffle sauce, jumbo lump crab cakes, aged prime steaks from an

8-ounce petite filet mignon to a 16-ounce rib-eye, ten-layer carrot cake.

Maxine's Chicken & Waffles

132 N. East St.

Phone: 317/423-3300

www.maxineschicken.com

Hearty home cooking is always on the menu at Maxine's where their slogan is "A Taste of Love in Every Bite." This is a menu full of made-from-scratch comfort food.

HOURS: Monday: Closed. Tuesday: 10:30 a.m. to 2:30 p.m.; Wednesday through Friday: 10:30 a.m. to 8:30 p.m.; Saturday: 9 a.m. to 8:30 p.m.; Sunday: 9 a.m. to 6 p.m.

PRICE RANGE: \$5-\$15

Menu sampling: Jumbo fried chicken wings and waffle topped with peach butter, omelets with house potatoes, smothered chicken, catfish or tilapia with grits, half-pound burgers, fried green tomatoes, candied yams, black-eyed peas, seasonal cobbler.

The Eagles Nest at Hyatt Regency

1 S. Capitol Ave.

Phone: 317/632-1234

www.indianapolis.hyatt.com

The Eagle's Nest, perched high atop the Hyatt Regency, slowly revolves giving diners stunning views of the skyline. The menu, which changes seasonally, provides elegant and creative takes on classic American continental cuisine.

HOURS: 5-10 p.m. daily

PRICE RANGE: \$40-\$80

Menu sampling: Dry-aged peppercorn-crusted bone-in New York strip steak; pan-seared halibut with Parmesan potato gratin; lobster corn chowder; strawberry crème brulee.

Fast Burrito Mexican Grill

111 Monument Circle

Phone: 317/917-8090

www.fastburritomexicangrill.com

If you need lunch in a hurry, but want something a bit healthier than a greasy fast food burger, Fast Burrito offers fast, fresh cuisine prepared using authentic Mexican recipes. Four salsas from mild to extra hot will add just the right kick to your meal.

HOURS: 7:30 a.m. to 3 p.m. every day

PRICE RANGE: Under \$10

Menu sampling: Burrito with choice of fillings; burrito bowl; grilled quesadilla; tacos; nachos; salad with chipotle ranch dressing. Fillings include marinated chicken,

skirt steak, barbacoa (marinated beef brisket), ground sirloin or sautéed peppers and onions.

Loughmiller's Pub & Eatery

301 W. Washington St.

Phone: 317/638-7380

www.loughmillerspub.com

A patriotic décor welcomes diners to this relaxed, casual, independently owned pub serving up an array of burgers, sandwiches and other traditional American favorites. Choose one of their 35 beers to wash down the hearty pub grub.

HOURS: 11 a.m. to 12 a.m. Monday through Saturday

PRICE RANGE: \$8-\$15

Menu Sampling: Bacon and cheese fries, Southwest nachos, homemade chili, Indiana Cobb salad, Loughmiller's Little Cuban sandwich, pulled pork sandwich, English beef sandwich with cheddar and horseradish.

For more information on the Pumper & Cleaner Environmental Expo, visit www.pumpershow.com or call 866/933-2653. ♦



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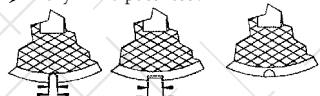
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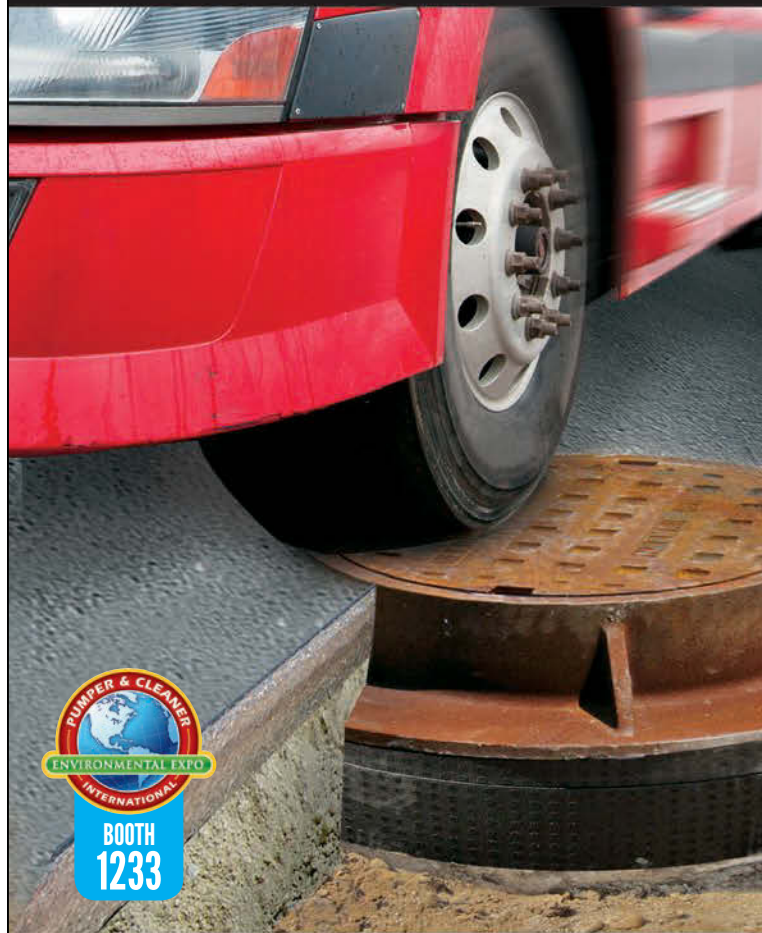
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CONCEALED EDGE PRY ("AURORA PICK HOLE") CONCEALED EDGE PRY ("CEP")



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COME SEE IT ALL

Sanitary, storm and water system maintenance professionals will have the opportunity to see some of the top tools and equipment the industry has to offer at the 2014 Pumper & Cleaner Expo

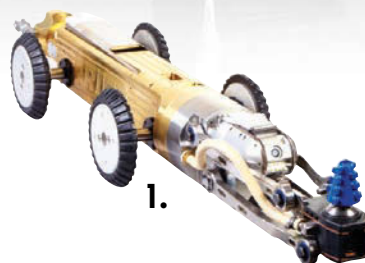
By Craig Mandli

The Pumper & Cleaner Environmental Expo International will once again fill the Indiana Convention Center in February with an array of the newest and best products and services the sanitary, storm and water system maintenance industry has to offer.

To make sure you don't miss out on any of the breakthrough industry offerings in Indianapolis, be sure to check out the interactive floor plan on the Expo website (www.pumpershow.com). Whether you're a first-time visitor or long-time attendee, you're guaranteed to bring home new product knowledge that will help build your business in the coming year.

Here's a look at some of the products and services set to be highlighted this year.

2014 PRODUCT PREVIEW



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PIPE REPAIR

1. Aries Industries

The Wolverine from Aries Industries is a self-propelled, wheeled cutting and grinding system enabling accurate and efficient underground lateral reinstatement operations. The standard system provides high-powered cutting and camera combination for 6- to 16-inch pipelines and travels up to 570 feet. It mills or grinds liners with powerful cutting forces ranging from 1.6 to 3.35 hp. Cutter and camera functions perform simultaneously and are remote-controlled through a transmitting cable that delivers data to an above-ground workstation. This system also can be affordably installed in existing trucks. **800/234-7205; www.ariesindustries.com; Booth #5158.**

2. Bowman Tool Company & Systems

The Dominator 430 reinstatement cutter from Bowman Tool Company & Systems is designed to operate in 6- to 30-inch relined pipe. Its features no external air tube, and its 72-pound construction from a solid billet of stainless steel makes it stable in the pipe. Its head assembly incorporates a pinionless, quick-change design and one adjustable gib to reduce adjustment time and maintain accuracy. Lateral reinstatement is achieved with a 0.8 or 1.2 hp cross flow air motor, with a 2.5 hp geared air motor available. It can be disassembled and reassembled in approximately 30 minutes due to its eight-moving-part design. **717/432-1403; www.bowmantool.com; Booth #5221.**

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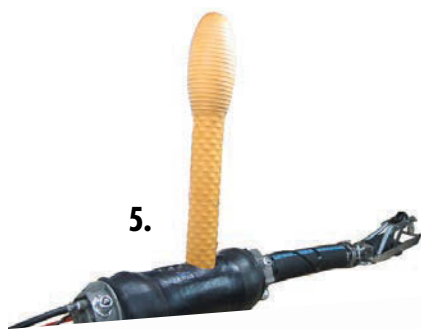


3. Dove Ventures Inc.

The Diameter from Dove Ventures Inc. is a tool created to confirm pipe sizes to correct as-builts, related drawings or video pipe inspection reports, clarifying pipe sizes for a pipe liner, without using confined-space entry. It is built from rugged aluminum for field use, and is easy to adjust for any pipe size. **604/218-1981; www.dovediameter.com; Booth #5356.**

4. Infrastructure Repair Systems Inc.

The Trenchless Infrastructure Point Repair System Kit from Infrastructure Repair Systems Inc. is a fast, easy and cost-effective way to spot repair any size or type of pipe. It is a permanent solution for cracks, leaking joints and even missing pieces of pipe. It can compliment a lining system as a presealer, filler for miss-cuts or unsealed ends. With chemically formulated resin and fiberglass, it will form a watertight seal even against active inflow. There is no shrinkage, it is stronger than the host pipe and is certified to last 100 years. **877/327-4216; www.irsinet.net; Booths #2469, #2470.**



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5. Logiball Inc.

Test and Seal Grouting Packers from Logiball Inc. are used by specialty contractors and municipalities to stop infiltration at lateral connections and in lateral joints from the mainline sewer access to as far as 30 feet from the mainline. Chemical grout is pumped through the packer and forced out through existing pipe defects to seal and stabilize the soil around the injection points, preventing washout of backfill into the sewer and sealing off infiltration. **800/246-5988; www.logiball.com; Booth #5227.**

6. Picote Solutions

The Twister from Picote Solutions is used for the reinstatement and removal of collapsed liners, allowing users to quickly and safely open connections in small-diameter pipes. It can be used inside any plastic or cast-iron pipe, and has successfully reinstated over 1,000 branches from 2 to 6 inches to date. With a specialized drill head, it is also an ideal tool for removing collapsed liner. It is manually operated either with a Picote Miller cleaning and grinding machine, or by a regular hand drill. **219/440-1404; www.picotesolutions.com; Booth #4316.**

7. Pipeline Renewal Technologies

The Micro Premium lateral cutter from Pipeline Renewal Technologies delivers 30 percent more cutting power than the smaller Micro Pro, as well as a touch-screen interface, larger reservoir for flushing water and easier connection/monitoring of supply air. Using remote-inflated air bladders, the arm positions itself remotely by creeping and climbing, clamps itself for precise cutting in vertical or horizontal orientation, and feeds the cutting head a full 4 inches. Just 72 mm in diameter, the arm fits through small openings, and its agile articulation (400-degree rotation and 90-degree swivel) facilitates precision cutting, as well as maneuvering through 90-degree bends in 4-inch lines. **866/936-8476; www.pipelinert.com; Booth #6024.**

8. Source 1 Environmental

The PipePatch cured-in-place point repair system from Source 1 Environmental consists of components tested and listed to NSF 14 and NSF SE 10990. The liner is 100 percent fiberglass, and consists of a knitted biaxial and chopped strand composite, saturated with a proprietary silicate resin which, when mixed, is inert and nontoxic. After mixing, resin shall be yellow in color, which when applied to a white fiberglass mat will serve as visual aid to an installer to ensure total and complete saturation. It meets all ICC-ES PMG listing requirements, and complies with the 2012 and 2009 International Plumbing Code (IPC), 2012 and 2009 International Residential Code (IRC), and 2012 and 2009 Uniform Plumbing Code. **810/444-5364; www.s1eonline.com; Booth #5304.**

9. Standard Cement Materials Inc.

The Reliner MSP Cement and the Sun Rover II Spin-caster from Standard Cement Materials Inc. repair aging corrugated metal pipes, reinforced concrete pipes and horizontal, round and elliptical-shaped stormwater culverts. The trenchless, all-aluminum constructed, pneumatic spin-cast nozzle uses on-the-spot structural renewal to eliminate heavy construction costs when excavation or system replacement is not an option. The Sun Rover II Spin-caster applies the high strength, cast-in-place Reliner MSP Cement liner to a 4-inch thickness in even the longest and deepest running pipes. **888/278-1337; www.standardcement.com; Booth #4321.**

10. StoneAge Inc.

The Sabertooth automated tube lancing system from StoneAge Inc. is remotely operated, offering better visibility and increased safety by moving the operator away from the hoses. The self-contained dual-hose reel has up to 52 feet of usable stroke for cleaning tubes from 0.87 to 2 inches at up to 22,000 psi. It recognizes when a nozzle has reached a blockage and automatically retracts the hose slightly to keep the tool rotating, allowing the operator to clean continuously without binding. The positioner window has a large working area adjustable to 15 feet. It can be quickly dismantled to fit through 24-inch manways. **866/795-1586; www.stoneagetools.com; Booth #5130.**

11. T&T Tools

The Mighty Probe from T&T Tools features a 3/8-inch hex rod, which is approximately 20 percent stiffer than a round rod, or a 7/16-inch hex rod, approximately twice as stiff as the standard round rod. Stiffer hex rods bend less to make the probe easier to push into the ground, especially when probing at deeper depths. Lengths are available from 36 to 78 inches, in 6-inch increments. When the probe is combined with a slide adapter, an integrated mini slide-hammer probe is created, allowing the technician to pound through difficult spots. **800/521-6893; www.mightyprobe.com; Booth #6000.**



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PIPE BURSTING

12. Pow-r Mole Sales

The Model PD-33 pipe-bursting machine from Pow-r Mole Sales features a long 24-inch stroke. Its nonslip cylinder-activated jaws are designed to prevent cable damage, while developing 60,000 pounds of pulling force at a rate of 6 feet per minute. It offers a cost-effective alternative to open-cut by reducing excavation up to 85 percent, and is capable of bursting cast-iron, concrete, HDPE, asbestos cement, PVC, ductile iron, Orangeburg and clay pipe from 2 to 6 inches. It's a modular machine and can be disassembled into easily transported pieces with no single part weighing over 98 pounds. **800/344-6653; www.powrmole.com; Booth #5446.**

13. RODDIE Inc.

The lightweight lateral pipe bursting machine from Roddie Inc. slides apart into two components of 50 and 60 pounds that can be lowered and reassembled by hand in the excavated pulling pit. In most cases this machine is powered and operated by a mini-excavator or bobcat tractor. It is capable of a pulling force of 30 to 50 tons, and can be used in 4-, 6- and 8-inch sewer lateral, but can also replace 1- to 4-inch water services. **888/406-3821; www.pipeburstingamerica.com; Booth #4323.**

LINING SYSTEMS

14. AP/M PERMAFORM Inc.

CentriPipe from AP/M PERMAFORM Inc. provides a cost-effective, no-dig solution for underground infrastructure rehabilitation using a bidirectional spincaster to centrifugally compact a precision liner at the best design thickness for the size, shape and conditions of deteriorated pipe. It inhibits rust, waterproofs and seals, is resistant to abrasion, and structurally reinforces and protects round, arched and elliptical pipe. It is professionally applied through a global network of certified applicators. **800/662-6465; www.centripipe.com; Booth #2113.**

15. Avanti International

AV-100 from Avanti International is an ultra low-viscosity chemically reactive gel available as either granules or liquid. Having the same viscosity as water, it permeates anywhere water can travel and cures within a controllable time frame from 5 seconds to 14 hours. Once cured, it creates an effective, long-lasting water barrier while providing soil stabilization. It is used to stop water infiltration in manholes, sanitary and storm sewer mainlines, joints, laterals and underground structures by stabilizing external substrate. It can also be used in tunnels and mines to control groundwater. **800/877-2570; www.avantigrout.com; Booth #5218.**

16. Clayton Industries

The Sigmafire Steam Generator from Clayton Industries is a lightweight, compact steam boiler designed to respond rapidly to sudden load demands. It will provide full steam output from a cold start within five minutes, cutting cure times by as much as 50 to 150 percent. Hot-water curing causes the entire water supply to be styrene contaminated. Steam reduces that to a simple condensate collection (5 to 55 gallons). Test samples show that liners cure more effectively, as the cross linking during the cure is superior due to higher heat. **630/855-5482; www.daytonindustries.com; Booth #4643.**

17. DynaLiner LLC

High-performance trenchless pipeline rehabilitation liners from DynaLiner LLC are manufactured with specially formulated PVC and PVC copolymers developed to maximize performance. They are designed specifically for sewer, stormwater and culvert lining applications, with a formulation that allows for maximum processing during installation, allowing for greater variations in pipe diameter and size-to-size transitions with limited deformities. They are manufactured in a wide range of sizes to fit most applications. **970/948-7401; www.dynalinerllc.com; Booth #5362.**

18. Easy Liner LLC

The Pit Shot Liner Combo Kit from Easy Liner LLC is a value pack solution for lateral CIPP projects where lateral liners need to terminate within 6 inches of the junction. It is a coated felt liner with reinforcement in only one direction that works along the length of the tube, resulting in a liner tube, which is stiff in the length direction but flexible in the radial direction, allowing effortless inversion around bends at pressures as low as 5 psi. The kit includes 164 feet of liner, cal tube, premeasured resin and fully illustrated instructions. **888/639-7717; www.easy-liner.com; Booth #1341.**

19. Formadrain Inc.

DURAPOX epoxy resin from Formadrain can be relied on for 60 days open time. That much work time means no liners lost over time restraints or unforeseen difficulties. The crew can focus on their work without stress. Liners can be shipped pre-wet. The system is a steam cured pull-in-place lining used for lining laterals, spot repairs, industrial process pipes and LMC Lateral-Main-Connections. Pipe diameters range from 2 to 48 inches. **888/337-6764; www.formadrain.com; Booth #1244.**

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20. LMK Technologies

T-Liner from LMK Technologies is a one-piece homogenous main and lateral CIPP connection liner that is ASTM F2561 compliant. It has a uniform wall thickness and incorporates compressible lining material at the upstream and downstream ends, creating a smooth tapered transition to the host pipe. Both the mainline and lateral sections are formed as a structural cylinder that renews 18 inches and 360 degrees of the mainline, and extends up the lateral pipe as one continuous lining. Its Insignia compression gasket-sealing technology between the host pipe and the liner provides a verifiable nonleaking system. **815/433-1275; www.lmktechnologies.com; Booth #1350.**

21. Madewell Products Corp.

The Mainstay PortaMortar machine effectively mixes, pumps and sprays heavy-bodied mortars. It is used in conjunction with a medium to large skid-steer loader, and is powered by the loader's engine and hydraulics. This combination of equipment allows for efficient applications in difficult to access areas. Hydraulic power for the mixer and rotor/stator pump provides torque for mixing and pumping mortar, and provides long life with low maintenance. An ergonomic design puts the top of the mixer at waist level, allowing the operator to perform the job with less strain and effort. **800/741-8199; www.madewell.net; Booth #1446.**

22. Maxliner USA

Part of the complete Maxliner USA CIPP lining system for vertical and lateral pipes, the FlexLiner can work in up to 90-degree bends and handle diameter changes from 4 to 6 inches. **276/656-1225; www.maxlinerusa.com; Booth #1160.**

23. MTC

The CIPP lateral liner from MTC is extremely flexible, easy to invert and ideal for rehabilitating gravity-fed pipelines 4 to 6 inches in diameter. **636/530-3355; www.mtubeonline.com; Booth #5457.**

24. Nu Flow Technologies Inc.

The Nu Cure pipelining curing system from Nu Flow Technologies Inc. will cure the company's lining product in about an hour, allowing for the installation of more liners within a shorter period of time. The hot-water unit can fill at 5 gpm and has an adjustable water temperature from 100 to 185 degrees F. The piping manifold allows cold/hot water and air to be regulated or nonregulated. When it is set on the highest temperature, it can be used to reform normal epoxy liners. **800/834-9597; www.nuflowtech.com; Booth #4109.**

25. Parson Environmental Products

The Pro 50 Starter mortar spray system from Parson Environmental Products is portable, with each component easily lifted by two people. It can be powered by a 7.5 kW generator, allowing it to be utilized just about anywhere. It includes a rotor/stator mortar pump with a 3-cubic-foot hopper, an integrated air compressor for use with the spray gun, plus 33- and 16-foot hoses. There is also an onboard computer that controls the functions. The mixer is powered by a 2 hp electric motor and is positioned above the mortar pump for easy dispensing. **800/356-9023; www.parsonenvironmental.com; Booth #4320.**

26. Quik Lining Systems Inc.

CIPP sewer lateral lining systems from Quik Lining Systems Inc. install pipe directly from the "wet out" stage into the ground without transporting, storing or loading it into the launching device. They also allow for the installation of unlimited lengths of resin-impregnated liner from 3- through 8-inch diameters, and can handle all products designed for an inversion-type installation. The pinch roller allows precise calibration of up to 10-inch-diameter CIPP tube and virtually any design thickness from 2 to 100 mm. The propane-driven heater delivers 199,000 Btu per hour to quickly cure CIPP liners, allowing the user to operate the heater indoors. It is mounted on an easy-to-move one-man handcart. **714/296-5262; www.quiklining.com; Booth #6406.**

27. Sauereisen

SewerGard Glaze No. 210G from Sauereisen is a protective coating formulated for municipal wastewater environments. It provides a chemical-resistant barrier for concrete and steel, and can also serve as a sealing topcoat over other restorative materials and protective linings. Installation is easily completed using plural component spray equipment, airless spray equipment or a roller. A 100 percent solids epoxy polymer, it is specified wherever corrosive conditions exist. Applications range from manholes and lift stations within collection systems to tankage, structural steel and secondary containment at treatment plants. **412/963-0303; www.sauereisen.com; Booth #6140.**



28. Trelleborg Pipe Seals Milford Inc.

DrainPlus Liner from Trelleborg Pipe Seals Milford Inc. are comprised of a polyester needle fleece with a TPU coating designed to overcome lateral pipes with multiple bends and pipe diameter transitions and reduced wall thickness when the liner covers a change in internal diameter. They have great flexibility so are able to negotiate multiple 90 degree bends with minimal wrinkles. They are also designed to bridge transitions in pipe diameter up to two dimensions while retaining the minimum required wall thickness in the larger size pipe section. The TPU coating allows high-temperature resistance, and when used in combination with epoxy resins can be steam cured, allowing fast processing time.

800/626-2180; www.trelleborg.com/npc; Booth #1332.

29. Trenchless Solutions Inc.

The Shoot 'n' Steam all-inclusive rental and install program from Trenchless Solutions Inc. allows any organization to begin mainlining. If you are unsure if becoming a CIPP installer is the right choice for you, this is the opportunity to try before you buy, or simply continue to use the service. First they assist contractors and municipalities on properly assessing their specific pipe lining project needs. Then they deliver refrigerated pre-impregnated liner, with all installation and curing equipment to the job site. Finally they install and cure the materials. **855/546-3874; www.trenchless-inc.com; Booths #6150, #6151.**

30. TRY TEK Machine Works Inc.

The Controlled Water Pressure (CWP) Inversion Unit from TRY TEK Machine Works Inc. installs 6- to 18-inch CIPP liner manhole to manhole. With water's superior heat retention, groundwater infiltration into host pipe is less likely to prematurely cool liner causing incomplete curing and lifts. Incompressible water reacts instantly when unit is jogged, resulting in easier navigation of bends and irregularities. The liner remains constantly inflated from inversion through curing, eliminating host-pipe damage caused by multiple inflations. It can operate in places not accessible to high scaffolds or lift trucks. **717/428-1477; www.trytek.com; Booth #1222.**

MANHOLE PARTS, COMPONENTS

31. Containment Solutions Inc.

Flowtite watertight fiberglass water storage tanks from Containment Solutions Inc. allow a water storage system to be watertight between the access collar and the access riser. A watertight enclosure protecting an access opening is the only way to eliminate infiltration and exfiltration contamination, as the access opening is the most vulnerable entry point for contaminants into any water storage system. The system deserves to be watertight, not simply water resistant, and a tank with watertight access collars is an effective way to protect an investment. **877/274-8265; www.containmentsolutions.com; Booth #2460.**

32. Cretex Specialty Products

EasySeal SG from Cretex Specialty Products is a two-component spray-applied urethane sealant that provides a flexible seal in the grade ring area of manholes to reduce or eliminate frame-chimney inflow. It has been formulated for use in sanitary sewer manholes and allows for quick, easy application with minimal surface preparation. It features ideal elongation, peel strength and tensile strength in excess of 3000 psi. It is a thixotropic material that gels within seconds of application, allows for easy material buildup and is dry to the touch in minutes. **800/345-3764; www.cretexseals.com; Booth #1233.**

33. H2 Technical Rescue Equipment

The MPR100 manhole protection ring from H2 Technical Rescue Equipment protects lines from the rough edges of manholes by simply dropping it into the manhole prior to any equipment. It is produced in a highly visible safety orange to help identify the site and the open manhole, reducing potential hazard. It provides a full 360-degree area of edge protection. **517/204-2121; www.h2tr.com; Booth #5439.**

34. Hamilton Kent

The Lifespan System from Hamilton Kent is a watertight, corrosion-proof, rubber manhole frame with a locking cast-iron or composite cover that prevents inflow into sanitary sewers through the top of the manhole. It withstands 5 psi of water pressure, and is AASHTO H-25/HS-25 load certified, making it suited for low-lying and heavy-traffic areas. It is available in 24-, 27- and 30-inch clear-opening sizes, and comes with tapered risers for simple adjustment of the frame to match surface grade. The frame absorbs impact from vehicular traffic, protecting the underlying manhole and the surrounding pavement. The locking cover deters unauthorized access and theft. **859/533-0849; www.hamiltonkent.com; Booth #1060.**



35. Infrastructure Technologies (Infratech)

MONOFORM from Infratech Infrastructure Technologies is an ABS interior manhole-forming system that allows the pouring of new concrete walls and bases for complete rehabilitation of existing manhole structures. The new structure is designed to exceed H-20 traffic-loading requirements. Restoration is completed without traffic detours, external sewage bypassing and disruption to adjacent utilities. Custom forms are available for larger structures, such as lift station rehab or retrofit. The company offers rehabilitation as a service with its own crews, or can provide the forming system to be used by others. On-site training is available.

763/428-6488; www.infratechonline.com; Booth #6322.

36. Perma-Liner Industries LLC

The complete manhole lining system from Perma-Liner Industries LLC is engineered by the use of a flexible universal-fit liner to create a structural cured-in-place seal. Vacuum powered, resin-impregnated liner is inverted manually into the manhole, and uses an inflation device to press the liner against existing manhole walls. This contact allows for the liner to form to the shape of the manhole. During this process excess resin migrates into imperfections, where the liner is sealed and mechanically held in place. Depending on the depth of the manhole, cure times will occur within one to two hours ambient. Once cured, the result is a smooth interior surface that prevents inflow.

866/336-2568; www.perma-liner.com; Booth #3223.

INSPECTION SYSTEMS

37. Amazing Machinery

The Viztrac Pipe Inspection Camera from Amazing Machinery has a durable 3/8-inch push cable with fiberglass rod inner core, a 20-inch cage reel and attached water-sealed case containing the controls, and a high-resolution 7-inch LCD monitor. It also has a 1-inch powder-coated lay-flat frame with upright carry handle; a 1 3/8-inch O.D. metal camera housing; nine dimmable high-output 5 mm LED lights; high-resolution color camera; scratch-resistant sapphire glass lens; high-grade 512 Hz sonde locator with an average range of 12 to 15 feet; and an integrated digital video recorder with remote control, compatible with most standard SD cards.

800/504-7435; www.amazingmachinery.com; Booth #3024.

38. Cobra Technologies

The Kummert Portable inspection system, distributed by Cobra Technologies is designed to inspect 6- to 42-inch pipelines. If truck mounted, the components can be easily removed and converted to a portable system. It offers up to three hours of integrated lithium-ion battery-supplied operation in the event a power supply is unavailable. The camera is permanently fixed to the motor-driven, adjustable lift arm designed to keep it in the center of the pipe. The synchronized electric cable reel controls the process of unwinding and rewinding, matching the crawler's speed. It features 1,000 feet of lightweight cable, a high-resolution sunlight-readable monitor and the Cobra CDL 9000 data-collection system.

800/443-3761; www.cobratec.com; Booth #3212.

39. CUES

The CUES Base Station is mounted in a compact, rugged, weather-proof enclosure and can fit into an ATV, van or pickup truck to access easements and hard-to-reach areas. Featuring wireless control, the unit operates all CUES transporters, cameras and video cable reel functions to accommodate 6- to 200-inch pipe inspection. The reel features automatic payout with a capacity of 1,700 feet of video cable. Camera options include a built-in inclinometer, sonde, laser diode system to measure cracks and offsets, and a laser pipe profiling system to measure ovality. Heavy-duty welded lifting eyelets and forklift skids are provided for quick deployment to the host vehicle.

800/327-7791; www.cuesinc.com; Booth #5016.

40. Electric Eel Mfg.

The Ecam ACE 2 pipeline inspection system from Electric Eel Mfg. features one-touch USB recording, an on-screen footage counter and a wheel kit. It also features a stainless steel-housed 1.68-inch color camera with sapphire lens, 20 LED light ring and high-resolution CCD element (with an optional self-leveling color camera available), 200 feet of Kevlar-braided 1/2-inch pushrod, a 512 Hz Sonde, 5.4-inch LCD monitor encased in an anodized aluminum housing mounted to the reel, a protective acrylic antiglare monitor shield, a video output jack for recording option, flexible camera spring to navigate 3-inch P-traps, a secure-locking reel brake and a centering skid.

800/833-1212; www.electriceel.com; Booth #4156.



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41. EnviroSight

The ROVER X-SAT lateral launch system from EnviroSight allows a remote operator to perform pan/tilt video inspection 150 feet into a 4-inch sewer lateral from an adjoining sewer mainline. The system allows municipalities to confirm the presence of blockages in laterals, and helps utility contractors locate gas line cross bores before disaster strikes. Its steerable six-wheel-drive crawler helps it maneuver to troublesome launch points as far as 300 feet down mainlines 6 inches and larger. Its sonde-equipped, auto-leveling color camera with shadowless illumination pans 360 degrees and tilts 90 degrees to capture both sidewall detail and distant targets. **866/936-8476; www.envirosight.com; Booth #6018.**

42. Forbest Products

The Network Video Repeater from Forbest Products offers an option for a remote real time view via the Internet, allowing operators to discuss an on-site issue with staff at the site. When a Forbest camera is connected to a laptop with Windows via this device, those in the office can view the real time picture/video captured by the camera from a computer or laptop, iPhone or iPad or other terminal with Web connectivity. **650/757-4786; www.forbestusa.net; Booth #6233.**

43. Hathorn Corporation

The Magnum DVR command module from Hathorn Corporation features USB recording and a navigation menu that is simple to use and easy to learn. With its 10.4-inch daylight readable monitor, images can be seen clearly in bright sunlight. The system features a full-size keyboard, 16 pages of text writing, 512 Hz sonde, on-screen footage counter, 8X zoom, microphone, speaker and a two-hour built-in battery with smart charger. There are several different reel options available, along with three camera head sizes. The command module can also be programmed to work with other manufacturers' reels. **905/886-2835; www.hathorncorp.com; Booth #5041.**

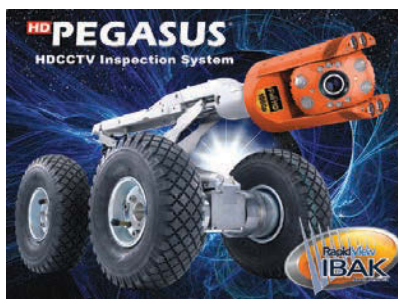
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44. InfoSense Inc.

The Sewer Line Rapid Assessment Tool (SL-RAT) from InfoSense Inc. is an acoustic inspection technology that can improve pipe inspection and condition assessment for collection systems. The device is used to make blockage assessments in 6- to 12-inch gravity-fed sanitary sewer lines in under three minutes, with no flow contact or confined-space entry. The acoustic score for the segment ranges from 0 to 10 (0 — blocked, 10 — fully open pipe), and is typically used to help prioritize cleaning and CCTV inspection resources. **877/747-3245; www.infosenseinc.com; Booth #2024.**

45. MTech

The Electro Scan ES-620 series from MTech is designed for scanning sewer pipe from 6 to 60 inches in diameter, and available for direct integration to existing CCTV trucks. Variations of electricity flowing through the pipe wall, associated with distance measurements, are automatically transmitted to the Windows-based application to record and display defect locations and their relative size. Municipal utilities and sewer contractors can determine accurate locations, measurement, and characterization of potential infiltrating or exfiltrating pipe leaks for any SSES project or cost-effective pipe repair, renewal or replacement project. **800/362-0240; www.mtechcompany.com; Booth #2062.**



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46. Pearpoint/SPX

The P350 Flexitrac portable crawler system from Pearpoint/SPX features the simplicity and transportability of a pushrod system while delivering the functionality and performance associated with complex crawler systems. Options include a manual or powered drum, three interchangeable cameras, and a range of wheels, tires, cable length and crawler size. An integrated report writer can create inspection reports on site using the command module. It can be van or truck mounted and wheeled onsite using the ergonomic barrow design. Once onsite, the system is quick and easy to setup and deploy. **800/688-8094; www.radiodetection.com; Booth #2242.**

47. RapidView IBAK North America

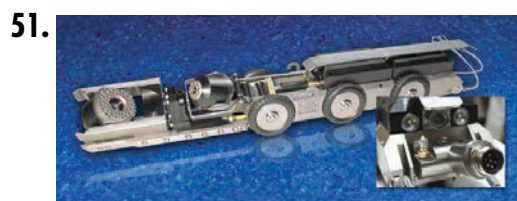
The PEGASUS HD inspection system from RapidView IBAK North America captures, transmits, processes and displays your inspection video in lossless 1920 x 1080 high definition. The resulting HD CCTV data and imagery is precise and clear, and the system features a 10x optical zoom, one-push autofocus and LED lighting. The camera head is capable of 240-degree pan-and-tilt range, with built-in presets for 45 and 90 degrees, as well as for 360-degree joint inspections. The system also includes an integrated laser for pipe diameter and defect measurements. **800/656-4225; www.rapidview.com; Booth #2207.**

48. Ratech Electronics

The Pan n' Tilt Push Camera from Ratech Electronics rotates 360 degrees and 210 degrees up and down, allowing technicians to view the pipe condition easily and in more detail. An optional steerable gooseneck assists the camera. Combining this camera with a control unit gives recording capability using SD/USB drives, and allows MPEG video capture and JPEG image capture of pipe inspections. Features include a 512 Hz sonde, an on-screen text display overlay system, electronic distance counter, time, date and eight pages of memory. Standard Gel-Rod cable length supplied is 200 to 400 feet. **800/461-9200; www.ratech-electronics.com; Booth #5140.**



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49. Ritec GmbH

The RiFlexio S from Ritec GmbH is a tilt/rotate push camera ideal for inspecting all house connecting pipes. It can be steered through several turns and bends. By pressing a button on the remote control the camera head is lifted upwards and can be pushed over obstacles or staggered pipe joints. Because of its slim shape, the camera can turn into pipes as small as 2 inches in diameter. Even inside pipes the camera head can turn 90 degrees sideways without losing the possibility of endless rotation. **www.ritec-tv.de; Booth #1301.**

50. ROTHENBERGER USA

The ROCAM 3 from ROTHENBERGER USA is a drain inspection camera featuring a 10.4-inch removable monitor for working in tight spaces, a 98-foot heavy-duty push cable, multimedia capabilities for recording photos, video and audio, and an exchangeable head system to attach various camera heads. It also features an integrated transmitter and an on-screen digital distance counter for accuracy. Downloadable software updates are available directly from the company's website. It is an ideal tool for inspecting, locating and documenting damage or obstructions in pipes from 2 to 12 inches. **800/545-7698; www.rothenberger-usa.com; Booth #1321.**

51. RS Technical Services

The GEN2 Zoom mainline and lateral inspection system from RS Technical Services performs inspections in 6- to 24-inch pipelines. Locatable via a built-in 512 Hz sonde, the system features a pan-and-tilt mainline camera, an auto-upright lateral camera, rearview camera and tilt-up connector. A launch camera actuator allows for insertion into 90-degree laterals, and the 90-watt motor produces pushing force for lateral inspections up to 100 feet from the mainline. The six-wheel-drive tractor features three forward speeds, reverse and freewheel with speeds up to 70 fpm. Also included is a reel with 600 feet of cable (100 feet of push cable and 500 feet of 3/16-inch armored Sincon cable). **800/767-1974; www.rstechserv.com; Booth #2431.**

52. Spartan Tool

The Sparvision 200 pipe inspection camera from Spartan Tool is self-contained in a single unit for easy on-the-job maneuverability. It is outfitted with either an iPad4 or an Android-based tablet for a viewing screen, and features 200 feet of ultra-slick pushrod and a color self-leveling camera. It offers instant snapshots, an on-screen keyboard and Telestration drawing ability, a 512 Hz locating beacon and a distance counter. **800/435-3866; www.spartantool.com; Booth #5024.**

53. Superior Signal Company LLC

Smoke Fluid Systems from Superior Signal Company LLC are used to find faults and sources of surface water inflow in collection systems. The smoke fluid is both high quality and economically priced. All blowers are engineered for smoke testing, and use a double-insulated heating chamber with stainless steel injector to maximize dry smoke output, and produce the best quality liquid-based smoke. The Superior Smoke Testing Technique has been in use since 1961. **800/945-8378; www.superiorsignal.com; Booth #2323.**

54. Trio-Vision USA

The TVS-15 inspection camera system from Trio-Vision USA is designed for use in 6- to 60-inch pipelines. Typical applications include the inspection and investigation of sewerage and rainwater pipe. It features a modular design, interchangeable cameras, water resistance to IP68, a short-wheelbase crawler powered by two DC motors, integral circuit protection, a high-resolution CCD camera with 0.01 lux light sensitivity, an autofocus pan-tilt-zoom camera, and rearview camera and lighting. **707/793-0673; www.trio-vision.com; Booth #5432.**

55. Vivax-Metrotech Corp.

The vCam-5 inspection system from Vivax-Metrotech Corp. features text writer, voice over, locatable sonde and traceable pushrod. The standard reel is available with 200 or 400 feet of pushrod, and choices of 34 or 46 mm self-leveling color camera. The smaller mini reel is available with 150 feet of pushrod and choices of a 25 or 34 mm color camera. The system features a control module with an 8-inch color LCD, distance counter and internal rechargeable batteries with six-plus hours of battery life. Video recording and JPEG format pictures can be saved to the internal 320 GB hard drive, USB thumb drives or SD card. The control module has built-in Wi-Fi. **800/446-3392; www.vivax-metrotech.com; Booth #4233.**

56. Vu-Rite Video Inspection Systems

The Model C-150 T2M mini camera from Vu-Rite Video Inspection Systems is ideal for inspecting sewer lines as small as 2 inches or larger lines with the use of a mini-lift adapter. The full-color camera features a heavy-duty stainless steel lens cover and body. The lightweight, versatile frame features removal/extendable wheels, legs and handle for operating in confined spaces. Interchangeable reels allow the use of different pushrod lengths and camera head sizes. **423/256-3063; www.vu-rite.com; Booth #6521.**

57. Wohler USA Inc.

The VIS 350 visual inspection camera from Wohler USA Inc. features a pan-and-tilt camera head to inspect wastewater lines, house connections, flue gas systems and ventilation lines. Locate the position of the camera head on a vibrant display and maintain your sense of orientation with the home function. Pinpoint damage with the integrated locator transmitter. It also comes equipped with two rechargeable batteries, giving operators greater mobility on the job. **978/750-9876; www.wohlerusa.com; Booth #1456.**



PIPE CLEANING

58. Arthur Products Co.

The Cnt+KUT TOW HOOK nozzle from Arthur Products Co. allows for all pressurized water to be applied to the task at hand by the integration of a towing nozzle which can be pulled through the line. It has the ability to pull a line point-to-point if required. Manufactured from aerospace elastomer, it is flexible enough to conform to damaged or deformed lines and can easily be trimmed in the field to fit virtually any line from 2 to 8 inches in diameter. Simply attach a 3/8- or 1/2-inch hose to one end. It is available in both a standard and mini size. **800/322-0510; www.arthurproducts.com; Booth #1349.**

59. Biodyne Midwest

ENVIRONOC 301 liquid inoculant from Biodyne Midwest allows for the specialized degradation of simple/complex organics in wastewater, grease control, reduction of hydrogen sulfide and other odors, and algae control in ponds and aquaria. It features 29 strains of fresh, viable and natural microbes selected for their capabilities to handle degradation of common organics in wastewater, and the reduction of grease and hydrogen sulfide. It has a viable cell concentration of over 1 billion microbes per mL. Microbes are comprised of 100 percent naturally occurring (nonpathogenic or genetically modified) bacteria/fungi that have been selected for their special degradation or biostimulation abilities. **888/970-0955; www.biodyne-midwest.com; Booth #5453.**

60. Chempace Corporation

The foaming action of Sewer Foam from Chempace Corporation, when combined with the high-pressure water of a jet truck, breaks down grease and organics from all types of pipes. From large municipal sewer lines to residential pipes, its use in sewer line cleaning saves time and money. It is highly concentrated at 2 ounces per gallon, making it cost-effective and economical. It is noncaustic and is safe for all pipes and jet trucks, and can be used while jetting drainlines. **800/423-5350; www.chempace.com; Booth #1472.**

61. Chempure Products

Root Rat cutting nozzles from Chempure Products are used with jetters from 11 hp to large truck-mounted models. Manufactured of hardened stainless steel, the cutters come with a toolbox with two interchangeable rotors — one with cables and the other with chains. The combination kit includes extra chain, cable and bearings. They need no repair or rebuilding other than bearing replacement, which can be completed in less than two minutes for under \$10 in parts. **800/288-7873; www.chempure.com; Booth #4002.**

62. Drincables Direct

Sectional drain cables from Drincables Direct are available for almost every brand of machine on the market. Sizes include 5/8-, 7/8- and the larger 1 1/4-inch-diameter cables, along with several choices of inner cables and various lengths with the right fittings to match specific machines. **800/421-4580; www.drincables.com; Booth #4110.**

63. Duracable Manufacturing

The DM162 cable machine from Duracable Manufacturing is ideal for running 5/8-inch cable up to 80 feet. It is equipped with a 1/2 hp motor, which runs at 265 rpm. It features a built-in toolbox, and a heavy-duty casted, self-aligning head bearing to maintain proper alignment while in operation and allow for quick change-outs. It can be operated in both the horizontal and vertical positions, and offers a three-year limited warranty. **877/244-0556; www.duracable.com; Booth #5239.**

64. Enz USA Inc.

The Bulldog Antiblaster nozzle from Enz USA Inc. was designed specifically to prevent blowing toilets while jetting in residential areas. It reduces the water pressure through toilets and vent traps, reducing negative pressure arising ahead of the nozzle or excess pressure following the nozzle if the installations are not correct or venting is not working properly. The company collaborated with a prestigious technical institute to develop and test the nozzle, and guarantees cleaning in all directions. **888/369-8721; www.enzusa.com Booths #1197, #1193.**

65. Gortitz Sewer & Drain

The Model GO 68HD heavy-duty electric drain cleaning machine from Gortitz Sewer & Drain is available in two different versions, either with an open steel reel or enclosed polyethylene drum, and can be outfitted with an optional power feeder. Standard configuration is 150 feet of 1 1/16-inch hollow-core cable, which should reach most blockages with a single reel. The unit weighs 185 pounds, and adding a loading ramp and electric winch to any vehicle makes transportation quick and simple. It is designed to clean pipes from 3 to 8 inches in diameter. **562/944-3060; www.gortitz.com; Booth #5064.**



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66. J. Hvidtved Larsen US

The RECYCler sewer cleaning unit from J. Hvidtved Larsen US features an automatic cleaning process that ensures full continuous recycling of the jetting water. It is built on a three- and four-axle chassis, has a tank capacity of 11 to 14 cubic meters, and has a continuous cleaning process generating annual savings of approximately 22,000 cubic meters of freshwater. It is equipped with a removable partition, dividing the tank into two sections of variable size. The piston can be locked in three fixed positions and moved pneumatically by means of vacuum/pressure from the compressor. The unit can also be used as a regular vacuum truck for both large and small tasks. **312/705-3813; www.jhluk.co.uk; Booth #6036.**

67. Jetter Depot

The Magredi Nozzle from Jetter Depot is designed for heavy removal in larger pipeline applications. This skid-shaped nozzle makes easy work of removing sand, sludge, mud, stones and rocks. It is effective in 12- to 60-inch pipe, and comes with replaceable ceramic inserts angled at 0, 5, 10, 15 and 25 degrees. **770/406-8248; www.jetterdepot.com; Booth #2375.**

68. KEG Technologies

The KleanScan from KEG Technologies combines fluid mechanics for sewer cleaning with a battery-operated upright image video camera to clean and record at the same time with only a jetter hose connection. It is designed for use in pipes down to 8 inches, and is completely sealed with magnetic on/off switch. A yellow LED indicates recording on/off, and 80 LEDs ensure illumination and video quality. The video camera is powered by a long-life, quick-change, rechargeable lithium-ion battery. A red LED change-battery indicator eliminates changeover guesswork. Video files are automatically date and time stamped for easy downloading to a laptop. **866/595-0515; www.kegtechnologies.net; Booth #2425.**

69. NLB Corp.

The Torrent 200 self-rotating nozzle from NLB Corp. offers 3-D cleaning action for totes, tanks and a variety of vessels. It is designed specifically for high-horsepower applications, and is rated for pressures up to 20,000 psi, with flow rates up to 200 gpm. It features two high-velocity water jets mounted on a rotating head. The jets spin vertically while the head spins horizontally, resulting in complete 3-D coverage. It makes it unnecessary for workers to enter tanks during the cleaning process, enhancing worker safety and reducing the time needed to effectively clean the interior of vessels. **877/652-7796; www.nlbcorp.com; Booth #1257.**

70. NozzTeq Inc.

The BL SWIPER sewer nozzle from NozzTeq Inc. features stainless steel construction inside, with a green poly body outside. Inside the stainless steel tubes loop the water along air channels that increase airflow and jet stream length in the pipe. The design reduces the pressure at the truck and thus at the nozzle to reduce the amount of blown toilets with proper training and setup for 6- to 18-inch lines. It can create a Ventura Effect in pipes, sucking them dry by pushing the water through the channels in the nozzle. **866/620-5915; www.nozzteq.com; Booth #1250.**

71. One Biotechnology

BioOne from One Biotechnology contains bacteria selected for their ability to consume animal and vegetable fats, oils and greases (FOG), with no unwanted byproducts. It does not contain any added enzymes, surfactants or fragrances, so FOG does not flow out of the system into municipal wastewater treatment systems. It has also been recognized by the EPA's Design for the Environment program. **800/951-4246; www.onebiotechnology.com; Booth #4245.**

72. RootX

RootX is a dry powdered formula that can be applied with existing sewer cleaning equipment or directly from the package. Just add water to the formula and you can create a root-killing foam that effectively kills the roots the foam comes in contact with and also leaves a residual to stunt new growth for a longer period of time than cutting. The simplicity of the application means a city sewer crew can do root control on demand and a professional drain cleaner has a powerful tool to add to their business. It is registered with the EPA for both sanitary and storm use (EPA Reg. 68464). **800/844-4974; www.rootx.com; Booth #5060.**

73. Sewer Equipment Co. of America

The Mongoose Model 184 jetter from Sewer Equipment Co. of America features a tubular steel frame, corrosion-resistant pre-painted sub-assemblies, state-of-the-art controls, a strong hose reel, a high-quality diesel engine and a run-dry pump. **800/323-1604; www.mongoosejetters.com; Booth #3127.**

74. Shark Pressure Washers & Jetters

The SJPE-1500 from Shark Pressure Washers & Jetters is portable, compact and features a detachable hose reel. Its retractable handle accommodates easy loading and unloading into vehicles, and allows for transport around work sites. Its Pulse Technology propels hose through the line and around tight curves to break through clogs. Rated at 1.7 gpm at 1,500 psi, it operates on 115-volt electricity and comes standard with a 35-foot power cord with GFCI. Designed for use in pipes less than 4 inches, it features a roll cage steel chassis, triplex pump and heavy-duty Baldor motor, and fits into tight work spaces with easy one-person operation. Its is ETL safety certified. **800/771-1881; www.sharkpw.com; Booth #6324.**



75. Soil Surgeon

The Soil Surgeon X2 tool is designed to effectively clean manway storm drains and their filter separator screens. It fits any sewer combination truck equipped with a telescopic 6- or 8-inch boom, and has a 1-inch water connection. The operator controls water pressure and power with truck controls. Six jets are angled up and outward to dislodge caked solids from screens and filters. Bumpers on the bottom protect the jets. **949/363-1401; www.soilsurgeoninc.com; Booth #6231.**

76. Southland Tool Mfg. Inc.

Scoop Screens from Southland Tool Mfg. Inc. come with the added advantage of having a screen on the back. They connect to the company's quick-connect fiberglass pole system. These scoops come in sizes for lines 6 to 12 inches, and are ideal for picking up debris. The side holes and back screen let the water through, but keep the debris in the scoop for easy removal. **714/632-8198; www.southlandtool.com; Booth #3001.**

77. USB - Sewer Equipment Corporation

The Primus Nozzle - 3D from USB - Sewer Equipment Corporation features a high-performance ceramic drive and controlled rotation speed. The turbine wheel behind the cleaning head provides additional torque as well as continuous, uniform rotation of the cleaning head independently from the amount of flow and backpressure. No lubrication or replacement of internal mechanical parts within the first 12 months of operation makes it user friendly. It is constructed from stainless steel and can be operated with recycled water. The operational pipe range is 6 to 24 inches and can be used between 30 and 120 gpm at 2,000 to 3,000 psi. **866/408-2814; www.usbsec.com; Booth #5043.**

78. Vaporooter

Grease Release from Vaporooter is an industrial-strength detergent that contains a blend of surfactants that penetrate and soften animal fat, vegetable oil and grease (FOG). Once it emulsifies the FOG it will not resolidify. It also penetrates surfaces to slow future build up of FOG, and enhances preventive maintenance programs by coating surfaces with a grease-repelling barrier making future cleaning simpler, easier and more effective. An optional metering system is engineered to deliver the exact concentration needed. **800/841-1444; www.vaporooter.com; Booth #2018.**

WASTE HANDLING

79. Ditch Witch

The FXT50 Truck Vac from Ditch Witch is mounted directly to a truck's frame rails, allowing the system to flex independently of the truck, promising stability and confidence. It can be mounted to the single-axle truck of customer's choosing, and can be customized with toolboxes and other support equipment (e.g. 1,020 cfm blower, 3,000 psi water system flowing 5 gpm.) It is quiet and offers quality filtration. **800/654-6481; www.ditchwitch.com; Booths #5214, #5216.**

80. Imperial Industries

MRK6000 Series aluminum vacuum trailers from Imperial Industries come standard with a 6,000-gallon aluminum tank (6,300-gallon units are available). They feature full-length aluminum hose trays, external ribs, three topside 20-inch aluminum manways, a 12-inch primary with a 4-inch air line, a 4-inch intake and 6-inch discharge, LED running lights, a Henderson INTRAAX AAT 25K suspension, leveling height control, an air-ride suspension, Haldex slack adjusters and optional full-length catwalk with hand rails. **800/558-2945; www.imperialind.com; Booth #4020.**

HYDROEXCAVATION

81. GapVax

The HV Advanced Series from GapVax is the company's most popular hydroexcavator, with a CANbus system control allowing the operator to observe and troubleshoot the entire system. It has a 15-cubic-yard debris body and water tank options ranging from 350 to 1,200 gallons. Features include a positive displacement vacuum pump rated at 3,500 cfm with 28 inches Hg. The tailgate is fully opening with a field-adjustable hinge and dual cylinders. Options include cold-weather recirculation package, sludge pump, auger unloading, body pressurization system, remote pendants and wireless remotes, high rail package, washdown system, stainless steel body and high-dump system. **888/442-7829; www.gapvax.com; Booth #6004.**

82. Hi-Vac Corporation

The X-10 or X-15 hydroexcavator models from Hi-Vac Corporation virtually eliminate the risk of underground utility strikes. These versatile trucks are capable of hydroexcavation along with vacuum excavation, potholing, daylighting and more. The easy operation and simple maintenance required on the X-10/15 provides for maximum efficiency when on the job. They feature a state-of-the-art water pump and vacuum technology that combine to create ideal vacuum excavation power. **740/374-2306; www.x-vac.com; Booth #1362.**

83. Joe Johnson Equipment

The Vactor HXX 15-yard, 1,200-gallon hydroexcavator from Joe Johnson Equipment is specially designed for cold weather operation. The company offers recent and up-to-date used and rental vehicles. **800/263-1262; www.jjei.com; Booth #4250.**



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84. Keith Huber Corporation

The King Vac from Keith Huber Corporation combines two different loading principles — deep vacuum loading and high air conveyance — into one machine. Eight features have been redesigned to improve the overall operating efficiency. The versatile unit can perform a multitude of tasks including hydroexcavation, hazmat response, jetting, general industrial cleaning, and many other tasks in industries such as gas, oil and mining. **800/334-8237; www.keithhuber.com; Booth #4115.**

85. Presvac Systems Ltd.

The Hydrovac from Presvac Systems Ltd. is a versatile hydroexcavator designed for cold-weather operation, and is offered as an option to be in full compliance with DOT collection and transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt. Material knock out features in the debris tank minimize carryover. Modular filtration configured to the blower size provides blower protection and minimal maintenance. It has a heavy-duty 8-inch boom (up to 25 feet long) with six-way hydraulic power and wireless controls for all boom functions, water pump (soft start), vacuum breaker and truck engine speed control. **800/387-7763; www.presvac.com; Booth #5000.**

86. Super Products

The Mud Dog 1200 from Super Products is a 12-yard-debris-capacity hydroexcavator featuring a rear-mounted boom capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot. This range allows crews to achieve greater work area access and deeper digging without the need to halt production to reposition the trunk. It uses ejector plate unloading technology, and its tilt-unloading feature ensures that liquids in the debris tank are cleared quickly and efficiently even when unloading in an up-slope/nose down position. Options include the Acculevel load sensor system that offers precise debris tank level measurement. **800/837-9711; www.superproductsllc.com; Booth #6238.**

87. Tornado Hydrovacs

The F4 Slope hydrovac from Tornado Hydrovacs holds 13 cubic yards of mud and more than 2,100 gallons of freshwater. They feature a water tank from which you excavate, a mud tank to which the excavated spoils are held, a water pump, a boiler to heat the water, and a 3,600 to 6,300 cfm positive-displacement vacuum blower to pull the spoils to the tank via a boom. The boom has a 342-degree rotation and a 26-foot reach. All of the critical components are housed in an insulated and heated aluminum van body. The mud sweep enables operators to empty the tank without having to hoist it, eliminating the dangers of dumping on uneven ground and overhead power lines. **877/340-8141; www.tornadotrucks.com; Booths #1417, #1418.**

88. Vac-Con

The X-Cavator from Vac-Con is designed to handle the toughest and most challenging excavating jobs. It is powerful, durable and easy to operate. It features a chassis engine with hydrostatic drive for the vacuum that is efficient because it's less complicated and eliminates the need for PTO, clutch and gearbox operation. It also features water systems up to 4,000 psi, and a wireless remote control system that enables the operator to work the chassis engine rpm, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to 1/2 mile away. The boom rotates up to 270 degrees. **888/491-5762; www.vac-con.com; Booth #1190.**

89. Wastequip

The Cusco Hydro-Trencher Excavator from Wastequip is designed for directional boring and removing liquids, sludge, slurries, mud, gravel and other solid waste materials. It's ideal for excavating around fragile oil and gas pipelines, installing fiber optic cables, repairing utility lines or excavating in remote areas with limited access. It has dual 500 USG stainless steel vertical water tanks that separate water storage, maximizing weight distribution and providing corrosion resistance and safer dumping. Features include cyclonic filtration technology with vacuum system airflow ratings of 5,300 cfm that generate 28 inches Hg of vacuum, an 18 gpm, 3,000 psi wash pump and high-pressure waterjetting. **800/490-3541; www.wastequip-cusco.com; Booth #2259.**

PUMPS

90. Boerger LLC

Mobile Rotary Lobe Pumps from Boerger LLC are self-priming, valveless, positive-displacement pumps used for rapid deployment of flood water, stormwater, domestic wastewater, industrial effluents and sludges, spill situations (oil, gasoline, diesel, etc.), digester and lagoon clean up. Twenty pump models in six series are offered with pulsation-free operation, fully reversible rotation, dry-run capabilities and flow rates up to 5,000 gpm. All wear parts can be easily replaced through the front cover, without the removal of pipe or drive systems. Suction and pressure hoses can be installed in minutes. **612/435-7300; www.boerger.com; Booth #2461.**

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91. CEI – Chandler Equipment Inc.

The manifold of the Jurup RVC360 side-mount vacuum pump from CEI – Chandler Equipment Inc. can be disassembled, cleaned and reinstalled with minimal time and without a gasket and/or seal kit. Inflow of air into the final filter design was restructured to allow for effective capture of debris. The back-flow check valve was also redesigned to reduce if not eradicate replacement due to delaminating. It is ideal for applications requiring a vacuum pump, hi-vac tri-lobe blower or self-priming transfer pump. **800/342-0887; www.chandlerequipment.com; Booth #4234.**

92. General Pump

Specifically designed for sewer jetting, the General Pump MW Series offers five plunger sizes to cover flow ranges from 36 to 105 gpm and pressures up to 4,350 psi. It also features a movable gearbox with three ratio options, including an available SAE C hydraulic “plug and play” for hydrostatic drive units. The packings are water lubricated with a “run dry” teflon/graphite option available. **888/474-5487; www.generalspump.com; Booth #3207.**

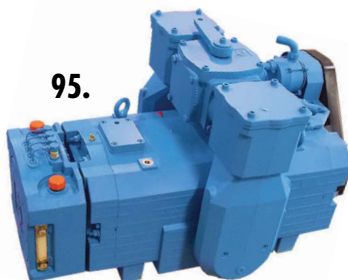
93. Gorman-Rupp

Prime Aire Plus pumps from Gorman-Rupp employ the same Venturi/compressor priming system as the Prime Aire line, but feature increased head, flow and enhanced maintenance features. Models feature up to 8-inch flanged discharge sizes, provide flows up to 4,950 gpm, heads to 475 feet, and are suitable for both clear liquids and those containing large solids. They are available coupled to the latest EPA Tier compliant engines or premium efficiency electric motors. **419/755-1011; www.grpumps.com; Booth #1239.**

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94. Hammelmann

The HDP-MC high-pressure pump from Hammelmann is a compact, direct-driven 1,500 hp unit available with pressures to 43,500 psi and flows exceeding 785 gpm. It is built to operate at the continuous maximum duty stated in the performance parameters, and deliver high fluid efficiency. A complete line of accessories and 3-D tank cleaners are available. **800/783-4935; www.hammelmann.com; Booth #3109.**

95. Moro USA

The PM3000 liquid-cooled vacuum pump from Moro USA is capable of pumping nonvolatile liquids and sludge from long distances, with a suggested tank capacity of 3,000 to 6,000 gallons. It includes an integrated check valve, changeover valve, automatic oiling system, industrial-duty bearings, Viton seals and high-flow-rate asbestos-free spark-proof vanes. Its onboard liquid cooling system incorporates a forced circulation external water pump. It is capable of 43.5 psia and a continuous vacuum of 24 inches Hg, along with a flow rate of 1,000 cfm and 1,200 rpm rotating speed. It also features 4-inch flange connection. **800/383-6304; www.moroussa.com; Booth #3122.**

96. Pat's Pump & Blower

The Myers D65-20 high-pressure reciprocating plunger pump, distributed by Pat's Pump & Blower, is capable of 65 gpm at 2,000 psi, and is used in a variety of applications from fire-fighting units, to high-pressure washdown systems, to sewer cleaning and hydroexcavating. It is a safe, reliable workhorse pump. **800/359-7867; www.patspump.com; Booth #3012.**

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97. Thompson Pump & Manufacturing Co.

The JSC Series solids-handling Enviroprime System pump from Thompson Pump & Manufacturing Co. features heavy-duty cast-iron construction and ability to dry-prime and reprime automatically. The portable pump ranges in size from 3 to 18 inches, is designed for high flows to 11,000 gpm, and has a maximum head to 330 feet. The end-suction centrifugal pump ends can handle solids up to 4 inches, and are available coupled to the latest environmentally compliant engines or premium-efficiency electric motors. **386/767-7310; www.thompsonpump.com; Booth #6017.**

98. VARCo

The Patriot 300 from VARCo is a ballast-port-cooled, continuous-duty pump with over 300 cfm of vacuum. It features auto-lubed front bearings, an auto oiler, diesel flush port, and an external oil tank for easy viewing of oil levels. **866/872-1224; www.varcopumper.com; Booth #5150.**

TRUCK ACCESSORIES

99. AlturnaMATS

Ground protection mats from AlturnaMATS protect turf/subsurface, while providing access for heavy equipment without a risk of getting stuck. They are sold throughout the world, to a wide variety of industries, and provide a fast, effective way to build a temporary road that is durable enough to withstand the weight of very heavy equipment. They offer a cost-effective way for construction and septic companies to quickly prepare a site, complete the work and move onto the next project. They have a load rating of 120 tons. **888/544-6287; www.alturnamats.com; Booth #6229.**



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100. Banjo Corp.

The VSFMT220SS 2-inch NPT stubby valve from Banjo Corp. features a 2-inch full port male adapter, 100 percent polytetrafluoroethylene ball seats, a compact design, Teflon TFE seals with no elastomers and a maximum pressure of 1,000 psi. **765/362-7367; www.banjocorp.com; Booth #1325.**

101. Dynamic Filtration Limited

ME-68K5-MC vacuum truck filters from Dynamic Filtration Limited are specifically developed to remove atmospheric dust from the air intake, protecting the blower from damaging particles. Features include metal end caps for extended durability and vulcanized two-part urethane end seals to provide a positive seal. Each unit comes with standard 10-micron polyester filter media, with additional media available upon request. They are ideal for use in general site clean up and hydroexcavation. **800/265-4544; www.dynamicfiltration.ca; Booth #6062.**

102. Green Leaf Inc.

GatorLock Couplings from Green Leaf Inc. allow for the quick connect and disconnect of tanks, pumps, transfer lines and more. The locking mechanism reduces the possibility of unintentionally opening the cam levers, which could result in personal injury and costly spills. Polypropylene couplings are highly resistant to chemical solvents and environmental stress. The line includes 1/2- through 3-inch locking cams, as well as 1/2- through 4-inch nonlocking in Series A-F. The maximum operating pressures are 90 to 125 psi at 70 degrees F. **800/654-9808; www.grnleafinc.com; Booth #1238.**

103. Logan Clutch Corporation

The self-adjusting Bell Housing PTO Clutch from Logan Clutch Corporation is ideal for use in industrial waterblasting and vacuum excavation equipment. It replaces mechanical, hand lever-engaged PTOs with a fluid or air-actuated unit. Clutch engagement is smooth and consistent, eliminating the need for mechanical linkage, lever arms and yokes. Also, since it's air or fluid activated, the clutch can be engaged with the push of a button from the control panel or cab. They are available with or without pilot bearings, for diesel and gas engines in the 60 to 1,600 hp range. **440/808-4258; www.loganclutch.com; Booth #1464.**

104. Muncie Power Products Inc.

The CS24 from Muncie Power Products Inc. is a clutch shift PTO designed for Allison World and Caterpillar automatic transmissions. It is engaged by means of a solenoid-activated, wet clutch pack. The engagement solenoid is built into the PTO, and installation is simplified by the requirement of only one hose connection. It features four remote-mount output shaft options, rotatable direct mount flanges, is compatible with PTO shaft extensions, and includes the Muncie output shaft brake. **800/367-7867; www.munciepower.com; Booth #2010.**

105. Scorpion Protective Coatings Inc.

The three-part polyurethane X02 batch mix system from Scorpion Protective Coatings Inc. is a professional-grade liner that protects truck beds from abuse. This liner is virtually impenetrable and resists both moisture and rust. It is UV stable and will not fade. **765/653-1736; www.scorpioncoatings.com; Booth #1420.**

106. STAC Inc.

Mobile hydraulic drive systems from STAC Inc. eliminate the need to use the drive shaft of the vac truck to power a blower or vacuum pump, which can sometimes be difficult due to tight space and angles. Benefits of a hydraulic system include safety, longevity, reduced downtime, added value and reduced maintenance. **800/334-7699; www.thermaflow.com; Booths #2457, #2458.**

107. SVE Portable Roadway Systems Inc.

TRAKMATs from SVE Portable Roadway Systems Inc. are lightweight full-size ground protection mats. Its "Power Cylinder" surface creates superior traction, while allowing the mats to slide apart smoothly for easy loading/unloading. Hand cutouts are standard for safe lifting. Mats are available in Utility Black or Cool Green to prevent burnt grass. They come in several sizes to help work smarter and save money by reducing weather delays and protecting customer's property from damage. **800/762-8267; www.mudtraks.com; Booth #6316.**

108. Western Mule Cranes

Fold-A-Way Bumper Cranes from Western Mule Cranes allow the handling of heavy loads to become a one-person operation, completing the job faster and safer. It serves as a crane, bumper, hitch and winch. An optional MAN-LIFT attachment is available, which meets/exceeds OSHA and ANSI standards for confined-space rescue. With 15 models available and lifting capacities ranging from 750 to 2,500 pounds, a bumper crane is available to fit any application. The crane folds away into the bumper for convenient storage and easily folds out in seconds. **800/288-6853; www.westernmule.com; Booth #4339.**

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116.



HOSE, REELS, ACCESSORIES

109. Atlanta Rubber & Hydraulics Inc.

Green and Black hose assemblies from Atlanta Rubber & Hydraulics Inc. are constructed with Kanaflex 300 EPDM all-weather hose. They are ideal for anyone working in the septic pumping industry. Custom assemblies are available in any size or length, and with any fittings needed by customers. Each fitting is attached with two bands. High-quality Kuriyama and Dixon fittings ranging from aluminum and stainless steel to polypropylene and nylon are mainly used. Assemblies are typically made with quick couplings, but other fittings are available upon request. **800/282-6272; www.atlantarubber.com; Booth #2442.**

110. Hannay Reels

The 1000 Series from Hannay Reels is a compact manual-rewind reel. Applications include high-pressure washdown and sanitizing. It is designed to handle single 1/4-, 3/8-, or 1/2-inch I.D. hose. It is lightweight, yet durable and has an e-coated frame for extra protection in demanding environments. A direct-crank rewind is permanently attached, and its exterior mounting holes enable easier installation. It features a redesigned pin lock and a standard adjustable cam-lock brake. It handles pressures to 3,000 psi and temperatures from 20 to more than 400 degrees F. **877/467-3357; www.hannay.com; Booth #5027.**

111. Kuriyama of America Inc.

Tigerflex Amphibian AMPH Series hose from Kuriyama of America Inc. features a highly abrasion- and oil-resistant polyurethane inner liner that better resists internal wear than rubber hoses, especially in the bends where the material hits, leading to less costly downtime. It is effective vacuuming above ground in normal temperatures, or hard-to-reach areas in extreme subzero temperatures. Its highly flexible Cold Flex materials and corrugated outer cover allow for ease of use. **847/755-0360; www.kuriyama.com; Booth #3021.**

112. Omega Liquid Waste Solutions

The Remote Control Powered Hose Reel from Omega Liquid Waste Solutions offers the ability to slash the time required to lay out and stow either 3- or 4-inch vacuum hose; what can typically take 10 to 15 minutes is achieved in seconds. It is also hinged to swing away from the back of the tank in order to facilitate rear dumping and to deploy hose in the direction of the job site. With universal mounting to any truck frame, the install is simple and secure and only requires a 12-volt connection for operation. Operators have complete control of "reel in and reel out" and "swing open and swing close" functions via a small hand-held remote with a range of 200 feet. **450/651-0444; www.exprolink.com; Booth #6167.**

113. Piranha Hose Products

Brutus and Lil' Brute portable hydraulic hand swagers from Piranha Hose Products can be taken anywhere to install hose ends. Lil' Brute is designed for hose sizes 1/4, 3/8 and 1/2 inch. Brutus is designed for hose sizes 3/4, 1 and 1 1/4 inch. Both machines include a drawer that holds up to three sets of dies and pushers to provide the complete package. They are sold either as a kit with one unit, one die and one pusher, or as individual components. **800/250-5132; www.piranhahose.com; Booth #3017.**

114. Pressure Lift

The Power Booster from Pressure Lift, available in 3-, 4- and 6-inch models, provides increased vertical lift and long-hose capability, while shortening project time and cutting maintenance cost in any pumping application. Powered by compressed air or water, the booster handles a range of viscous liquids, from water to drilling mud to heavy municipal sludge. Made of lightweight aluminum, units are reversible, allowing for slurry suspension, potholing or breaking up crusty sludge. **972/355-0550; www.pressurelift.com; Booth #5116.**

DEWATERING

115. AQUA-Zyme Disposal Systems Inc.

The Roll-off Dewatering Unit from AQUA-Zyme Disposal Systems Inc. can reduce liquid sludge volume with reductions in BOD, COD, FOG and TSS. Solids can be landfill-ready in 24 hours. Units are mobile and can be transported with a standard roll-off truck. The unit is watertight; has a 1/4-inch steel floor plate and seven-gauge sides; filter media on sides, floor and center partition includes five-year warranty; roll-over tarp; quick connect fittings; dual inlet ports; multiple drain ports with caps; and a lifespan of 12 to 14 years. Standard sizes of 15 and 30 cubic yards are in stock, with custom sizes available upon request. **979/245-5656; www.aqua-zyme.com; Booth #2091.**

116. Bright Technologies

The 1.7-meter, trailer-mounted belt filter press unit from Bright Technologies features an insulated control room for operator comfort and security. The control room offers insulated FRP walls, air conditioning, electric heat, a refrigerator, stainless steel desk, tool storage, locker, closed circuit TV and remote operator controls. The modular design allows the room to be custom manufactured to fit most single-drop trailers. Units are made for rapid setup, with folding conveyor and operator walkways. No special lifting equipment is required. **800/253-0532; www.brightbeltpress.com; Booths #4223, #4224.**



117. Downey Ridge Environmental

The SM BG 10,000 Series GREASEZILLA from Downey Ridge Environmental comes preassembled, allowing for quicker onsite installation and startup. It processes concentrated raw trap waste into a marketable commodity — a clean product that features moisture content of less than 1 percent. Its hydronic heating system burns brown grease, the petroleum-free, green, renewable biofuel it produces. The system can be accompanied by two 10,000-gallon double-walled process tanks built with a 3-inch interstice filled with a poured insulation, resulting in efficient heating and code compliance. The control panel requires 120-volt power. **304/658-4778; www.greasezilla.com; Booth #6519.**

118. Flo Trend Systems Inc.

Sludge Mate container filters from Flo Trend Systems Inc. can dewater a variety of sludge and waste such as alum, ferric, lagoon and digested sludge, septic tank, grease-trap, and slaughterhouse waste, wastewater residual and sump bottoms. The closed-system design provides total odor control, no spillage, reduced maintenance and weather independence. They have 10-gauge reinforced walls and a seven-gauge carbon steel floor. Options include peaked roofs with gasketed bolted-down access hatches, drainage ports, inlet manifolds, floor filters and side-to-side rolling tarps. They dewater onsite; are available as roll-offs, trailer and tipping-stand mounted; and range in size from 5 to 40 cubic yards. **713/699-0152; www.flotrend.com; Booth #6134.**

119. In The Round Dewatering

The horizontal sludge dewatering device from In The Round Dewatering features a stainless steel drum with perforated plastic tile lining, and is mounted on a roll-off frame for easy transportation and unloading. A typical batch of 18,000 to 25,000 gallons of sludge is mixed with polymer before being filtered in the drum during rotation. It is driven by a 1/4 hp variable-speed electric motor with a heavy-duty chain and sprocket. Turning action eliminates crusting and wet pockets, producing uniform results. The dewatered material dumps easily and the drum is self-cleaning. The sludge is released of all the liquids and is ready for disposal in just one night. **317/539-7304; www.itrdewatering.com; Booths #2360, #2361.**

120. RecoverE LLC

The ESep trap grease separation system from RecoverE LLC accepts grease as pumped from the interceptor and separates it from water and most solids with an energy-efficient, two-stage process without additives. After separation, the brown grease is recovered as a pasteurized, low-water biosolid, which has market value as a bioenergy or chemical resource, while the grease-free water and solids can be disposed of easily. It operates as a closed system, simplifying odor management. In a typical installation, the automated and instrumented system can reduce up to six 5,000-gallon truckloads of as-pumped grease daily to about 1,200 to 3,000 gallons of solid, separated grease. **269/370-3165; www.recovere.biz; Booth #1323.**

121. Schwing Bioset

The Bioset Process from Schwing Bioset achieves Class A biosolids via the time versus temperature equation and pH adjustment per the EPA 503 regulations. Operating costs have been reduced due to PFRP approval allowing for process operation at 55°C for 40 minutes. From startup to shutdown the process remains easy to operate and reliable. A completely enclosed system allows for the prevention of spilling and an odor free operation. **715/247-3433; www.betterreuse.com; Booth #1043.**

SAFETY

122. BW Technologies by Honeywell

The GasAlertMax XT II multi-gas detector from BW Technologies by Honeywell features IntelliFlash, the flashing LED compliance indicator that indicates whether the gas monitor is functioning correctly. Workers feel safer and incidents are minimized. That means savings realized from business continuity and productivity. It is compatible with the MicroDock II automated testing/calibration/docking station for intelligent fleet maintenance and simplified recordkeeping. **888/749-8878; www.gasmonitors.com; Booth #4138.**

123. Milwaukee Rubber Products

The GasAlertQuattro gas detector from Milwaukee Rubber Products features one-button operation. The graphic LCD displays information icons, including bump test and calibration status for on-site auditing. IntelliFlash provides continuous visual confirmation of detector operation and compliance. The unit is compatible with BW Technologies by Honeywell's MicroDock II automatic test and calibration system. **800/325-3730; www.milwaukeeerubber.com; Booth #3032.**

124. Pronal-USA Inc.

The SMARTSHORE shoring system from Pronal-USA Inc. is PE certified to be in compliance with OSHA Standard 29 CFR part 1926, subpart P. It is approved for type A, B and C60 soils at depths up to 6.5 feet. It is easy to handle, as it only weighs 28 pounds, and made of tough material resistant to puncture. Its design allows two people to set up a trench box in under 10 minutes. It requires minimum storage space, and is flexible and adaptable to most types of excavations. **386/310-1558; www.pronal-usa.com; Booth #1210.**

125.



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125. RKI Instruments Inc.

The lightweight GX-2009 personal confined-space gas monitor from RKI Instruments Inc. weighs only 4.6 ounces, and monitors combustibles, oxygen, hydrogen sulfide, and carbon monoxide using individual sensors for each gas. All four gas readings are displayed on an LCD display that has auto backlighting. Gas alarms are adjustable, and alarm types include a 95 dB audible alarm with dual speakers, vibration alarm and bright visual alarms on three sides of the instrument. It is also waterproof and dustproof with an IP-67 rating. Also included is a large-capacity data logger.

800/754-5165; www.rkiinstruments.com; Booth #2062.

126. Safety Corporation of America

The corrugated aluminum ultraSHORE trench shoring system from Safety Corporation of America features stackable panels that can be used horizontally or vertically for bury depths to 12 feet in Class C soils. Extra features include leg and wheel kits for OSHA regulations. Easily transported in a pickup, the system can be closed off on one or both ends with quick-release, spring-loaded end-closure panels.

800/746-7464; www.shoring.com; Booth #5005.

127. Safety Sewer Drain

The Safety Sewer Drain eliminates the mess and threat of contamination when removing the clean-out on a plugged drain. Made of clear polypropylene, the device fits over a 4-inch clean-out. Sewage drains through a valve-controlled hose into a bucket for disposal. It also can be adapted to work on a 3-inch clean-out.

906/753-4002; www.safetysewerdrain.com; Booth #4116.

MANAGEMENT SOFTWARE, OFFICE TECHNOLOGY, EDUCATION

128. GPS North America

Smart Antenna vehicle tracking hardware from GPS North America is a tamper-proof and scalable device providing standard GPS tracking. It can also interface with third-party hardware for job dispatch, navigation and electronic driver logs. The company also specializes in the development and support of paperless forms for hand-held, mobile data collection, and enables companies to control fuel and labor costs by locating and monitoring fleets and assets through their SignalTrack Web portal.

888/760-4477; www.gpsnorthamerica.com; Booth #5415.

129. Infrastructure Technologies

The ITpipes Sync from Infrastructure Technologies is effective for organizing CCTV inspection reporting, as it automatically transfers new field inspections from the truck into a selected project, managing data, reports and media. Work can be uploaded via broadband throughout the day, and inspections automatically go into their designated project. Operators have up-to-date project information and billing, can plan for the next schedule and send out emergency crews as needed.

877/487-4737; www.itpipes.com; Booth #2473.

130. InSight Mobile Data Inc.

StreetEagle Mobile Barcoding from InSight Mobile Data Inc. equips field workers with not only asset locations on a map, but also barcode technology to enable them to scan any asset to communicate activity and inventory data. For operations that depend on utility vehicles, equipment and other mobile assets to get their work done, keeping track of their location, status and usage history is critical for maximizing efficiency.

301/866-1990; www.insightmobiledata.com; Booth #2341.

131. NASSCO Inc.

The ITCP (Inspector Training Certification Program) is NASSCO's standard national training and certification program that provides comprehensive education and tools for professionals to better understand and inspect trenchless infrastructure renewal technologies. In addition to CIPP technology courses, a certification program for manhole rehabilitation technologies is offered, and will soon include pipe bursting.

410/442-7473; www.nassco.org; Booth #1086.

132. Pipeline Analytics

WinCan VX from Pipeline Analytics emphasizes a productivity-oriented, fully customizable user interface with cloud-based data access and enhanced reporting and analytical capabilities. It also offers support for value-added processes like pipe cleaning, rehabilitation and leak detection. Beyond that, it augments existing functional areas like GIS, laser/sonar scanning, side scanning, image measurement and municipal database integration. To accommodate even the largest municipalities, it has been performance benchmarked on databases exceeding 5 million records.

877/626-8386; www.pipelineanalytics.com; Booth #6046.

133. Standard Equipment Company

The Custom Rebuilt line of sewer cleaning, maintenance and televising equipment from Standard Equipment Company offers a choice of rebuilt combination sewer cleaners, trailer- and truck-mounted jetters, catch basin cleaners, hydroexcavators and sewer televising equipment. The company starts by selecting high-quality units available for rebuild, and then processes them through a consistent evaluation system, using OEM trained technicians. All aspects of a machine are evaluated and rebuilt if necessary, including body and chassis components. The company inventories a wide variety of equipment to meet all operational needs and budget constraints.

800/633-2997; www.standardequipment.com; Booths #2355, #2356.

134.



135.

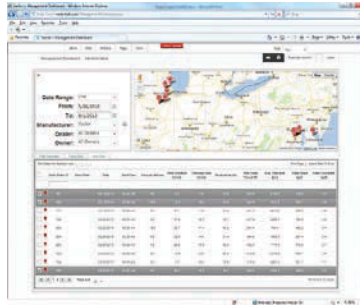
**134. Trade-Serve**

The Trade-Serve system allows technicians to make a professional and consistent presentation of bundles and options to customers in just under a minute. In addition to eliminating paper in the field, service managers have the ability to coach every call from the office, owners control margins with the click of a button, and warehouse managers monitor inventory quickly and efficiently. It takes ordinary and familiar business models and makes them easy to use and relevant to technological advances. **636/222-2222; www.trade-serve.com; Booth #5354.**

135. US Fleet Tracking

The AT-X5 live GPS tracking device from US Fleet Tracking is compact, discreet and easy to install. It assures turn-by-turn monitoring of mobile assets, and features 5- and 10-second tracking, historical playback and virtual fences. It comes standard with weather overlay and traffic features for safety and efficiency, plus the ability to create and edit up to 20 different logs while in the field. The Web-based system is compatible with every mobile platform. **405/749-1105; www.usft.com; Booth #5452.**

136.



137.

**136. Vector Manufacturing**

The VectorTRAK data collection system from Vector Manufacturing monitors and reviews sewer cleaning operations on Vector 2100 Plus combination sewer cleaners equipped with the system. It collects and transmits comprehensive, operational intelligence to a secure, hosted website where the public utility or contractor is able to access information 24/7 from any internet-connected device. It can track key data, including hours of operation, water consumption, distances of lines cleaned, vacuum utilization and fuel consumption. It allows the manager to view statistics for each unit or the entire fleet over a given time period. **800/627-3171; www.vector.com; Booth #5038.**

LOCATING SYSTEMS**137. General Pipe Cleaners**

The Gen-Eye Hot Spot pipe locator from General Pipe Cleaners features a field antenna array and on-screen icons that lead operators right to the target, without a long learning curve. The easy-to-see auto backlit LCD display features arrows that point operators in the right direction. The null icon indicates the pipe location and the camera icon confirms the target. Circle the energized pipe or tracer wire until the utility icon appears on the screen to find utility lines. Rated at IP65, it's dust and dirt proof, water resistant, and passed the one-meter drop test, and the screen passed the 18-inch steel ball drop test. **800/245-6200; www.drainbrain.com; Booth #6412.**

138.



139.

**138. Sensors & Software Inc.**

The LMX100 utility line locator from Sensors & Software Inc. locates metallic, plastic or concrete utilities. It can detect utilities with broken tracer wires, discover undocumented utilities, and find unexpected obstacles. It's ideal for outfitting fleets, as it's tailored for the locate-and-mark needs of utility locating contractors. **800/267-6013; www.gprlocates.com; Booth #6166.**

139. SubSurface Instruments

The AML (All Material Locator) from SubSurface Instruments is a highly sensitive instrument that utilizes advanced, ultra-high frequency radio waves to locate buried PVC pipes. It also locates nearly any subsurface material with an edge, including plastic, metal, wood, cable and concrete. It will function in clay, wet soil, snow or standing water without the need for a separate transmitter and receiver, wires, clips or clamps. It was designed specifically for use in the utility, water, gas, construction and cable industries. **855/422-6346; www.ssilocators.com; Booth #1305.**

SOLVE THE GREASE PROBLEM

To conquer FOG you have to understand how problems develop and what you can do to limit the buildup in your system

By Theo Terry

Municipal utilities have to be vigilant about preventing FOG from entering their collections systems. Grease issues cost municipalities millions of dollars every year through replacing or repairing clogged sewer lines, and large amounts of grease can also negatively impact the health of the treatment plant.

To address this FOG issue, some municipalities have implemented regulations requiring mandatory pumping at set intervals (often every 30 to 60 days) for restaurant grease interceptors. These regulations attempt to solve the problem by keeping grease out of the municipal sewage system. If the grease is pumped out of the tank every 30 to 60 days, it can't go into the sewer system, right? Wrong! What happens on days when the tank isn't pumped? These types of ordinances fall short of solving the problem because they aren't taking into account how grease moves into and out of the interceptor tanks. In order to develop commonsense plans of attack in dealing with grease, you first have to understand the nature of grease, where it's generated and what happens to it in the wastewater environment.

The greatest source of grease in any municipal sewer system obviously comes from restaurants. Hopefully, the kitchen staff is doing a good job of following best management practices, which include doing a dry wipe-down of all cooking utensils to remove large amounts of grease for disposal in solid waste bins before going into the sink or commercial dishwasher. In reality,

however, when things get rushed in the kitchen, it becomes much easier to drop those greasy utensils into the bin of the three-compartment sink filled with hot soapy water. Why? Because it takes more time to physically scrape off grease from utensils and pans than letting the hot (above 85 degrees F) water liquefy it so the utensils are easier to wash, and the grease eventually just goes down the drain when the plug is pulled.

Now, consider that a commercial dishwasher has its final rinse cycle set to 125 degrees F or above according to the code set by the local health department, and now you have a recipe for creating a very hot greasy wastewater soup going to the interceptor tank.

The effluent inside the grease interceptor is warmer in the core of the tank (above 85 degrees F), and it's kept warm because additional hot water is being intermittently added by drainage from sinks and dishwashers. Traditional designs for grease interceptor tanks include a small 4-inch outlet with an inlet about a foot off the floor of the tank. Inside the tank, the hot greasy water is less dense than the cooler water around the perimeter, and so it can be more easily drawn into the small 4-inch downpipe on the tee baffle. From this point, it enters the municipal sewer system, with miles of surface area inside the pipes where the effluent soon becomes much cooler than in the interceptor tank. While the rapid cooldown is better for preventing foodborne illness, it creates a huge problem for cities because once it cools down in

sewer pipes, it comes out of the effluent solution and begins to clump and adhere to the sewer pipes, eventually blocking them.

Historically, the most common way to deal with FOG in municipal systems is through regulatory measures — passing ordinances requiring pumping of the interceptors at mandatory intervals. But pumping the interceptor to remove the grease only works if the frequency is such that the interceptor never fills to the point of discharge. Some types of food establishments produce much more grease than oth-

use degreasers and emulsifiers in their kitchens. (Instead of helping, these types of products actually aggravate the situation.)

- Whenever a grease system is initially installed, it's best to use two smaller interceptor tanks rather than one large tank, or one that is chambered so the effluent has more of a chance to mix cooler perimeter water with that in the warmer core.
- Include in the system either a larger-diameter, or better

In order to develop common sense plans of attack in dealing with grease, you first have to understand the nature of grease, where it's generated and what happens to it in the wastewater environment.

ers; in order to effectively prevent grease from entering a municipal sewer system, some interceptors would need to be pumped every few days, not weeks. Because of the cost of pumping and dealing with the grease once it's pumped, it's not practical or economical to pump interceptor tanks every few days.

To find a much more common sense way to deal with FOG, kitchen protocols and municipal regulations should consider how time, temperature and filtration affect grease:

- The first step is always to prevent as much grease as possible from being discharged into the sewer lines in the first place. It's important to have kitchen staffs follow best management practices as best they can, and to also encourage them not to

yet, multiple-outlet baffles to slow the velocity of the discharging effluent, which causes grease to more easily come out of solution and clump with other organics in the waste stream; the clumped grease and organics will then fall back into the tank instead of being carried downstream to sewer lines.

- Outlet effluent filters with a filtration level of 1/32 of an inch should be used in wastewater systems to retain the grease within the interceptor. It is much more manageable to deal with grease clumped on the effluent filters by setting up a maintenance program to swap out clogged filter cartridges with clean ones as needed, cleaning them, then

swapping them out again on the next service call.

- Finally, pump the interceptor at shorter intervals when service personnel note that filters are plugging, not at some mandated interval.

Elected officials can be educated by treatment plant operators who understand how grease acts in the sewer system, then can use their new-found knowledge to write more effective ordinances than ones that mandate pumping at set intervals. If your municipality has such an ordinance, ask a few of your restaurant owners what their cost is for this frequent pumping. It's expensive, and is a hardship on many small-business owners. However, if restaurateurs are given the option of improving their practices through staff training, installing approved 1/32-inch effluent filters to trap the grease, establishing a service regimen with their pumper or maintenance company, then pumping the tank based on true need than at arbitrary intervals, you will have an effective system for dealing with grease.

Using this system, the restau-

rant owner is happy, because while he has a bit more expense when the sytem with an effluent filter is first installed, he has fewer expenses each month from mandatory pumping fees, and management of the system with effluent filters is directly related to how much grease the business produces. Utility operators are happy because this method is much more effective in preventing grease from entering the system and damaging plant equipment and clogging municipal sewer lines. Finally, your elected officials are happy, because they've used today's technology and old-fashioned common sense to put in place regulations that are fair and effective in solving their city's grease problem, with costs to repair their infrastructure steadily dropping. ♦

About the Author

Theo Terry is the inventor of 19 patented wastewater products and CEO of Bear Onsite LLC. You can contact him to learn more about handling grease, and ways to utilize manifolded filters in grease management at theo.terry@bearonsite.com or 877/653-4583.

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M02

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PIPES FROM THE PAST

History of Sewers display provides insight and highlights thousands of years of industry evolution

By *Ted DeBoda, P.E.*

With trenchless technologies constantly moving forward, we at NASSCO believe it is equally important to look back on how far we've come as an industry. So much has been learned by evaluating the historic aspects of underground construction, and that insight has been critical to our mission to set standards for the assessment and rehabilitation of underground infrastructure, and to assure the continued acceptance and growth of trenchless technologies.

We are pleased to announce that "The Collection Systems Historical Photo and Artifacts Display" — a traveling exhibit related to the history of sewage conveyance systems

— will be on display at the Water Environment Federation (WEF) event "Collection Systems 2014: Collection on the Chesapeake" at the Baltimore Convention Center, March 12-13.

Over the past two decades, Jon Schladweiler, the historian for the Arizona Water Association, has researched and collected materials related to sewer history. The extensive collection of materials covers the era from approximately 3500 BC through the 1930s. The purpose of the exhibit is to share the dynamic collection of materials that illustrate the evolutionary development of sewers over the past 5,500 years.

The exhibit, which was first introduced at a WEF collections conference 21 years ago, comes full cir-

cle as it will be displayed at the upcoming event in March. As an illustration of how industry associations and organizations come together for the education and promotion of the sewer industry, the Chesapeake Water Environment Association (CWEA) has graciously sponsored the \$5,000 transportation cost to move the large exhibit to Baltimore.

After the WEF event, the exhibit will be shipped to Arizona for one last display at Arizona Water's annual conference on May 7-9, 2014, at the Glendale Hotel and Spa in Glendale, Ariz. In October 2014, the exhibits will be shipped to WEFTEC in New Orleans, and after that, they'll become the property of NASSCO.

The historic collection will

reside at our headquarters in the Baltimore area. NASSCO will continue to display this exhibit at WEFTEC and the Underground Construction Technology (UCT) conferences, and our location will also provide access to the display for the large population of industry professionals on the East Coast. In an effort to further educate our industry, we welcome the donation of additional historic photos, sketches, articles, books or other sources of historical information on the history of sewers. ♦

Ted DeBoda is executive director of NASSCO. He can be reached at director@nassco.org.

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Fitchburg, MA

Include Manholes and Laterals - A limited number of PACP Recertifications welcome!

Trainer: Laurie Perkins

For more information or to register contact Laurie Perkins at 603-606-4430 or laurie.perkins@wright.pierce.com

February 28-March 1, 2014

Indianapolis, IN

PACP Only. A limited number of PACP Recertification seats available.

For more information or to register contact Marilyn Shepard at 916-899-8961 or marilynshepard1@hotmail.com

March 3-5, 2014

Marriottsville, MD

Includes Manholes and Laterals!

Trainer: Ted DeBoda

For more information or to register contact Dawn Jaworski at 410-442-7473 or dawn@nassco.org

March 11-13, 2014

Twinsburg, OH

Includes Manholes and Laterals!

Trainer: Brandon Conley

For more information or to register contact the Jack Doheny Camera Department at 248-349-0905 or pacp@dohenycompanies.com

April 28-30, 2014

Marriottsville, MD

Includes Manholes and Laterals!

Trainer: Ted DeBoda

For more information or to register contact Dawn Jaworski at 410-442-7473 or dawn@nassco.org

May 13-15, 2014

Atlantic City, NJ

Includes Manholes and Laterals!

Trainer: Brandon Conley

For more information or to register contact the Jack Doheny Camera Department at 248-349-0905 or pacp@dohenycompanies.com

May 19-21, 2014

Marriottsville, MD

Includes Manholes and Laterals!

Trainer: Ted DeBoda

For more information or to register contact Dawn Jaworski at 410-442-7473 or dawn@nassco.org

ITCP TRAINING (CIPP and Manhole)

February 18-19, 2014

Dayton, OH - Montgomery County

Environmental Services

Cured-In-Place Pipe

8 a.m. - 5 p.m. Day One

8 a.m. - 1 p.m. Day Two

Trainer: Gerry Muenchmeyer

For more information contact Gerry Muenchmeyer at 252-626-9930 or gerry@muenchmeyerassoc.com

February 19-20, 2014

Orange County, CA

Manhole Rehabilitation

8 a.m. - 5 p.m. daily

Trainer: Rocky Capehart

For more information contact Rocky Capehart at 916-834-2712 or rcapehart@sprayroq.com

March 19-20, 2014

Orange County, CA

Cured-In-Place Pipe

8 a.m. - 5 p.m. daily

Trainer: Rocky Capehart

For more information contact Rocky Capehart at 916-834-2712 or rcapehart@sprayroq.com

April 23-24, 2014

Denver, CO

Manhole Rehabilitation

8 a.m. - 5 p.m. daily

Trainer: Rocky Capehart

For more information contact Rocky Capehart at 916-834-2712 or rcapehart@sprayroq.com

If you are interested in having a class at your facility or in your area, contact Gerry Muenchmeyer at 252-626-9930 or gerry@muenchmeyerassoc.com

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PEOPLE/AWARDS

The **Lake County Stormwater Management Commission**, along with the Gurnee Park District and School District 56, received a Best of the Best Award from the Illinois Association of Park Districts for their inter-governmental cooperation in repurposing the Gurnee Grade School site. The award recognizes agencies and the units of government with which they have an agreement that have created successful intergovernmental agreements or partnerships that maximize tax dollars and benefit residents throughout the community.

The California Stormwater Quality Association recently presented four awards at its ninth annual stormwater conference awards. Recipients included:

- Outstanding Stormwater BMP Implementation Award: **Boeing Co.**, Santa Susana Biofilter
- Outstanding Sustainable Stormwater Project Award: **Placer County** – Placer County Low Impact Development Guidebook
- Outstanding Stormwater News, Information, Outreach and Media Award: **City of Santa Rosa** and **Sonoma County Water Agency** – Creek Stewardship Program
- Leadership Award: **Scott Taylor, P.E., D.WRE.**, an active member of CASQA and previously served as chairman and vice chairman of the board of directors.

LEARNING OPPORTUNITIES

American Society of Civil Engineers

The ASCE has these courses:

West Coast Sales Representative

North/South American master distributor for leading global pipe inspection and asset management software seeks West Coast sales rep to grow revenue and market share. Ideal candidate will have experience in software sales, municipal/contractor account sales, and dealer/OEM account management, as well as familiarity with software-based asset data collection/analysis. Applicants should prefer a fast-paced, small-company environment emphasizing teamwork, multi-tasking and initiative. Key responsibilities include:

- Prospect and maintain municipal and contractor accounts.
- Manage regional dealers and OEM accounts.
- Conduct on-site and web demos of software.
- Master ArcGIS and other asset management platforms.

Excellent written/verbal communication a must, as is West Coast residence and willingness to travel. Send resumes to:

mrussin@pipelineanalytics.com

Pipeline Analytics

CALENDAR

Feb. 24-27

Pumper & Cleaner Environmental Expo International, Indiana Convention Center, Indianapolis. Call 866/933-2653 or visit www.pumpershow.com.

Feb. 25-28

Water Environment Federation Utility Management Conference, Hyatt Regency, Savannah, Ga. Visit www.wef.org.

March 1-3

National Utility Contractors Association National Convention, Rio Las Vegas Hotel, Las Vegas, Nev. Visit www.nuca.com.

May 4-7

American Public Works Association 2014 North American Snow Conference, Duke Energy Convention Center, Cincinnati, Ohio. Visit www.apwa.net/snow.

May 12-14

American Water Resources Association 2014 Spring Specialty Conference, Snowbird Resort, Salt Lake City, Utah. Visit www.awra.org.

June 8-12

American Water Works Association Annual Conference & Exposition (ACE) 2014, Boston, Mass. Visit www.awwa.org.

July 13-16

American Society of Agricultural and Biological Engineers Annual International Meeting, Montreal, Quebec, Canada. Visit www.asabe.org.

Aug. 3-7

StormCon, Oregon Convention Center, Portland, Ore. Visit www.stormcon.com.

- Feb. 6 – Integrating Stormwater Harvesting into Low Impact Development, online
 - Feb. 6-7 – Pumping Systems Design for Civil Engineers, Grand Rapids, Mich.
 - Feb. 11 – The First Three Rules of Construction: Document, Document, Document, online
 - Feb. 12 – Curve Number and Vegetative Techniques to Manage Stormwater Runoff Sustainably, online
 - Feb. 21 – Preparing and Implementing Construction Site Stormwater Pollution Prevention Plans, online
 - Feb. 27 – Cold-Weather Stormwater BMPs That Work, online
 - March 3 – Sustainable Stormwater Hydrology: Concepts to Reduce Hydrologic Footprint, online
 - March 14-15 – Stormwater BMPs That Work: Effective Analysis, Design and Maintenance, Cambridge, Mass.
 - March 26 – Stormwater BMPs: What Works, What Doesn't and What About Maintenance, online
- Visit www.asce.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development is offering the following courses in Madison:

- April 3-4 – Using WinSLAMM v.10.0.1: Meeting Urban Stormwater Management Goals
 - May 28-30 – Unsteady Flow Modeling Using HEC-RAS
 - June 5-6 – Advance Modeling Using HEC-RAS
- Visit <http://epdweb.engr.wisc.edu>.

The Wisconsin Department of Natural Resources has a Pumps and Motors seminar on May 6-8 in Madison. Visit <http://dnr.wi.gov>. ♦

MSW invites your national, state or local association to post notices and news items in this column. Send contributions to editor@mswmag.com.

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