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WASTEWATER TREATMENT TO PIPE SERVICES **PAGE 12**



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By Marian Bond



On the cover: Central Iowa Televising started in business to provide communities with drain cleaning and televising services, but the company soon expanded into other lines of work, including cured-in-place pipe lining. Team members include, in front, Shane (left) and Kevin Jacobson, and in back, Ryan Whitten, Nick Paulson, Phil Paulson, Curt Deaton. (Photography by George Ensley)

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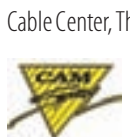


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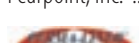
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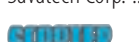


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Ted J. Rulseh

Why Did You Do It?

PEOPLE START BUSINESSES FOR ALL KINDS OF REASONS AND WITH ALL SORTS OF MOTIVATIONS. WHAT WAS IT THAT FINALLY PUSHED YOU INTO ENTREPRENEURSHIP?

BY TED J. RULSEH, EDITOR

In the world of romance and marriage, many people love “How We Met” stories. When people ask me, I tell them my wife-to-be picked me up in a beer tent, and it’s mostly a true story.

In the world of business, “How We Started” stories are just about as popular. While some people grow up wanting to own a company, it seems most of us are not born with entrepreneur genes. We go to school with the aim to “get a job,” never thinking we could ever be the one doing the hiring.

He found no good reason why not, went into business, and has been happily self-employed for 13 years.

Still another friend worked for steel distributing companies for about 15 years and did very well as an inside and later outside salesman. The trouble was that the market went up and down, and his companies kept laying him off, or his branch office would close, at which point he would hire on somewhere else.

After this happened for the third time, he and an associate said, “Enough

Sometimes money is the driving force. Other times it’s the desire just to “be one’s own boss.” Sometimes it’s about having lifestyle flexibility (though the demands of customers can get in the way of that goal).

Then something happens and our outlook changes. The triggering events and the key motivations vary greatly. Not all motivations are healthy, and some businesses fail as a result. In the end it’s not the motivation that matters but the execution. Still, the stories are worth hearing.

GETTING EVEN

One fellow I know started a book publishing company after the publisher he was working for laid him off. He did it for vengeance – he became his old employer’s direct competitor. Unfortunately, the poverty of his motive was exceeded only by his lack of capital, and he failed horribly.

Another friend talked often about having been born to be a “good soldier” – he could never run a business, he said. But then his employer of many years laid him off, and he got to thinking: “Why exactly was it that I couldn’t run a company?”

of this.” They formed a steel sales outlet as partners and, with all their experience in the industry, were well on their way in no time.

One more acquaintance went into business simply because he “got tired of making other people rich.” He started a distributorship with large-format computer printers at about age 40, did exceedingly well, sold out 15 years later, and retired comfortably at 55.

MANY MOTIVES

The two businesses profiled in this issue of *Cleaner* started quite differently. Subterrain Technologies in Palmetto, Fla., was founded by five brothers with a vision of what trenchless technology could do for customers. Central Iowa Televising founder Kevin Jacobson launched the business with his son while also working full-time for a city in water and wastewater treatment.

Sometimes money is the driving force. Other times it’s the desire just to “be one’s own boss.” Sometimes it’s about having lifestyle flexibility (though the demands of customers can get in the way of that goal).

As interesting as startup stories can be, what I call “thin soup” stories can be even better. Many businesses start out in extremely humble settings. Two former bosses in an ad agency where I worked started their own venture and worked out of one partner’s basement on desks made of doors laid across sawhorses.

Sometimes it takes quite a while before the entrepreneur can draw a salary – people I know have cut every conceivable personal expense, right down to newspaper and magazine subscriptions, just to get through the first year or two, after which the business rewarded them.

Cleaner would like to hear stories about your startup – why you took the leap and how you made it work through the early months and years. Send a note to editor@cleaner.com and briefly describe your experience. I promise to respond, and we’ll report on some of the contributions in a future issue. **c**

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BY MARIAN BOND

Tapping into **INSIGHT**

It was supposed to be a business serving the central part of Iowa, providing basic water and wastewater services to municipalities and contractors. But when the word spread about Central Iowa Televising, owner Kevin Jacobson soon saw the need to expand to cover the whole state, and to offer a bigger service menu.

Jacobson brings an impressive resume as water and wastewater superintendent for Story City. He holds an Iowa Grade IV (highest) wastewater treatment license and has 31 years of experience in that business. He handles the business end of Central Iowa Televising while working full-time for the city; son Shane is the operations manager.

“We started the business because I saw a need in communities for drain cleaning and televising,” says Jacobson. “In some areas the

(continued)

Curt Deaton, inside a manhole, inserts CIPP spot liner into a pipe for repair. (Photography by George Ensley)

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Shane Jacobson sets a Power Smoker (Hurco Technologies) for a smoke test. RIGHT PHOTO: Phil and Nick Paulson lower a camera and Badger transporter from Aries Industries.



conditions are pretty bad because of a lack of maintenance. Lines haven't been cleaned for a long time.

"There is root intrusion and a lot of inflow and infiltration (I&I). Intruding taps cause flow interruptions. We have to cut those back, and then return to do a full inspection. These are typically 4-inch service lines and 8-inch mainlines. They have cracks and they need a lot of tender loving care."

The state Department of Natural Resources is requiring I&I studies, and engineers involved are contacting Jacobson's company for quotes on jobs. "We see a lot of that going on," says Jacobson. "It's kind of a trickle-down effect. They start with the larger communities and work down to the smaller ones. The more water they pump, the more exposure they have."

Jacobson estimates the company has inspected more than one million feet of mainline since the company started in 2007.

ADDING AND EXCHANGING

Jacobson added capabilities gradually, the most recent being cured-in-place pipe lining using Source One Environmental. In 2009, the company replaced an older combination cleaning truck with a 2002 Vactor 2100 on an International Chassis with a positive displacement blower, 2,500 psi/80 gpm pump, 1,500-gallon freshwater tank, and 10-cubic-yard debris tank, purchased from Jack Doheny. With that unit the firm offers hydroexcavation, sewer jetting, lift station cleaning and other services.

For CCTV the company has two inspection vans with PE 2600 and PE 2620 pan-and-tilt cameras and Badger wheeled tractors from Aries Industries, along with a PE 3000 zoom/pan/tilt camera and Saturn III camera, also from Aries. Other equipment includes a Radiodetection locator, smoke-testing sys-

profile

CENTRAL IOWA TELEVISION, MCCALLSBURG, IOWA



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FOUNDED:	2007
AREA SERVED:	Iowa
SPECIALTIES:	CCTV inspection, hydroexcavation, pipe lining
EMPLOYEES:	5
WEBSITE:	www.centraliowatelevision.com

"We started the business because I saw a need in communities for drain cleaning and televising. In some areas the conditions are pretty bad because of a lack of maintenance. Lines haven't been cleaned for a long time."

Kevin Jacobson

tem from Hurco Technologies, and a Lumberjack sewer auger from NozzTeq for root control.

Jacobson purchased a 3,000-square-foot heated garage with three bays and a lounge and office for the technicians. The business office is in the Jacobson home directly across the street.

Shane Jacobson and employee Curt Deaton are certified in the NASSCO Pipeline Assessment and Certification Program (PACP), Manhole Assessment and Certification Program (MACP), and Lateral Assessment and Certification Program (LACP) systems. Both operate the CCTV equipment and the Vactor truck, backed up by operator assistants Ryan Whitten and Phil Paulson.

Shane Jacobson says his biggest challenge has been to learn the business and recognize that everybody makes mistakes, including himself. "We want to

(continued)



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Ryan Whitten and Curt Deaton prepare to jet and vacuum a line.

POSITIVE VIEW

Working with his son Shane, 24, in a family business has been rewarding for Kevin Jacobson, and as Central Iowa Televising continues to grow, he looks forward to bringing on his older son Tyler, 27, who now works in the North Dakota oil fields.

The elder Jacobson says Shane has great visions for growing the company, while he is a little more conservative. "Walk before you run," he says. "We need to do slow growth while we focus on the quality of the job. Plus, you have to pay the bills."

It was with Shane's encouragement that the company was born. For a short time in the past, Kevin Jacobson had worked part-time for a drain-cleaning and televising company, and Shane as a boy sometimes went along to observe. When Kevin broached the idea of starting a company, Shane enthusiastically signed on. He runs the technical side of the business and supervises employees in the field.

"Shane really urged me on," says Jacobson. "He said, 'We can do this.' It took off. It has really worked great."



Shane Jacobson performs a CCTV inspection inside a camera truck from Aries Industries.

"We do want someone to be able to operate a computer. For televising, you have to be computer-savvy. We want to groom and elevate an operations assistant to a full operator, and then hire more people as we grow the company."

Kevin Jacobson

focus on quality, not quantity," he says. "To take our time and learn from every job we undertake. I'm enjoying the work. I knew from the start that I would, as I have always been interested in the sewer industry. I was really excited about getting the business going."

Earning certifications was an important learning experience, as more and more communities require the NASSCO defect coding.

BOOTS ON THE GROUND

In staffing the company, Kevin Jacobson looks for motivated people who will work hard and don't mind being out of town when necessary. "Experience is nice, but it's hard to find people with background in this industry," he says.

"We do want someone to be able to operate a computer. For televising, you have to be computer-savvy. We want to groom and elevate an operations assistant to a full operator, and then hire more people as we grow the company."

One of the first jobs came from Jacobson's former hometown, where the company did a cleaning and televising job. "We also knew a lot of contractors who were willing to give us an opportunity to do some cleaning and televising for new subdivisions," Kevin says.

At present, about 75 percent of the work is for Iowa municipalities, for which crews travel in all directions up to 150 miles. The rest of the work is for commercial and industrial clients. Mainline CCTV and drain cleaning make up 90 percent of the business, but that will likely change as more customers learn of the other capabilities.

FROM ANOTHER VIEW

Kevin Jacobson is walking in a new pair of shoes as owner of Central Iowa Televising, and he has been challenged by tasks like bookkeeping, billing, accounts receivable, and dealing with rules and regulations. He stresses quality control to the technicians.

"The operator might be working on a big job, and circumstances would cause him to move to another area, and return later," says Jacobson. "Everything must be properly documented. The technician needs to find the defect and properly mark it."

(continued)

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TOUGH. TRUSTED.



The team at Central Iowa Televising includes, from left, Phil Paulson, Nick Paulson, Shane Jacobson, Kevin Jacobson, Ryan Whitten and Curt Deaton.

Jacobson notes that he has to take care not to push technicians too hard – quality comes first. Technicians are expected to have a strong work ethic, but in return they enjoy benefits that include health and vision insurance and paid vacation, sick leave and holidays. Training and safety are also high priorities. Only the two certified operators are allowed to handle the Vactor truck, and all safety rules are carefully followed.

Jacobson's approach to the business has brought quick success. "We started out with basic cleaning and televising, but as we went about our work, more and more people asked if we could do some of these other jobs," says Jacobson. "We started doing root cutting, easement work, hydroexcavating, smoke testing, and manhole inspection, and most recently we added CIPP lining. Source One Environmental came out and helped us with our first patch, and observed

"There are so many things you can do with hydroexcavation – not always big things. Say you have a valve box off-center, and you can't get your wrench on it. You can excavate a little bit and then use the wrench."

Kevin Jacobson

on the second job. They will be available if we have any future issues.

"The important thing with lining is that you always measure properly. We use our camera to ensure the proper placement and take an exact measurement using a footage counter and a piece of tape on the cord. This is vital."

Hydroexcavation is fairly new to Iowa, but Jacobson says it seems to be catching on. "It makes it easier to uncover pipes, and you don't have to worry about fiber optics underground," he says. "It's a real worry digging with a backhoe. One of our bigger jobs was for a gas company where we were looking for an underground gas line. With hydroexcavation, we didn't have to worry about damaging the lines.

"There are so many things you can do with hydroexcavation – not always big things. Say you have a valve box off-center, and you can't get your wrench on it. You can excavate a little bit and then use the wrench."

IMAGE AND MESSAGE

Jacobson asks technicians to keep the trucks and equipment clean and the work area uncluttered. They find that when working in some neighborhoods in small communities, people come out to ask about the job, and they often stop and watch the video (standing outside the van) as work progresses. The organized appearance of the equipment has proven to be beneficial, drawing good feedback from communities.

The technicians also keep a neat personal appearance, wearing shirts and jackets with the company logo. Fleet vehicles are painted all white with blue lettering.

During winter when the temperatures are below zero, Shane Jacobson and the other technicians often turn to promoting the company by visiting the municipalities they have worked for, as well as potential clients.

Central Iowa Televising has had its website up for two years, and it has drawn some response, but Jacobson sees a need to upgrade the site continuously.

Overall, Jacobson is surprised at how fast the company has grown without a major advertising campaign. No doubt his experience has been a big benefit: He can see the world from the customer's perspective. "I can reflect on what I see is needed," he says, "and then I can relate to Shane and his crew the perspective that might come from the other side of the desk." **C**

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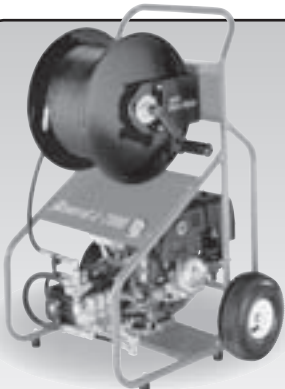
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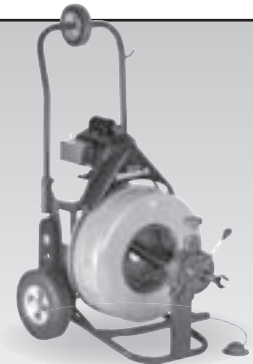
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When It's Never Quiet

TINNITUS CAN BE A LASTING AND MOST UNPLEASANT RESULT OF LONG-TERM AND UNPROTECTED EXPOSURE TO LOUD NOISES

BY TED J. RULSEH

Have you ever gone to an isolated place and sat for a while, just marveling at the silence? Now imagine if you did that and a persistent noise in your ears remained. That's what life is like for people experiencing tinnitus.

It's a common problem, faced by as many as one in five people, according to the Mayo Clinic. One cause (by no means the only one) is long-term exposure to loud noises, on the job or elsewhere.

The best way to deal with tinnitus is to prevent it to the extent possible. It can develop through no fault of the person, of course, but limiting exposure to loud noise is simply a good policy, caregivers say.

For example, many members of bands that play loud music develop tinnitus, as do even some people who listen to portable music players at excessive volumes. One way to reduce your risk of tinnitus is to wear appropriate hearing protection consistently if you work around loud equipment or in noisy environments.

HARM TO EAR CELLS

Tinnitus often is caused by damage to the cells of the inner ear. There, tiny and delicate hairs move with the pressure of sound waves, triggering ear cells to release electrical signals through the auditory nerve, which connects the ear to the brain. The brain interprets those signals as sound. If the hairs of the inner ear become bent or broken, they can leak random impulses to the brain.

The phantom noise tinnitus causes is not always a ringing. People with the condition may experience buzzing, roaring, clicking, whistling or hissing. "The phantom noise may vary in pitch from a low roar to a high squeal, and you

may hear it in one or both ears," says the Mayo Clinic website page on tinnitus symptoms. "In some cases, the sound can be so loud it can interfere with your ability to concentrate or hear actual sound. Tinnitus may be present all the time, or it may come and go."

Tinnitus can be caused by short-term exposure, such as attending a loud concert or working for a day around loud equipment, but in those cases it usually goes away. Long-term exposure to loud noise can do permanent damage.

If you have tinnitus, loud noise may not be the reason. The condition can be age-related – many people gradually lose their hearing starting at around age 60. Other causes can be as diverse as stiffening of the bones in the middle ear, earwax buildup, stress and depression, jawbone disorders such as TMJ, head or neck injuries, blood vessel disorders, high blood pressure, and certain medications, including very high doses of aspirin.

TAKING ACTION

Tinnitus can make life rather miserable. Apart from the sheer annoyance, people with the condition tinnitus may experience fatigue, memory issues, trouble sleeping, difficulty concentrating, stress, anxiety and irritability.

There is no cure for tinnitus, although it can be managed. A doctor will first try to identify and treat the underlying cause, such as by clearing out accumulated earwax, changing the person's medications, or treating a blood vessel condition.

A doctor may suggest using an electronic device such as a white noise generator with pillow speakers to suppress the sound and make it less bothersome during sleep. Hearing aids can be helpful if the person has hearing loss as well as tinnitus. Also useful for some people are devices worn in the ear that produce low-level white noise.

Some medications can help mitigate tinnitus, although they tend to be used only in severe cases and may have significant side effects.

The best way to deal with tinnitus is to prevent it to the extent possible. It can develop through no fault of the person, of course, but limiting exposure to loud noise is simply a good policy, caregivers say.

Hearing is precious and, as anyone can tell you who has experienced the quiet of a wilderness setting or a late night in the house: Silence is golden. **c**



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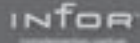
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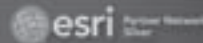
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Five brothers, three with more than 75 years' combined experience in the underground and sewer industry, formed Subterrain Technologies in 2005.

From the beginning, president Tony Helmer and brothers Patrick, Shawn, Victor and Christopher knew the direction they wanted to take with their venture, based in Palmetto, Fla., and serving the Tampa Bay region and beyond.

They wanted to be a one-stop-shop for problems with underground utility lines: to find it, fix it, and leave the client in excellent shape. Chief operations manager Shawn Helmer says the business plan called for a variety of equipment: push and mainline cameras, jetters, pipe bursting systems, CIPP lining, and point repair capability. Soon they added manhole rehabilitation and other remedial procedures.

"We knew we needed to be able to respond to customers with the latest

in technology," says Shawn Helmer. "With a camera and cleaning capabilities, you get your foot in the door to a lot of places." The business concentrates on existing infrastructure rehabilitation and does not compete with big installation contractors.

profile

SUBTERRAIN TECHNOLOGIES, INC., PALMETTO, FLA.



OWNERS:	Tony Helmer, Patrick Helmer, Shawn Helmer, Victor Helmer, Christopher Helmer
FOUNDED:	2005
EMPLOYEES:	10
MARKETS:	Commercial, industrial, municipal, residential
SPECIALTIES:	Pipe inspection, lining, bursting, manhole rehabilitation
WEBSITE:	www.subterrainfl.com

(continued)

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LEAN AND VERSATILE

Tony Helmer is the license holder, Patrick is chief financial officer, and Victor and Christopher are technicians, but all the brothers work right along with five other crew members. “Any one of us might be jetting one day, pipe bursting the next, and then backfilling a ditch,” says Shawn. “Titles aren’t critical in our ability to plug in the right person to fill a need. And that’s how we operate.”

The customer base is about 65 percent multifamily residential buildings, mobile home communities, townhouses and strip malls. Ten percent is in single-family residential, and the balance is industrial, commercial and municipal.

“Any one of us might be jetting one day, pipe bursting the next, and then backfilling a ditch. Titles aren’t critical in our ability to plug in the right person to fill a need. And that’s how we operate.”

Shawn Helmer

“We brought in pipe bursting fairly early in the equation,” says Helmer. “We knew it was definitely a revenue stream. Any trenchless technology we could offer would increase our chances of getting work fairly early.” The CIPP and sliplining systems, also added early on, enable repair of 4- to 60-inch lines, and larger if needed.

CRACKED AND CRUSHED

Piping in the Tampa Bay region creates plenty of opportunity for repair. The sewer system, much of it in the ground for 40 years or more, includes clay tile, Orangeburg and asbestos piping. Storm drains include corrugated metal, concrete and plastic pipe.

“With Orangeburg, we see that the ground pressure has forced the pipe into an egg shape,” says Helmer. “When it loses a certain amount of roundness, the sidewalls no longer support it, and it is crushed. With clay and other tile, we see cracks and a lot of joint separation with root intrusion through those joints.”

TO THE POINT

Shawn Helmer, who shares ownership of Subterrain Technologies with four brothers, says the company has established a loyal customer base, but he admits there’s a challenge in finding the marketing tool that gets them in front of the ideal client. The company now relies on cold calls and referrals.

Some opportunities come through past customers by word of mouth. “We have our website, and we’re looking to improve it,” Helmer says. “In today’s world you need a presence on the Web with information that is easily accessible – short and to the point.”

Subterrain’s story definitely fits that description: getting away from traditional dig-and-replace, and using new technologies and tools. “This excited us,” Helmer says. “We chose to do it for ourselves versus doing it for someone else.”



Technician Chris Helmer operates the company’s mainline camera system from Cobra Technologies.

The answer most frequently is pipe bursting and pulling in HDPE pipe. “When you need a single piece of pipe 400 feet long with no joints for roots to get in, you can use HDPE,” says Helmer. “We deal with 40- and 50-foot sticks, we fuse them together, and the weld is as strong as the pipe itself. It is a great product.”

HOUSING DEVELOPMENTS

Major projects often involve apartment complexes and mobile home communities, which may contain 300 to 700 units. Those projects can stretch out in phases over several years. Sometimes, owner associations schedule the work at times when most residents have left for the summer for properties in the North.

Typically, these projects involve 3- to 6-inch pipes. “The typical mobile home community dates back to 1965, and they are not tending to build new ones,” says Helmer. “Generally you have all your utilities – water, sewer, electric, phone and cable – in a small, confined easement, usually running behind the homes. The utilities have in large part been ignored.”

Other major projects include repair of storm drains with rusted and corroded metal pipe and concrete pipes with joint separation. The solution in most cases is sliplining with HDPE. “It’s a very versatile product,” says Helmer. “With the smooth interior of the pipe, you can reduce the size of the pipe and increase the flow.”

“You can go from a 36-inch pipe down to a 28-inch HDPE pipe and not reduce the pipe’s ability to carry water. Flow increases with less friction inside

(continued)

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the pipe. We can move water faster when we slipline the pipe. For the larger storm sewer repairs where an open dig is not feasible and CIPP lining won't work due to the conditions within the host pipe, our preferred method of pipe replacement is sliplining."

For lateral lining projects, Subterrain uses the MaxLiner USA system, designed for 3- to 10-inch lines.

Manhole rehabilitation for municipal clients addresses problems unique to Florida. "Here we often have a high water table and a lot of infiltration," says Helmer. "The temperatures down here cause hydrogen sulfide to attack the structure. It's an accelerated deterioration due to climate and related conditions.

"We use Machine Technologies mixing and mortar pumping equipment to do the repair with structural mortars from Inflow Solutions. Work ranges from rebuilding the benches to actually rebuilding the walls of the manholes to their original thickness."



Company president Tony Helmer and chief operations manager Shawn Helmer.

EYES UNDERGROUND

The Subterrain fleet consists of eight vans and trucks. A 2001 Ford E450 box van carries mainline inspection equipment from Cobra Technologies, including 6- and 8-inch Cobra crawlers. A 1985 Grumman box van is outfitted with pipe bursting equipment from TRIC Tools and the MaxLiner lateral system.

Push cameras include models from UEMSI, Vivax-Metrotech Corp. and Ratch Electronics, plus a black-and-white pan-and-tilt unit from Wiggerich Warenwirtschaft, and a black-and-white SeeSnake camera from RIDGID. Other items include:

- Locators from Schonstedt Instrument Co. and Vivax-Metrotech Corp.
- Leak detection equipment from UE Systems (Ultraprobe 2000) and Subsurface Leak Detection
- Model 4018 trailer-mounted waterjetter from US Jetting with 4,000 psi/18 gpm pump, 600-gallon water tank, and removable 400-gallon tank
- Model 139-304 large electric-powered manhole tripod with lowering basket from Lisbon Hoist

Combination sewer cleaning trucks are rented when needed, and Tony and Shawn operate them. The company works out of a 40-year-old, 4,000-square-foot steel building with offices, meeting rooms and ample storage and yard space.

MANY-FACETED

The company policy is that all technicians are trained on all aspects of the equipment, although the mainline camera truck is operated solely by Christopher Helmer.

When looking for technicians, the brothers target people who are willing and eager to learn and solve problems on their own ingenuity. "You can go in with a plan, but the plan you finally use may not be the plan you started with," says Helmer.

"Everything we deal with was first done by someone else. You may be trying to do a pipe bursting job, but 15 years ago there was a break in the pipe and somebody poured in concrete. That concrete will capture the bursting head. The technician has to decide what to do. We need people who can think and problem-solve. Every single job is different."

Helmer says even a camera can't reveal everything that is under the ground. For example, soil conditions five to seven feet down can be unpredictable, and technicians have to be able to adapt.

"Our technicians can fill in anywhere," Helmer says. "With as many things as we have going on, you have to use what you have at hand. We

"Here we often have a high water table and a lot of infiltration. The temperatures down here cause hydrogen sulfide to attack the structure. It's an accelerated deterioration due to climate and related conditions."

Shawn Helmer

don't want to have to think that someone can or can't be on this or that kind of job. Everybody is valuable and everybody is useful."

PLANNING THE WORK

Tony and Shawn Helmer plan the job schedule on a two-week calendar. A given job may involve two to five people. On a recent project in Missouri, three technicians worked for seven days in a wastewater treatment facility near Lake of the Ozarks, applying Rubberseal waterproof coating from Inflow Solutions to the walls of tanks that had been leaking.

About 5 percent of the company's work is for emergencies. "You never know when the phone will ring, and they need you right then," says Helmer. "We respond. We try to plan jobs in advance, but we have the leeway and flexibility to plug something in on a moment's notice. That presents an opportunity to show the customer they made the right phone call."

Emergency calls roll into Helmer's line, and he makes the decision on the proper response. "It's based on the caliber of emergency," he says. "A lot of times, people only think they have an emergency. You have a conversation and determine what they are hoping to get out of the call.

"If in fact they have an emergency, and I consider it an emergency, I call an employee and say, 'I need you at the shop in 15 minutes.' Our employees all know that getting such calls is a part of the job. We get to the shop and mobilize based on the needs of the particular customer, and then we leave from the shop."

SAFETY FIRST

Because of the company's many underground services, all technicians receive extensive safety training, including OSHA confined-space entry and

(continued)

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"If in fact they have an emergency, and I consider it an emergency, I call an employee and say, 'I need you at the shop in 15 minutes.' Our employees all know that getting such calls is a part of the job."

Shawn Helmer

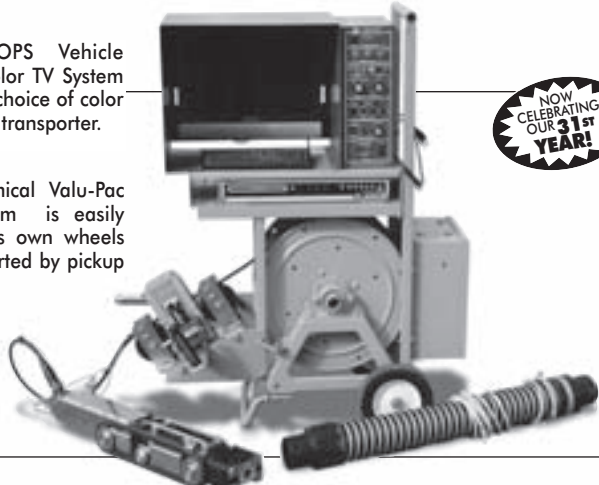
OSHA Competent Person training. "Manhole rehabilitation almost always requires some form of confined-space work," says Helmer. "Every time we go into a manhole, it is treated as confined space, and we do that quite often."

Helmer says new technology definitely "sweetened the pot" when he and his brothers considered opening their own business, taking out home-equity loans, and getting some financial backing from their parents. He sums it up, "Subterrain Technologies gave us the freedom to chart our own path." **c**

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Sizzle That Sells

A TRAILER-MOUNTED 4,000 PSI JETTER AND SERVICE VAN MAKE A SHARP IMPRESSION WHILE TRAVELING – AND DELIVER BIG CLEANING PERFORMANCE ON THE JOB

BY KEN WYSOCKY

To expand its business, Tillet Plumbing & Heating chose the sizzle *and* the steak, combining a trailer jetter from Spartan Tool and a 2011 Isuzu Eco-Max service truck with a dazzling red-and-gold paint scheme that turns heads around Harrisburg, Pa.

The shroud of the Spartan Warrior jetter and the truck’s 11-foot-long Tool Pro body, made by the Reading Group, provide a canvas for branding, says Betty Tillet, owner and president of the company, established in 1994 and based in Annville.

“The way we look at it, the jetter and the truck are billboards that are already paid for, so we might as well use them as best we can,” she says. “All our vehicles are red – it’s one of our favorite colors because it’s so eye-catching.

“The gold vinyl letters are reflective, so you can still see our name and phone number at night. It cost about \$5,000 to paint and letter the truck and

jetter, but it’s a minimal investment compared to the exposure it provides. You recoup your money tenfold in terms of business leads.”

money machines

OWNER:	Tillet Plumbing & Heating Inc., Annville, Pa.
MACHINE:	Warrior trailer jetter (Spartan Tool), pulled by a 2011 Isuzu Eco-Max truck
FUNCTION:	Drain and grease trap cleaning
EQUIPMENT:	Spartan drain machines, Gen-Eye III camera (General Pipe Cleaners)
COST:	\$44,000 (jetter only)



The shroud of the Spartan Warrior jetter and the truck’s 11-foot-long Tool Pro body, made by the Reading Group, provide branding power for Tillet Plumbing and Heating. (Photos courtesy of Tillet Plumbing & Heating)



With the gold lettering and red coloring, the truck and jetter get attention when seen around town and help generate leads.

HIGHER POWER

Purchased in March 2010, the jetter piqued Tillet's interest because it could do more than the company's cable machines and older cart-mounted jetter. The new unit delivers up to 4,000 psi/20 gpm and carries a 300-gallon water tank. It can tackle tough grease clogs in restaurants and other establishments and blast out tree roots – a common problem in the area, says technician Jeffrey Tillet Jr.

"The 4,000 psi really pulled us in," he says. "Our cart-mounted jetter produces much lower psi and gpm. When we saw a demonstration of how the Warrior worked with a Warthog nozzle (StoneAge), it blew us away. The older jetter did a pretty good job but couldn't clean the full circumference of the pipe, so it wasn't long before roots would grow back and catch more debris.

"It cost about \$5,000 to paint and letter the truck and jetter, but it's a minimal investment compared to the exposure it provides. You recoup your money tenfold in terms of business leads."

Betty Tillet

"But this jetter sprays at an angle that hits the full width of the pipe. It cuts roots off shorter, which results in a cleaner pipe and longer time between cleanings."

BUSINESS BOOSTER

Betty Tillet says the company also bought the jetter because it can open something other than drain lines: new markets. As the recession deepened, Tillet found itself competing more with price-cutting handymen who were trimming profits to retain market share.

"This trailer jetter niche gives us more opportunity because the one-man shops can't afford to go out and buy this kind of equipment," she says. "A piece of equipment like this gives us an edge because we can get our foot in the door for commercial work."

So far, her hunch is paying off. The company had tried in vain to get work at a local hospital – until the new jetter came along. "It does things they can't do in-house," she says. "This machine also has helped us obtain work at a Hershey's chocolate plant and a large food-processing plant that we couldn't have handled before. And that's good, because commercial work is more profitable than residential work."

NICE AND QUIET

The jetter helped give the company a 15 percent bump in gross revenue in the first year of ownership. "We were a little surprised," Betty notes. "It's really helped us more than we expected it would." Jeffrey cites other benefits:

- An OSHA-compliant sound-dampening package that comes in handy on night jobs in residential neighborhoods
- A 180-degree pivoting hose reel and controls
- A lockable enclosure that protects critical components from harsh weather
- A six-function remote control that reduces manpower needs on some jobs
- An unloader/regulator that automatically eases the water pressure on the nozzle if it gets too high

The dynamic duo gives Tillet's the best of both worlds: a great steak with a lot of visual sizzle. **C**

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Money Machines, a feature in *Cleaner*, reports on innovative work vehicles that help contractors operate more efficiently, satisfy customers and earn more profit. We'd like to know about your Money Machine — be it a service van, camera truck, jetting rig, vacuum unit or any vehicle that really helps drive your business. To nominate your vehicle for a feature in this column, send an email to editor@cleaner.com. Tell us briefly but specifically what features make it a great producer. And send a picture — because appearance counts. We look forward to seeing your Money Machine.

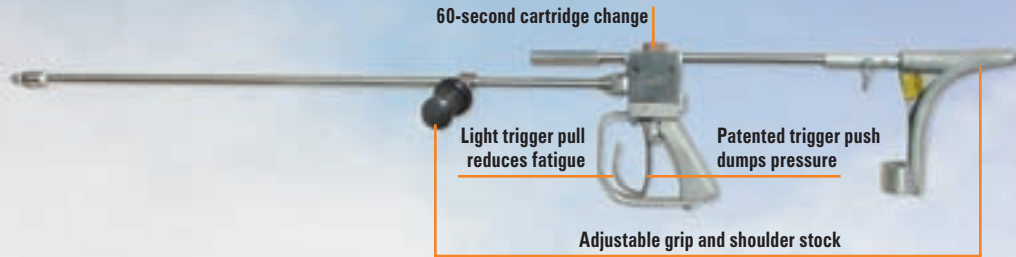
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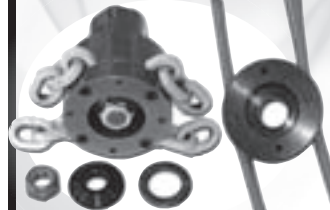
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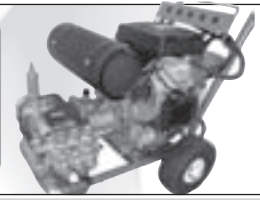
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ZOOOOOM!

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BY DOUG DAY

Keeping people out of potentially dangerous environments is just one benefit of using pole cameras (also called zoom cameras) to inspect pipes and manholes. As digital camera technologies mature, pole cameras are providing better results than ever, with more zoom capability, better lighting, and even image stabilization.

While pole cameras cannot inspect entire pipes in the manner of crawler-mounted cameras, they do allow a good view of up to several hundred feet of a line to help crews determine how much crawler-based inspection is needed (if any) or to document that repair work has been completed satisfactorily.

“Zoom inspection gives you the power to understand the condition of every underground asset without spending a lot of time and money.”

Richard Lindner

CLEAR BENEFITS

“A municipality can eliminate the need to run a camera in 25 percent of the lines,” says Dennis Parker, Florida sales manager at CUES. “That is a big savings.”

Richard Lindner, president of Envirosight, adds that crawler inspections can take significant time. “Zoom inspection with a pole camera gives you the power to understand the condition of every underground asset without spending a lot of time and money. You know exactly where to deploy crawler inspection, cleaning and rehabilitation resources.”

In addition, contractors can use the technology to help in bidding. “It allows them to better price and customize cleaning proposals to the actual pipe conditions, instead of just guessing, and that includes taking photos,” says Lindner. “That helps everyone make the best decisions.”

Parker says pole cameras have simplified something that was difficult only 10 years ago. “The ability to do a job like inspecting a manhole was not that easy,” he says. “Crews would hang their mainline camera on a rope to try to inspect a manhole. With pole cameras, it’s an easy task.”

Because of that, Parker expects the market to expand: “With the reduction of people in many sewer departments, the need to do more with less people is a top priority. Pole cameras allow one person to inspect both manholes and mainlines.”

Justin Femrite, product manager for Remote Vision System, sees another issue that he expects will drive expansion of the market. “The biggest change I think we’ll see is the continued limitations and safety issues with confined-space entry. As the industry becomes more aware of the safety hazards and OSHA requirements of confined space, they will continue to seek out other options to perform their inspections.”

TWO KINDS OF ZOOM

Two key differences in cameras are the zoom capability and lighting. There are two kinds of zoom – optical and digital. Optical could be called true zooming, as it uses the lens to “get closer” to the item being inspected. Digital zooming (only on digital cameras) is the same as enlarging an image using editing software. Optical zooming maintains the image quality. In digital zooming, there is loss of quality as the image is enlarged.

Digital cameras have both kinds of zoom. Total zoom capability is often expressed as a single number that is the product of the optical zoom and digital zoom. For example, a camera with 35 times (35x) optical zoom and 12 times (12x) digital zoom has 420x total zoom capability. It is important to know how much of each type of zoom a given camera has. In general, more optical zoom is desirable, manufacturers say.

Zooming doesn’t help much if there isn’t enough light to illuminate the pipe. “New lighting technologies have greatly enhanced the range of zoom inspection cameras, allowing operators to capture more detail from farther away while maintaining perfectly aligned illumination,” adds Lindner. “These cameras have features that allow inspection of a wider range of infrastructure, like manholes and tanks.”

VARIED APPLICATIONS

“Pole cameras are a great tool for engineering planning and troubleshooting problems within a collection system,” says Greg Fry, the national sales manager for Aries Industries. “They are a great first-look investigation and emergency troubleshooting device. Tractor-based systems are required to thoroughly inspect and inventory the condition of a collection system.”

“With the reduction of people in many sewer departments, the need to do more with less people is a top priority. Pole cameras allow one person to inspect both manholes and mainlines.”

Dennis Parker

Lindner agrees. “Crawlers give 100 percent inspection and can see beyond pipe bends, where zoom cameras can’t see,” he says. “Crawlers can also locate laterals, launch cameras into the lateral, digitally scan pipes, take measurements, and do other inspection tasks that are very valuable.”

Wireless technology has improved both the usability and functionality of pole cameras, according to fry. “A wireless system not only allows the video to be viewed locally at the inspection location, the video can be transmitted back

to a remote recording device which allows a more detailed logging of inspection data.”

The length of the expandable poles varies. Most manufacturers offer a few options. Pole cameras have been found useful in many applications beyond sewer inspection, such as search and rescue, security, law enforcement and industrial maintenance. The U.S. military has used them in the Middle East, and photographers have been known to use them to get high-angle pictures without using a ladder or lift.

Here are descriptions of pole cameras of four (CUES, Envirosight, Aries, RVS) manufacturers who responded to an invitation from *Cleaner* to provide comments about the technology.

CUES

The QZ2 pole camera from CUES has image and video stabilization that eliminates shaking and blurring, especially when the camera is zooming out to long distances. “A person holding a pole camera is going to shake, and this feature eliminates that,” Parker says. “We spent many hours of video testing to compare the sharpness of the image with and without stabilization. It does no good to have a zoom feature of 35 times or greater without having a stabilized image.”

An ANSI Class 2 safety vest is part of the CUES pole camera system.



(Photo courtesy of CUES)

“Having the LCD monitor on the vest instead of strapped to the pole reduces the weight of the pole camera,” says Parker.

The camera is mounted on a carbon fiber telescopic pole that extends to 24 feet; a 34-foot pole is optional. The camera zooms to 420 times (35x optical and 12x digital). It has two dual-wattage, high-intensity discharge (HID) lights of 9.5 and 14 watts. 800/327-7791; www.cuesinc.com.

“(Pole cameras) are a great first-look investigation and emergency troubleshooting device. Tractor-based systems are required to thoroughly inspect and inventory the condition of a collection system.”

Greg Fry

ENVIROSIGHT

The QuickView camera from Envirosight comes in two models: standard and Haloptic. The Haloptic package offers 20 times more illumination than conventional zoom systems for good images up to 400 feet, according to Lindner. “This new design dramatically boosts inspection range,” he says. “Because the illumination is axially aligned with the camera, an operator never needs to reposition. Optimum viewing is maintained automatically throughout the inspection.”

The camera has a zoom capability of 432x (36x optical, 12x digital) with image stabilization. Poles are available in extension lengths of 16, 24 and 30 feet. The operator



(Photo courtesy of Envirosight)

vest holds the battery and control box. The portable digital viewer/recorder stores up to 12 hours of data that can be downloaded with a USB drive or MicroSD card. 866/936-8476; www.envirosight.com.

ARIES INDUSTRIES



(Photo courtesy of Aries)

The Aries HC3000 can serve as a portable, stand-alone inspection system or can be used with TV inspection monitors, a VCR, or a digital recording device. The high-resolution camera has a 432x zoom (36x optical, 12x digital) with detachable low-wattage, high-intensity LED lights. It is wireless and has an optional LCD portable monitor for daytime readability from up to 20 feet away. Controls and batteries are located on the pole rather than a vest or belt. 800/234-7205; www.ariesindustries.com.

REMOTE VISION SYSTEM



(Photo courtesy of Remote Vision System)

The RVS pole camera product line includes two black-and-white systems and one with a color camera, the RVS Elite C. It includes LED lights, a daylight viewable color LCD monitor and DVR for recording and downloading video. 612/221-6690; www.remotevisionsystem.com. **C**

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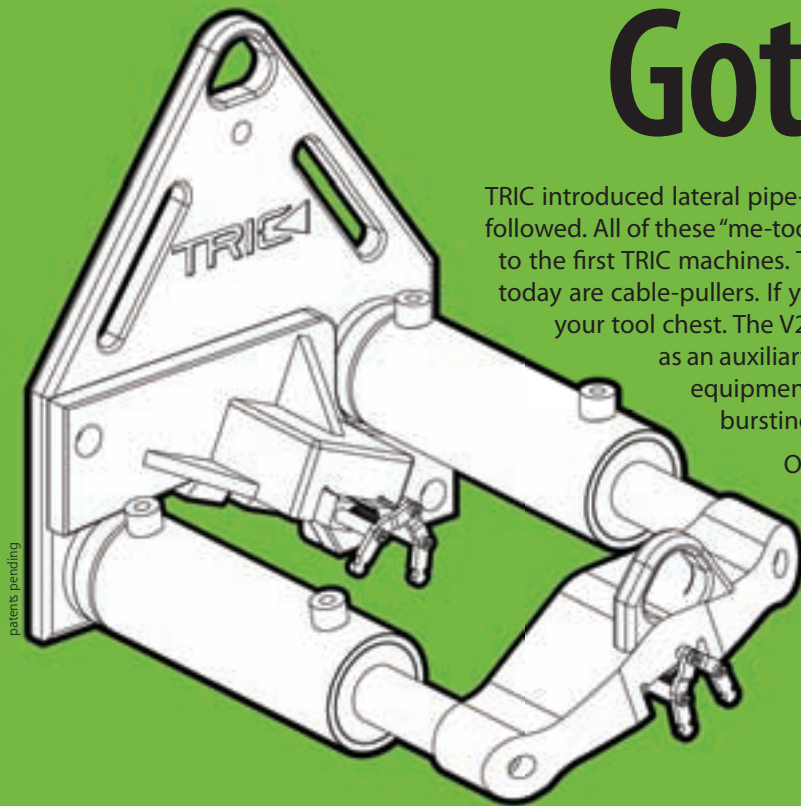
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Follow the Money

EMBEZZLEMENT CAN DO YOUR BUSINESS SERIOUS DAMAGE. HERE ARE SEVERAL COMMON-SENSE STEPS YOU CAN TAKE TO PROTECT YOURSELF.

BY RHONDA R. SAVAGE

With the economy improving, John was thrilled to see his small company starting to boom. He was so busy taking on new customers and training his new staff that he delegated bookkeeping to a long-time employee he trusted.

As time passed, John started noticing discrepancies in the business account and ultimately discovered the employee had been embezzling money.

Unfortunately, John's experience is not uncommon. Embezzlement is a reality and is often difficult to detect. What could John have done differently?

Embezzlement is a crime of opportunity and trust. A trusted person is placed in a position where he or she has complete access to the business financials, typically with little or no oversight.

HONESTY FIRST

The way to prevent embezzlement is first to be honest yourself in your activities – leaders must lead by example. Second, pay your employees well and treat them well. Third, and most important, hire the right employee to manage business affairs. Start by checking all references. Run a criminal background

Assign designated duties. Do not have only one person handle the incoming mail, make deposits, balance the checkbook and send statements. It can be hard to divide these duties in a smaller business with only a few staff members. In this case, you need to handle or outsource payroll, tax preparation, checkbook balancing, and management of accounts payable. If you outsource this work to a bookkeeping company, due diligence in inspecting the bookkeeper's work is very important.

Review the reports. Every day, you should have on your desk an end-of-day report, an adjustment report, and a history of payment that breaks down cash receipts, credit card payments, checks and outside financing for services. You should compare the deposit slip receipt to the deposit. Do an occasional mini-audit of the books. Let your staff know you're looking daily by questioning them. For example, say: "I see Mrs. Smith didn't pay for today's service. Is there a reason?" This shows your employees that you keep an eye on the day's activity. These checks take five to 10 minutes of your day.

Review your bank statement. Inform your staff that they are not to open any mail from a banking institution. Even better, have your bank statements

Learn to read your financial statements. You should know the basic overhead numbers for the business.

One common embezzlement system involves double payment for supplies, or the creation of dummy vendors.

check. Consider getting fidelity bond insurance coverage on the person. If the employee is not bondable, do not let him or her handle your financial matters.

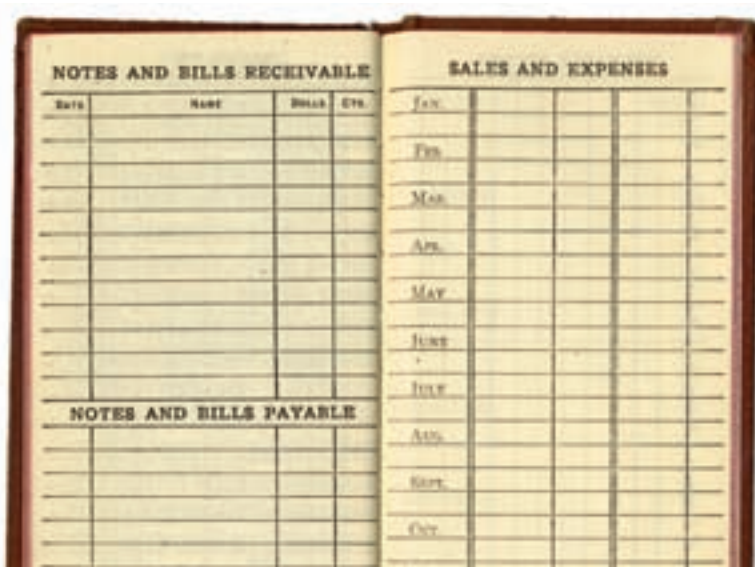
Beyond those basics, here are some simple techniques that reduce the opportunity and temptation for embezzlement.

sent to your home address if your mailbox is secure. Scan the checks that were written. Your signature should be on each check.

Know where your money is going. If you do use an employee to process your accounts payable, develop a system for your mail. Staff members should put the incoming mail in one location on your desk. Review the bills and put them into an in-basket for the employee to process. Have the person print the checks and attach them to the invoice. Then sign them. If you don't recognize a check, question it. Different staff members should stuff the envelopes and mail the payments. If the same person pays and stuffs the envelope, the checks can be changed.

Establish office policies. Make deposits daily, close and balance each day, bill as services are rendered, and send periodic statements if purchasing extends over time. Review your monthly reports. Close out each month before running the reports to prevent changes from happening. Write prenumbered receipts for all cash payments and monitor petty cash. Keep all records at the office. Do not allow employees to work extended hours. Establish password control for sensitive areas, such as payroll.

Watch your overhead numbers. Learn to read your financial statements. You should know the basic overhead numbers for the business. One common embezzlement system involves double payment for supplies, or the creation of



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dummy vendors. Another example is the ease of obtaining preauthorized credit cards in your name, using the credit card to pay personal bills, and developing schemes to pay the credit card. Run periodic credit checks on yourself and watch open lines of credit.

Be a fair, consistent and honest leader. Leaders live in glass houses. You can't expect your staff to model differently than you yourself behave. Don't take supplies from the office home – that teaches your team that stamps, pens and office supplies are all right for them to take, too. Watch your use of time in the office. If your time involves taking personal calls, surfing the Internet or running a side business and you are not focused on your primary business, your team will do the same.

EARN RESPECT

Time embezzlement is the greatest loss to the majority of businesses. General Norman Schwarzkopf said, "You don't have to be loved to be a leader, but you do need to be respected. Respect must be earned. To be respected, you must give respect."

Set your office policy on cell phone and Internet usage during office hours, and then abide by it yourself. An employee who embezzles by spending time on the phone or Internet hurts your bottom line and negatively affects the entire business. Resentment will build among the employees who are working hard, and with it you'll see lower morale and loss of production.


Don't be immediately suspicious of your team, but know that there are steps you can take to reduce your risk. Consider these steps a positive focus. You will become a better manager when you take these steps. You'll protect your assets and enjoy more profit, which you can then share with your team in rewards, bonuses and increased pay. **c**

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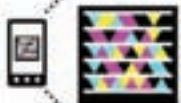
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Holding the Fort

A CURED-IN-PLACE LINING SYSTEM HELPS WORKERS FIX LEAKING DRAIN LINES WHILE PRESERVING THE HISTORIC CHARACTER OF A FLORIDA LANDMARK

BY SCOTTIE DAYTON

The V-roof on the barracks of Fort Zachary Taylor Historic State Park in Key West, Fla., directed rain into seven deteriorated cast-iron drainpipes. Water running through cracks and breaches in the 5-inch lines kept the massive masonry rubble walls damp and caused structural problems. As the 166-year-old piping disintegrated, it spalled and expanded, causing the masonry to fall off.

The park brought in David Salay, design engineer for Bender and Associates Architects in Key West, to rehabilitate the pipe without cutting into or demolishing the walls. Salay researched trenchless options on the Internet, then specified cured-in-place pipe. Engineered Lining Systems, a Jacksonville company with a specialty in cured-in-place pipe and structure restoration, won the bid.

Although the total lining project was only 140 feet, maintaining the fort's historical integrity brought multiple challenges, as did the need to minimize the impact on visitors to the site. Coordination between ELS production manager James Macko, assistant park manager Jayne Blatherwick, and Salay led to a successful project.



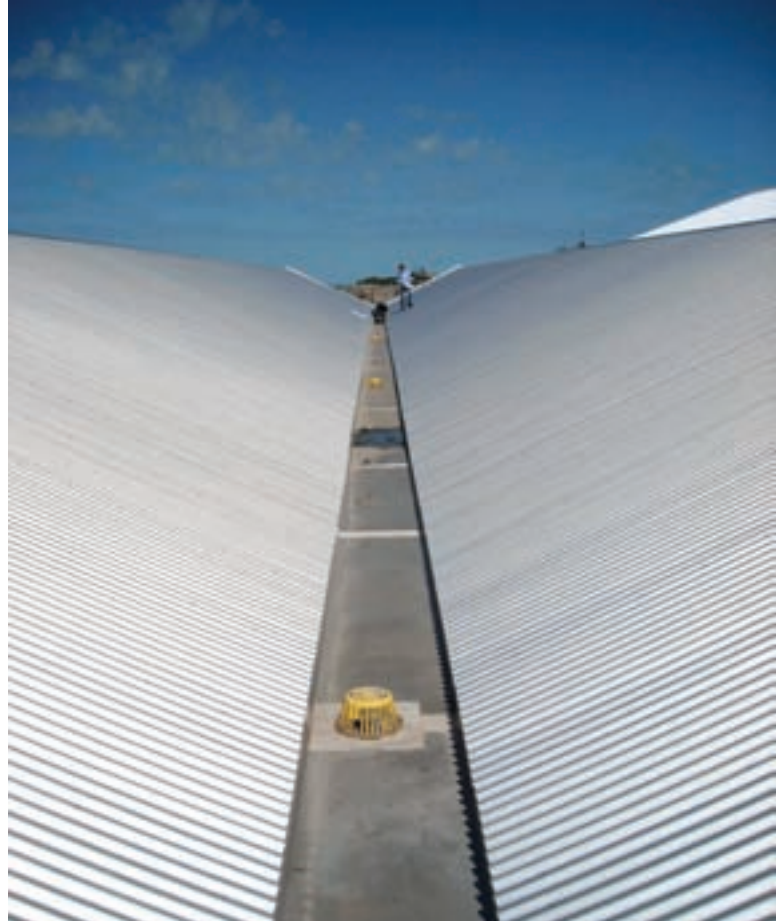
PRELIMINARY WORK

The team worked out the logistics in a preconstruction meeting. The challenges were equipment storage, construction footprint, public safety and historical preservation.

“Our staging area, which was barricaded by cones with safety rails, took up a small part of the barracks entrance,” says Macko. “At the end of the day, all the equipment went back into our locked 20-foot MaxTrailer (MaxLiner USA).” A telescopic boom lift and air compressor stayed inside the barricade.

To interfere as little as possible with tourists visiting the fort, the ELS crew inspected the drains from the roof during the day. They brought their own generator for the Plumber's

One of seven 5-inch cast iron drain pipes exhibiting spalling, flaking, water damage and stains.



The V-roof on the barracks of Fort Zachary Taylor Historic State Park in Key West, Fla., directed rain into seven deteriorated cast-iron drain pipes. (Photos courtesy of Engineered Lining Systems)

tough job

PROJECT: Rehabilitate roof drains of a historic fort

CUSTOMER: Fort Zachary Taylor Historic State Park, Key West, Fla.

CONTRACTOR: Engineered Lining Systems Inc., Jacksonville, Fla.

EQUIPMENT: Lining system from MaxLiner USA

RESULTS: Drains rehabilitated and historical character maintained

Mate portable inspection system from Ratech Electronics. Besides using the digital footage counter on the camera to take measurements, Macko added indicating marks on the reel, then measured them with a tape measure to confirm distances.

The bottom six feet of each drain line was exposed in a niche where the end of the pipe turned into a trough made of what appeared to be another pipe with the crown cut off. In all but one case, the trough fed into the cistern. “Each time we televised a line, the camera bullheaded into the trough and stopped,” says Macko. “We had to reach in at the junction and pull the head around the bend.”

At some point, the park had replaced the bottom turn on one pipe with a 90-degree fitting, but raised it three feet. During heavy rains, water shot over the cistern and landed with such velocity that it was eroding the floor. Blatherwick asked what ELS could do to alleviate the situation. The crew added a second 90-degree elbow directed down into the cistern. When the time came, it was lined with the rest of the pipe.

The inspections revealed that the piping had minor scale and tuberculation, and two runs made a 90-degree bend in the walls. Due to the condition of the drains, the team agreed that aggressive cleaning would cause them to crumble. They settled on a low-pressure rinse from a garden hose.



The 20-foot MaxTrailer, telescopic boom lift, air compressors, and generator are barricaded behind cones with safety rails.

UNDER PRESSURE

Inflation of the liners was critical, as one extra pound of pressure could rupture the host pipe. “We chose 5-inch MaxFeltLiners from MaxLiner USA and supplied by PrimeLine Products,” says Macko. “The system enabled us to keep our construction footprint small, as we needed only a 185 cfm air compressor rather than a boiler truck, and we could accurately and immediately regulate the pressure.”

The system also used a 33-pound MaxLinerGun to invert the liner and calibration tube, as a standard drum inversion machine would be too cumbersome on the roof.

The first 20-foot liner was shot during the day. The metal roof became a solar oven for workers and shortened 60-minute ambient cure time by half. The noise of the equipment also distracted visitors and park staff.

“Maintaining the exterior condition of the drains helps to reflect the age of the fort. If the lining process destroyed that, we would have failed in half our mission.”

James Macko

Blatherwick then allowed the ELS crew to work on-site after hours. “This was a big advantage, because we could use 30-minute resins that sped up the curing process, and our activities, which often went on until midnight, weren’t a nuisance,” says Macko.

After cutting a calibration tube and liner to length, workers wetted out the felt liner using a hand-crank calibration roller. “We don’t like electric wet-out rollers because they can be cumbersome and we can’t control the wet-out as accurately,” says Macko.

Both materials were transported in 5-gallon pails to the lift. Then Asa Whitehead elevated the boom 15 feet into the V-slot in the roof. Mikal Biegner loaded the liner into the gun three to five feet at a time, and Whitehead monitored and controlled the pressure at 25 to 30 psi.

LOW PRESSURE

“We kept the inversion pressure as low as possible, and had Jody Wright watching at the niche to make sure that the cast-iron pipe wasn’t separating from the wall or over-expanding,” says Macko. “He also wiped up any resin that seeped through the cracks so it didn’t create an eyesore for visitors. The only

time they can see the liner is where the pipe turns into the trough.”

Loading and shooting of the calibration tube followed the same step-by-step process. Biegner then closed a valve that sealed the air bladder and inflated it to 8 psi using a Kobalt air compressor.

“Everything we did on this job was critical,” says Macko. “Maintaining the exterior condition of the drains helps to reflect the age of the fort. If the lining process destroyed that, we would have failed in half our mission. The possibility weighed heavily on our minds the whole time.” Since the work was completed, all leaks have stopped, and the walls have begun to dry out. **c**

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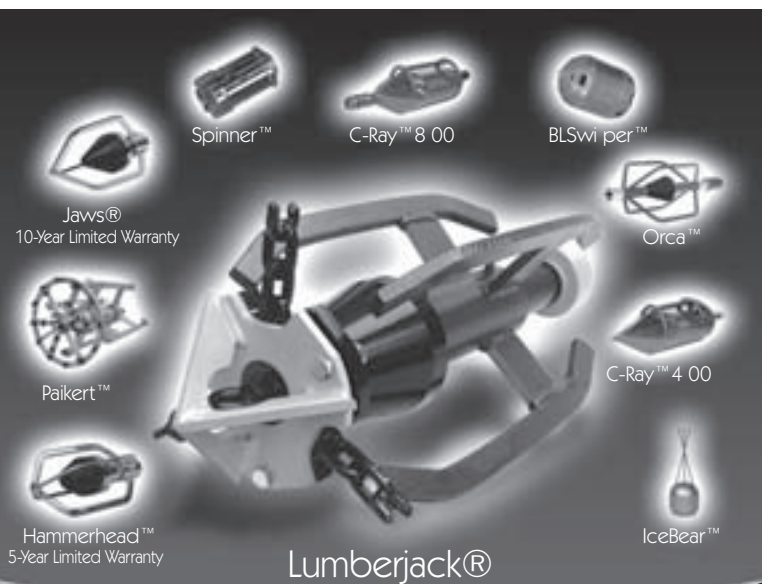


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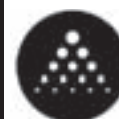
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		Dealer of	Pipe Diameter	Reel Sizes	Recording Methods	Software Available	Repair Facility	Repair Parts	Accessories	Inspection Vehicles	Location Equipment
See ad page 84	 Advanced Infrastructure Technologies, LLC 3055 Kashiwa St. Torrance, CA 90505 800-992-0222/310-534-4000 Fax: 310-534-4020 www.advancedworld.com sales@advancedworld.com	Envirosight, IPEK, RIDGID®, Verisight			HDD, Flash Drive/USB Thumb Drive, Compact Flash, SD Card, DVR, CD, DVD, VHS	YES	YES		YES	YES	YES
See ad page 13	 Allan J. Coleman Co. 5725 N Ravenswood Ave. Chicago, IL 60660 773-728-2400 Fax: 773-728-2499 www.allanjcoleman.com info@allanjcoleman.com	RIDGID®, G-Vision, General, Spartan, Electric Eel, Insight Vision, Rycom, Ratech	1 1/4" to 12"	30' to 400'	Flash Drive/USB Thumb Drive, SD Card, DVR, DVD, VHS	YES	YES	YES	YES		YES
See ad page 75	 Amazing Machinery, Inc. 2288 Gunbarrel Rd. Ste. 154-151 Chattanooga, TN 37421 800-504-7435/423-326-2676 Fax: 800-504-7436 www.amazingmachinery.com sales@amazingmachinery.com	Insight Vision, Forbest, Pro-Built, Extech, Wohler	1 1/4" to 14"	65' to 400'	Flash Drive/USB Thumb Drive, SD Card, DVR		YES	YES	YES		YES
See ad page 84	 Applied Research Associates, Inc. 3605 Hartzdale Dr. Camp Hill, PA 17011 717-975-3550 Fax: 717-975-3557 www.ara-inspection.com IMD-ServiceMECH@ara.com	Pearpoint	1" to 108"	50' to 2400'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, DVD	YES	YES	YES	YES	YES	YES
See ad page 51	 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	Aries	2" to 120"	100' to 2000'	SD Card, DVR, CD, DVD	YES	YES	YES	YES	YES	YES
See ad page 61	 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
See ad page 52	 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	Cobra Technologies	6" to 120"	500' to 2500'	HDD, Flash Drive/USB Thumb Drive, DVR, CD, DVD	YES	YES	YES	YES	YES	
See ad page 83	 CuaClaws 2376 Maize Rd. Twentynine Palms, CA 92277 714-697-8697 www.cuaclaws.com jerry@cuaclaws.com	CuaClaws							YES		
See ad page 26	 CUES 3600 Rio Vista Ave. Orlando, FL 32805 800-327-7791/407-849-0190 Fax: 407-425-1569 www.cuesinc.com salesinfo@cuesinc.com	CUES	2" to 200"	500' 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 34	 Cyclops Electronics, Inc. PO Box 1796 Boerne, TX 78006 830-249-9756 Fax: 830-249-8535 www.cyclopstv.com cyclopstv@beecreek.net	CYCLOPS	6" to 48"	500' to 1000'	HDD, Flash Drive/USB Thumb Drive, SD Card, DVR, DVD	YES	YES	YES	YES	YES	
See ad page 46	 Draincables Direct 4370 Moline Martin Rd. Millbury, OH 43447 800-421-4580 Fax: 800-752-8524 www.draincables.com sales@draincables.com	RIDGID®	1/2" to 12"	30' to 325'	Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD	YES		YES	YES		YES
See ad page 63	 Duracable Manufacturing 300 Ashworth Rd. West Des Moines, IA 50265 877-244-0556 Fax: 515-223-6109 www.duracable.com sales@duracable.com	RIDGID®, Wohler, Hathorn	2" to 8"		HDD, Flash Drive/USB Thumb Drive, SD Card, DVR, DVD			YES	YES		YES

		Dealer of	Pipe Diameter	Reel Sizes	Recording Methods	Software Available	Repair Facility	Repair Parts	Accessories	Inspection Vehicles	Location Equipment
See ad page 85		Dynamic Cable Repairs 40 Arnot St. Unit 20 Lodi, NJ 07644 973-478-0893 Fax: 973-478-0895 www.dynamicrepair.net dynamiccablerepair@yahoo.com	RIDGID®, General Wire, Ratech, Vision Technology, Vision Insight, Pearpoint, Gatorcam	2" to 10"	100' to 400'	DVD, CD, VHS	YES				YES
See ad page 10		EasyCAM LLC 5780 Taylor Rd. Naples, FL 34109 239-260-2056 Fax: 239-597-0115 www.plumbersbestcamera.com rick@easycamllc.com	Easy CAM	2" to 8"	150' to 200'	Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS	YES	YES	YES	YES	YES
See ad page 49		ECA-SSI Simulator Systems International 5358 S 125th E Ave. Tulsa, OK 74146 800-843-4764/918-250-4500 Fax: 918-250-4502 www.simulatorsystems.com pipe@eca-ssi.com	Mini Pipe Cruiser, Pipe Cruiser	4" to 48"	400' to 1650'	DVR	YES		YES	YES	
See ad page 24		Electric Eel Mfg. 501 W Leffel Ln. Springfield, OH 45501 800-833-1212/937-323-4644 Fax: 937-323-3767 www.electriceel.com info@electriceel.com	Electric Eel Mfg.	1 1/2" to 12"	125' to 300'	HDD, Flash Drive/USB Thumb Drive, DVD	YES	YES			YES
See ad page 83		Electronic Repair Co. 8518 1st Ave. N Birmingham, AL 35206 205-836-0454 www.servicewithasmile.com repair@servicewithasmile.com	General Wire, Ratech, Vision, RIDGID®			DVR, CD, DVD, VHS	YES	YES			
See ad page 5		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	ROVVER, ROVVER X, SuperVision, QuickView DigiSewer, VeriSight	4" to 72"	500' to 1600'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS	YES	YES	YES	YES	YES
See ad page 20		Forbest Products Co. 315 Harbor Way Ste. B South San Francisco, CA 94080 650-757-4786 www.forbestusa.net forbestusa@gmail.com	Forbest	10" to 100"		SD Card			YES		YES
See ad page 2		General Pipe Cleaners, div of GeneralWire Spring 1101 Thompson Ave. McKees Rocks, PA 15136 800-245-6200/412-771-6300 Fax: 412-771-2771 www.drainbrain.com info@drainbrain.com	Gen-Eye Video Pipe Inspection Systems	2" to 10"	100' to 400'	HDD, SD Card, DVD, VHS	YES	YES		YES	YES
See ad page 24		Image Inspection Services LTD 4650 50th Ave. SE Calgary, AB T2B 3R4 800-667-6670/403-287-1053 Fax: 403-243-4564 www.image-inspect.com sales@image-inspect.com	Image Inspection, Prototek, Spering, Reizler	3/4" to 60"	100' to 2500'	HDD, Flash Drive/USB Thumb Drive, SD Card, DVR, CD, DVD, VHS	YES	YES	YES	YES	YES
See ad page 82		Insight Vision 600 Dekora Woods Blvd. Saukville, WI 53080 800-488-8177/262-268-9952 Fax: 262-268-9952 www.insightvisioncameras.com steve@insightvisioncameras.com	Insight Vision	2 1/2" to 24"	100' to 600'	Flash Drive/USB Thumb Drive	YES	YES	YES	YES	YES
See ad page 68		J.M. McKinney Company, Inc. 12710 Yukon Ave. Hawthorne, CA 90250 800-821-7275/310-978-9650 Fax: 310-978-2795 www.jmmckinney.com jmco4u@hotmail.com	RIDGID®	1" to 144"	30' to 325'	Flash Drive/USB Thumb Drive, SD Card, DVD	YES	YES	YES		YES
See ad page 83		JLF Enterprise 13119 Elgin Dr. Elk River, MN 55330 612-221-6690 www.remotevisionsystem.com justin@remotevisionsystem.com	Remote Vision System			DVR					
See ad page 26		LMK Technologies 1779 Chessie Ln. Ottawa, IL 61350 815-433-1275 Fax: 815-433-0107 www.performanceliner.com sales@lmkenterprises.com	Schwalm Robotic Systems	8" to 24"		HDD, Flash Drive/USB Thumb Drive, DVR, DVD			YES		

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See ad page 85	MTECH 7401 First Place Cleveland, OH 44146 800-362-0240/440-646-0996 Fax: 440-646-9953 www.mtechcompany.com sales@mtechcompany.com	6" to 200"	500' to 2000'	Flash Drive/USB Thumb Drive, SD Card, DVR, DVD	YES	YES	YES	YES		YES
See ad page 39	 MyTana Mfg Co Inc. 746 Selby Ave. St. Paul, MN 55104 800-328-8170/651-222-1738 Fax: 651-222-1739 www.mytana.com mytana@mytana.com	1 1/2" to 10"	100' to 400'	Flash Drive/USB Thumb Drive, SD Card, DVR, DVD	YES	YES				YES
See ad page 22	Oceanquip, LLC 9904 Martha Ln. River Ridge, LA 70123 504-738-7833 Fax: 504-738-7833 www.oceanquipllc.com jfowler307@aol.com	Seacon Global Turck						YES		
See ad page 45	Pearpoint 39-740 Garand Ln. Unit B Palm Desert, CA 92276 800-688-8094/760-343-7350 Fax: 760-343-7351 www.radiodetection.com pearpoint.sales.us@spx.com	Pearpoint, Radiodetection	1" to 96"	100' to 500'	Flash Drive/USB Thumb Drive, Compact Flash, DVR, DVD	YES	YES	YES	YES	YES
See ad page 24	 PipeLogix, Inc. PO Box 14014 Palm Desert, CA 92211 866-299-3150/760-779-1700 Fax: 760-406-6023 www.pipelogix.com joan.stone@pipelogix.com	Pipelogix Software			HDD, CD, DVD	YES				
See ad page 60	 Prototek PO Box 1700 Poulsbo, WA 98370 800-541-9123/360-779-1310 Fax: 360-779-1510 www.prototek.net prototeksales@prototek.net	Prototek								YES
See ad page 23	 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	RapidView IBAK North America	2" to 200"	130' to 2000'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS, Panoromo Scan Files	YES	YES	YES	YES	YES
See ad page 67	 Ratech Electronics Ltd. 260-7 Spinnaker Way Concord, ON L4K 4P9 800-461-9200/905-660-7072 Fax: 905-660-1519 www.ratech-electronics.com sales@ratech-electronics.com	Ratech	1" to 48"	100' to 1000'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS	YES	YES	YES	YES	YES
See ad page 7	RIDGID® 400 Clark St. Elyria, OH 44035 800-769-7743/440-329-4650 Fax: 440-329-4862 www.ridgid.com RIDGIDinfo@emerson.com	RIDGID® SeeSnake®	1" to 12"	30' to 325'	HDD, Flash Drive/USB Thumb Drive, SD Card, DVR, DVD, Laptop	YES	YES	YES		YES
See ad page 64	 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	RS Technical	2" to 200"	50' to 3000'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS	YES	YES	YES	YES	YES
See ad page 43	Scooter Video Inspection Systems 20873 Santa Lucia St. Tehachapi, CA 93561 800-772-6165/661-822-9311 Fax: 661-822-8917 www.tvinspection.com scooter1@lightspeed.net	Scooter, Prototek	2" to 12"	100' to 200'	Flash Drive/USB Thumb Drive, SD Card, DVD, VHS		YES	YES	YES	YES
See ad page 92	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	Spartan Tool	2" to 8"	100' to 200'	Flash Drive/USB Thumb Drive		YES	YES	YES	YES
See ad page 83	T & T Tools, Inc. PO Box 531 Spring Lake, MI 49456 800-521-6893 Fax: 800-521-3260 www.mightyprobe.com sales@tandttools.com									YES

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	Dealer of	Pipe Diameter	Reel Sizes	Recording Methods	Software Available	Repair Facility	Repair Parts	Accessories	Inspection Vehicles	Location Equipment
See ad page 81	Telespector Corp. 1460 Opdyke Rd. Auburn Hills, MI 48326 800-929-4399/248-373-5400 Fax: 248-377-2250 www.telespector.com info@telespector.com	Telespector Corp	6" to 120"	500' to 1500'	CD/DVD/VHS	YES	YES	YES	YES	
See ad page 76	The Cable Center 8318 Olive Blvd. St. Louis, MO 63132 800-257-7209 Fax: 314-432-8024 www.cablecenterline.com info@thecablecenter.com	RIDGID®, General Wire	1 1/2" to 12"	100' to 400'	SD Card, CD, DVD, VHS	YES	YES	YES		YES
See ad page 71	 TV Ferret Inc. 840 State Rte. 50 Burnt Hills, NY 12027 518-399-2211 www.tvferret.com info@tvferret.com	TV Ferret	2" to 102"	100' to 1500'	DVR	YES	YES	YES	YES	
See ad page 69	 Vivax-Metrotech Corporation 3251 Olcott St. Santa Clara, CA 95054 800-446-3392/408-734-1400 Fax: 408-734-1415 www.vivax-metrotech.com sales@vxmt.com	Vivax-Metrotech Corp., vCam	2" to 8"	60' to 400'	HDD, Flash Drive/USB Thumb Drive, SD Card	YES	YES	YES		YES
See ad page 73	VU-Rite Video Inspection Cameras, LLC 160 Main St. W Ste. 6 Mt. Carmel, TN 37645 423-349-4300 Fax: 423-349-4371 www.vu-rite.com sales@vu-rite.com	VU-Rite, Rycom Instruments	2" to 6"	150' to 200'	Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVD	YES	YES	YES		YES

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SOFTWARE ORGANIZES SEWER INSPECTIONS

PROBLEM

The City of Wheaton (Ill.) worked with RJN Group, a consulting, engineering and information technology service, to rehabilitate a sewer service area. The project involved televising the mains and dye-flooding adjacent storm sewers. The city needed inspection management software that collected and shared inspection data with RJN and the City's GIS.

SOLUTION

The city chose management asset modules from I.T.pipes to identify leaking laterals, lateral connections, and flow migration in annular spaces between host pipes and CIPP liners. Expeditious data collection allowed for enhanced evaluation and direct integration with city GIS. Free viewIT software enabled RJN engineering staff to access the inspection information. The program also enables flexible searches and builds reports to assess and catalog information.

RESULT

The city sewer superintendent configured the software to store information on rehabilitations and planning using SmartTabs reporting tools. As inspection reports arrive, the software categorizes them real-time. 877/487-4737; www.itpipes.com.

INSPECTION SOFTWARE INCREASES FUNCTIONALITY

PROBLEM

Sewer inspection technicians in Olathe, Kan., used WinCan v8 software from Pipeline Analytics to enter data for upload to a Master SQL database accessible via City Server. The city wanted greater accuracy and versatility in its inspections, and purchased the WinCan map module to enhance the reporting module.

SOLUTION

The map module opens GIS shape files and associated attribute data, allowing users to select assets and transfer information directly into databases, saving time and eliminating manual-entry errors. Correlating inspection data to map features is easy. The software also lets users add points, lines, and shapes to existing files, or output a new GIS shape file with only that data within a custom query. Users can send reports of queried assets to a shape file or highlight them in the map module. Other features include color-coded tracking of multiple inspection crews, sophisticated querying of GIS data, and direct communication with Bluetooth-enabled GPS devices.

RESULT

"WinCan Map enabled us to create a more accurate deliverable that reduces review time and allows for a clean import into our SQL database," says Randy Mather, wastewater collection program manager. 412/486-6229; www.pipelineanalytics.com.

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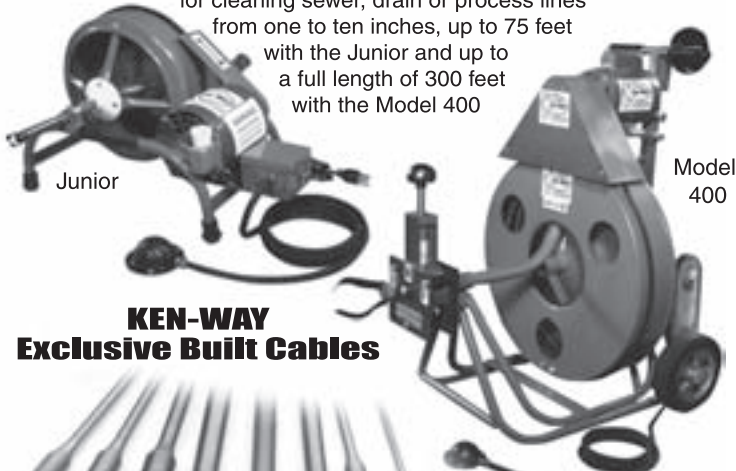
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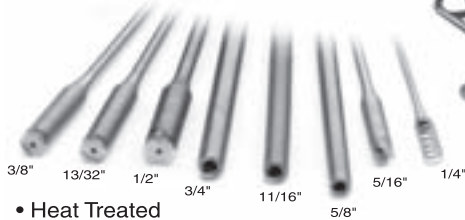
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AQUATECH DE LAS AMERICAS LAUNCHES WEBSITE

Aquatech de Las Americas, subsidiary of Hi-Vac Corp., launched a new website, www.aquatechdelasamericas.com. Headquartered in Bogota, Columbia, Aquatech de Las Americas is a sales, service and training company specializing in sewer cleaning equipment.



WOMA SELLS CONTROLLING INTEREST TO KARCHER

Karcher GmbH & Co. KG acquired controlling interest in high-pressure cleaning company WOMA GmbH of Duisburg, Germany.

WORKERS RETURN AT GENERAL WIRE

Members of the United Steel Workers Union returned to work June 13 at General Wire Spring Co., parent company of General Pipe Cleaners, after a 14-week strike. David Silverman, executive vice president of Global Sales, thanked customers and sales representatives for their patience and support. Assisted by temporary workers, General continued to take and fill orders during the negotiations.

TECHSPRAY LAUNCHES PRODUCT WEBSITE

The Techspray product website, www.techspray.com, offers keyword search and search by product categories, brands or applications. Other features include data library, presentations, white papers and regulatory documents. **c**



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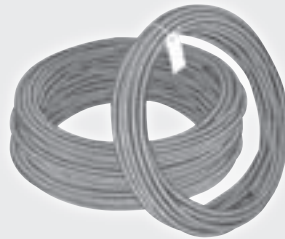
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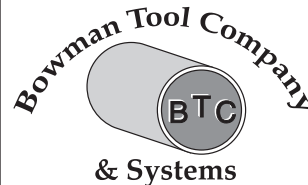


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Adjustable Spray Head Provides Job Flexibility

BY ED WODALSKI

The RD Flex 3000 (43,500 psi) self-rotating surface preparation tool from Hammelmann Corp. is designed for use with manually operated waterblasting guns.

Rotation speed can be changed from 1,000 to 4,000 rpm using the 10 brake settings for various surface applications without changing the nozzle holder and inserts. An adapter enables the head to be used at 10,000 psi and 20,000 psi, offering three cleaning options in one tool. "You can tune it to the type of cleaning that you're trying to do, whether it's removing a rubber liner or removing paint," says Bill O'Briant, sales representative/manager.

Flow rates, depending upon model and nozzle insert size, range from 2.3 to 5.3 gpm. The low-maintenance tool offers up to 1,500 hours of service. "Basically, you only need to change out one seal from time to time," O'Briant says. The 3.9-pound tool (including nozzle carrier and inserts) measures 9.29 inches long and 2.91 inches in diameter. It has an aluminum outer housing and stainless steel guard with stainless steel swivel.

Made of low-wear, leak-free rotating components, it includes an internal protected brake, quick-change seal system, and plastic protec-

tive sleeve. Nozzle inserts (Type P, K and T) are countersunk in the nozzle carrier, protected by a blastback shield.

The tool is available in five nozzle styles (3001, 3002, 3003, 3004 and 3005). All models have an operating pressure of 43,500 psi. Model 3001 is designed for use with pumps rated from 73 to 100 hp. The other four are designed for use with pumps rated from 94 to 160 kW.

Models 3002 and 3003 have differing flat surface preparation nozzle arrangements. The 3004 is used primarily for concrete removal and Model 3005 is shaped to strip paint from within the corners of structural steel. Type P and Type K (3004 concrete removal tool only) steel/sapphire inserts are rated for 100 hours of use, while the Type T steel/diamond insert offers longer life. **800/783-4935; www.hammelmann.com.**



NLB INTRODUCES VERTAJET SURFACE PREPARATION SYSTEM

The handheld Vertajet SRT-6LT surface preparation system from NLB Corp. needs no air connection to rotate its 40,000 psi waterjets. The 20-pound unit removes paint, epoxies and other coatings. Multiple jets rotating at 3,000 rpm create a 6-inch cleaning path. The system uses no abrasives and has vacuum recovery to contain water and debris. Maximum flow is 6 gpm. **248/624-5555; www.nlbcorp.com.**



SPIR STAR OFFERS BLAST-PRO FLEX LANCES

Blast-Pro flex lances from SPIR STAR have a larger inner diameter hose with a smaller outer diameter and shorter end fitting. The lance has a sleeve length 50 percent shorter than conventional flex lances and increases the maximum outer diameter of the flex lance by only 0.04 inches so users can clean smaller tubes and pipes with a larger inner diameter hose. **800/890-7827; www.spirstar.com.**



GATEWAY OFFERS SWAP SAFETY EYEWEAR

Swap safety eyewear from Gateway Safety can be switched from spectacle to goggle by exchanging the temples and head strap with a simple snap. The frame is lined with soft, smooth foam that blocks dust and debris. Venting channels minimize fogging and help maintain a clear field of vision through a one-piece polycarbonate lens. The two-



color temples are rubberized for comfort and the head strap is fully adjustable to fit any size head. The eyewear meets ANSI Z87.1+ and CSA Z94.3 standards and offers 99.9 percent UVA, UVB and UVC protection. Lenses are available in different colors and coatings for use in indoor or outdoor situations. **800/822-5347; www.gateway-safety.com.**

MAINLINE OFFERS ADAPT-A-VALVE INSPECTION CHAMBER

The Adapt-a-Valve inspection chamber from Mainline Backflow Products can be used as an inspection chamber, extendible backwater valve or to pressure test or isolate the lateral. The body of the inspection chamber has a molded slot designed to accept the backwater valve gate or test/isolation gate. Made for 4-inch laterals, the chamber has an 8-inch riser and directional arrow embossed inside the fitting that can be used for color coding to ensure there are no cross connections between sewer and sanitary laterals. The inspection chamber also has a stabilization sleeve on the bottom that allows a 1/2-inch pipe or rebar to aid in the stabilizing of the chamber during backfill. **877/734-8691; www.backwatervalve.com.**



BELL & GOSSETT INTRODUCES I-ALERT PUMP MONITOR

The i-ALERT condition monitor from Bell & Gossett provides an early warning of pending pump trouble. The monitor continually measures the vibration and temperature at the pump power end and uses two red blinking LEDs to alert personnel when the pump exceeds preset vibration and temperature limits. The monitor also has a single green LED that indicates when the monitor is operational and has sufficient battery life. **847/966-3700; www.bellgossett.com.**



AIT INTRODUCES SNAKESCOPE INSPECTION CAMERA

The SnakeScope Video Borescope inspection camera from Advanced Inspection Technologies can inspect pipes, behind walls, ducts and other difficult-to-reach areas up to 10 feet away. The handheld camera can snake through areas as small as 0.216 inches. Features include three different diameters, various lengths and high-resolution 720 x 525 pixel images. The camera is water resistant, has a flexible gooseneck shaft for viewing around corners and four adjustable LED lights. Still images and video can be recorded on the removable SD memory card. The camera operates 4-6 hours on standard AA batteries. 321/610-8977; www.aitproducts.com.



Five interchangeable antenna frequency options are available. The highest resolution option, 2,000 MHz, can detect in depths up to 1 1/2 feet and see fine wire and cracks in concrete. At a lower resolution, the 1,000 MHz detects slightly larger objects, including rebar and wire mesh in depths up to 3 1/2 feet. The 500 MHz option can detect objects up to 14 feet, while the 25 MHz and 100 MHz options can see up to 30 and 100 feet, respectively. 732/566-2035; www.usradar.com.

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TOMMY GATE INTRODUCES CANTILEVER SERIES

The Cantilever Series hydraulic lift from Tommy Gate is designed for commercial panel vans, including the Mercedes-Benz Sprinter, Nissan NV and Chevy Express. Features include bolt-on installation, corrosion-resistant aluminum and pallet-jack compatible platform. 800/543-8428; www.tommygate.com.



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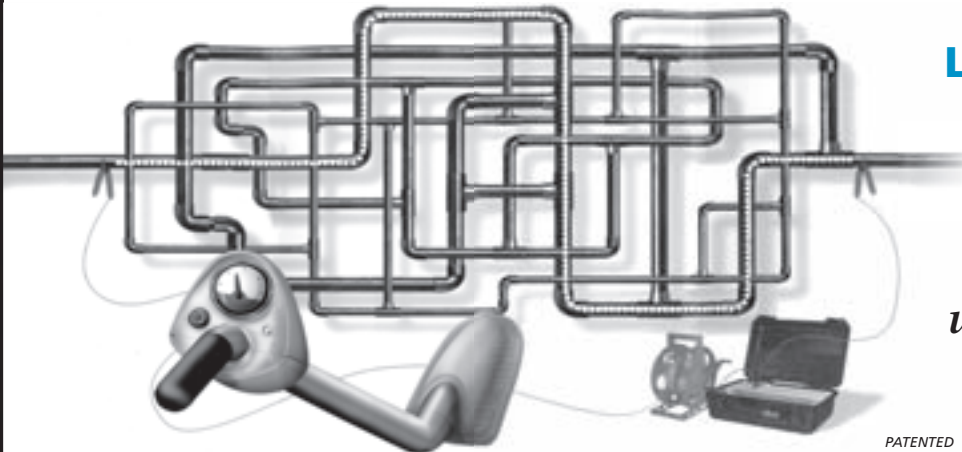
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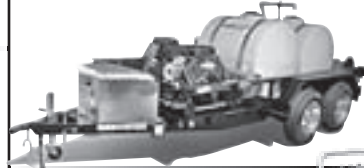
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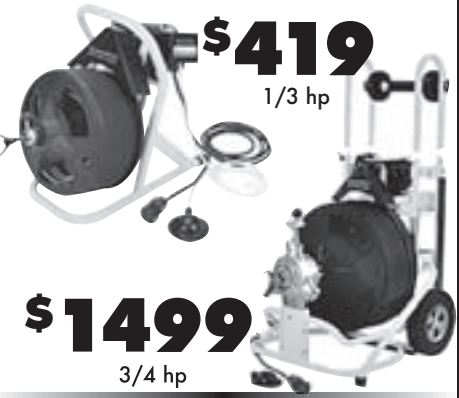


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BY PETE LITTERSKI

TOUCH SCREEN INSPECTION

All operating controls for the **PROvision Touch** inspection system from **Spartan Tool** appear directly on screen. With the system's daylight visibility, an operator can see images clearly even in bright sunlight. Telestration allows users to draw directly on the screen to show a customer a problem. The system includes an on-screen keyboard; rheostat controls for camera lights, screen brightness and audio playback; four-hour battery life; and the ability to capture screen images. All information records to a single thumb drive. 800/435-3866; www.spartantool.com.



SEWER-DRAIN CAMERA

The **FB-PIC 4188** sewer-drain camera system from **Forbest Products** includes a 10-inch LCD color monitor with a built-in DVD recorder and microphone that allow users to record videos and sound. The camera head has a 512 Hz built-in sonde transmitter. With a camera head less than 0.8 inch in diameter, the system can inspect lines from 1.5 to 12 inches. With a 130-foot/5.2-mm fiberglass push cable, users can push the camera out at least 100 feet in normal conditions. 650/757-4786; www.forbestusa.net.



LASER PROFILER

The **Laser Profiler** from **CUES** is a stand-alone, snap-on tool for use with a CCTV survey system to collect data and create pipeline reports containing the measurement of faults and other features inside the pipeline. This includes measurements of pipe size, laterals and water levels, as well as automatic analysis of pipe ovality and capacity. The profiler can operate in pipes from 6 to 72 inches. It is powered by an internal rechargeable battery. The software can be used on a TV inspection vehicle or on a remote computer. 800/327-7791; www.cuesinc.com.



IN-PIPE GPR



The remotely operated **Surveyor** robot from **SewerVUE** merges ground-penetrating radar measurements with CCTV data to accurately identify pipe wall thickness and composition defects and locate cracks, voids and cavities outside underground nonmetallic pipes. The GPR equipment is track-mounted and equipped with two high-frequency antennae, which can be remotely rotated. The system can be adjusted for pipes from 21 to 36 inches. The software analyzes the GPR data and provides imagery of all identified elements. 888/973-9378; www.sewervue.com.



ROBOT WITH EYES

The **Schwalm Robotics Pipe Rehabilitation Robot**, distributed in North America by **LMK Technologies**, includes a pan/tilt camera that allows a single unit to remove protruding taps and

trim offset joints before CIPP lining. It enables operators to see the work being performed. A camera lens washing device assures a clear view. The robots are equipped to insert removable mechanical plugs into service lateral connections and can install the company's main-to-lateral Shorty and Stubby CIPP connection sealing systems. 815/433-1275; www.performanceliner.com.

SMOKE BLOWER

The **Model 20 Smoke Blower** from **Superior Signal** is designed for testing of sewer lines to detect sources of inflow and other faults. The company's 3C Classic smoke candle produces 40,000 cubic feet of smoke in three minutes. The blower can be configured with the Superior Smoke Fluid System as a liquid-based alternative for mainline sewer inspection. 800/954-8378; www.superiorsignal.com.



DIGITAL PIPE INSPECTION

With a continuous operating speed of 40-70 feet per minute, **Panoram** digital scanner systems from **RapidView** generate a high-resolution, interactive 360-degree view from anywhere inside a pipe or manhole. The system uses fish-eye cameras mounted on the front and rear, connected by a fiberoptic cable to a truck parked over an open manhole. At the end of the scan, the system creates digital files that allow users to virtually pan and tilt in 360 degrees, as if they are inside the asset. An unfolded, flat view of the pipe or structure is also produced for an added level of analysis and measurement. 800/656-4225; www.rapidview.com.



REMOTE MEASURING

Operated from street level, the **DiaMetrik** from **Envirosight** measures the depth and width of manholes and the diameter of incoming lines to an accuracy of 0.1 inch, allowing users to configure crawlers properly, complete inspections in accordance with PACP, MACP and similar guidelines, and plan lining jobs.

A collapsible 24-foot pole and articulating measurement head enable the unit to reach every structure requiring measurement, yet it stows in the bed of a pickup. Using an industrial-grade laser, the device takes readings from four inches inside pipes to compensate for any inconsistencies at the pipe mouth. It presents readings on a digital display, stores the 10 most recent measurements, can offload readings to a PC, and operates on rechargeable battery power. 973/252-6700; www.envirosight.com.



VERSATILE INSPECTION SYSTEM

The **Deluxe Valu-Pac IV** from **CyclopsTV** is designed to deliver the capabilities of a large van-mounted system. It comes with a pan-and-tilt color camera, a heavy-duty transporter, a powered cable reel with 500 feet of TV/tow cable, large line light and power-supply kits, an all-in-one controller for the camera, reel and transporter, and a system analyzer with test cable. Also included is the company's P.I.D.S. inspection software installed on a new Dell laptop. 830/249-9756; www.cyclopstv.com.



INSPECTION VEHICLES

Pipeline inspection and grouting vehicles from **Telespector Corporation** are designed to increase productivity and reduce maintenance. Models include step/cargo vans, cube trucks, trailers and ATVs. Features include quiet, ergonomic interiors to reduce operator fatigue, wall-mounted NEMA style enclosures for easy access to power and control electronics, slide out racks for computers and generators and low maintenance chemical grouting pumps. 800/929-4399; www.telespector.com.

COLOR CAMERA

The **eCAM ACE** from **Electric Eel Mfg.** helps users pinpoint a pipe problem before digging. The system has a 1.68-inch-diameter color camera with sapphire lens, 20-LED light ring, high-resolution CCD element, and a flexible spring that navigates 3-inch P-traps. The camera is encased in stainless steel.

The auto iris adjusts lighting. An impact-resistant polycarbonate light ring cover adds protection. The unit also includes a 512 Hz sonde. The 5.4-inch LCD monitor is encased in an anodized aluminum housing mounted to the reel and has antireflective film on the screen. A video output jack allows users to record images. The system is mounted on a portable powder-coated steel frame with a secure-locking reel brake. It comes with 125 feet of Kevlar braided 1/2-inch pushrod. 800/833-1212; www.electriceel.com.



LASER SCANNER

The **Laser Camera Scan135** from **Rausch Electronics** connects directly to the company's steerable transporter L135 with electric lift, creating a versatile and

compact 3-in-1 system. The system has conventional CCTV inspection, joint-width measurement, and laser profiling with direct measurement for 8- to 48-inch pipes. The system provides instant pipe evaluation data with no data manipulation possible. On the way into a pipe, the system performs both CCTV inspection and joint-width measurement. On the way back, it scans the entire pipe for deflection and diameter. Built-in software provides 2-D and 3-D graphs, combined with a comprehensive inspection report. 717/709-1005; www.rauschtv-usa.com.

STEERABLE CRAWLER

The **Model 636S** 6-inch steerable crawler from **TV Ferret** is based on a one-piece monotube stainless steel o-ring sealed structure for a streamlined, submersible design to inspect pipes up to 36 inches. The crawler has full differential steering, allowing it to rotate about its own axis. It has a stainless steel



articulating cable receptor to alleviate stress on the main cable and is designed for quick, easy connection without tools.

Reinforced urethane tracks are a one-piece continuous loop. The solid paddle tracks obtain maximum traction in difficult conditions and do not bind in loose grit. A modular lift wheel system attaches to the outside of the crawler without removal of the tracks. The pan-and-tilt camera head contains a high-resolution camera. The ultrabright LEDs can fully illuminate a 12-foot pipe. Options include a 512 Hz locating sonde, rear-viewing backup camera, internal pressure monitor, pan/tilt/zoom camera, and abrasive high-traction lift wheels. 518/399-2211; www.tvferret.com.



PORTABLE INSPECTION

The portable **Mini-Mainline** inspection system from **Ratech Electronics** is designed for small- to medium-sized municipalities or contractors needing an entry-level mainline video pipe inspection system. The portable format allows access to hard-to-reach areas. The system can be mounted in a standard cargo van or trailer.

Users can choose a pan-and-tilt color camera or straight-view inspection camera, up to 1,000 feet of cable, automatic level cable-wind reel, 10-inch sun-viewable LCD monitor, on-screen distance counter, keyboard with text overlay and eight-page memory. Camera remote functions include light head control and crawler controls. The system can inspect pipes from 4 to 48 inches, depending on crawler selection. Lighting is provided with a 170-watt exterior light head. An SD digital card recorder, a DVD recorder, a USB connection and a hard drive are options for recording. 800/461-9200; www.ratech-electronics.com.

INSPECTION AND JETTING

The **Model 747-FR2000TV Series II Trailer Jet** from **Sewer Equipment Company of America** combines high-pressure sewer cleaning and color TV inspection. A dual rotating reel provides one reel holding up to 500 feet of "umbilical cord" – a combined TV cable and sewer hose – and a second reel with up to 600 feet of regular 3/4-inch jetter hose. The system includes either a straight-view camera or a pan-and-tilt high-resolution color camera that supplies images to two 7-inch mobile monitors and a digital hard drive. 800/323-1604; www.sewerequipment.com.



SINGLE-CONDUCTOR INSPECTION

The **Omni Eye 360** pipeline inspection camera from **RS Technical Services** is a single-conductor inspection tool compatible with the company's existing portable and mainline inspection systems and modifiable for use with most multi-conductor systems. With 360-degree image capture, operators can perform uninterrupted inspections at rates up to 70 feet per minute.

The camera is designed for inspection in 6-inch and larger pipes up to 2,500 feet long. Captured images are linked with a software package that helps identify defects and features. Data capture features include: accurate measurements from the X- and Y-axis for precision lateral, joint, and crack measurement; simultaneous view of forward and unwrapped footage; and auto measurement and distance recognition for optimal observation and defect coding. 800/767-1974; www.rstechserv.com.



GIS MODULE

With the addition of the **PipeLogix GIS** module to ArcMap software, users can view all surveys performed on a system. The toolbar filters survey data in the master database to highlight pipes with selected conditions, grades, or score values, allowing users to link to the movie or survey. Survey conditions can be exported to a shape file or a geodatabase feature class. When opened in ArcMap, this layer displays the condition along the length of pipe. Selecting the condition links to the movie and jumps to the correct footage for viewing. Seeing the problem and where it exists on the pipe can make it easier to schedule repair and cleaning crews. The module is compatible with ArcGIS 9.3 and ArcGIS 10.0. **866/299-3150; www.pipelogix.com.**



CCTV AND SONAR

The one-cable **TISCIT** (Totally Integrated Sonar and CCTV Inspection Technique) system from **Cobra Technologies** can illuminate up to 200-inch pipes and power a remote elevator and a steerable crawler. Working in a single pass, the system performs video and sonar inspection of an average of up to 4,500 feet of pipe a day.

The system uses one cable drum with a capacity of 2,000 feet of multi-conductor cable.

It can be installed on any multi-conductor inspection unit by changing the existing cable to the Cobra Orange Cable and terminating the cable to an electronic enclosure for use on a float system. An HV control unit is added to the electronics along with a USB sonar processor that delivers the sonar data to the program used to display the sonar image at the operator control room. **800/443-3761; www.cobratec.com.**



STEERABLE TRACTOR

The **Pathfinder XL** tractor from **Aries Industries** has a 6-wheel steerable drive system that allows it to drive over obstructions and offset joints. Tires range from the standard 3 3/8-inch for lined 8-inch pipe to 10-inch tires with bolt-on gear-reduction side plates for 36-inch and larger pipes. The tractor can be converted to tread-track drive.

With remote operated camera lift in the down position, the unit can navigate 8-inch lined pipe. With 9 inches of lift, the operator can center the camera in the pipe or raise the camera above the waterline. Additional features include a tip-up connector with integral rear-viewing camera and LED lights, sealed and pressurized electronics cavities, on-screen diagnostics, brushless DC drive motors with temperature sensors, and permanently lubricated drive gears. The tractor has a built-in 512 Hz sonde beacon, and optional auxiliary lights can illuminate large-diameter pipes. **800/234-7205; www.ariesindustries.com.**



MODULAR TRANSPORTER

The **Pipe Cruiser** from **Simulator Systems International** is a 6-wheel pipe inspection transporter that offers a variety of configuration options. The standard unit operates in 6- to 24-inch pipes, but an optional adapter allows it to operate in 24- to 48-inch pipes. The standard



unit comes with two 35-watt lights, but additional lights can be attached for inspecting larger pipes.

Camera options include straight-line, pan/tilt or pan/tilt/zoom. The transporter carries an integrated rear-view camera. To operate the transporter, the user can select from a portable carrying case control unit, a flexible control

unit, or a fixed rack-mounted unit. Users can choose a flexible motorized umbilical reel with a capacity of up to 650 feet of cable, or a fixed motorized reel with a capacity of 1,600 feet. Other accessories include a video laser scanning unit and a real-time deflection measurement unit. **800/843-4764; www.simulatorsystems.com.**

PUSHROD PAN/TILT SYSTEM

The **vCam PT** pushrod system from **Vivax-Metrotech** comes with the vCamModular-R recording control module, Type C Reel with 200 feet of pushrod, and a pan/tilt camera head for 4- to 12-inch lines. The camera head provides endless rotation, automatic horizon compensation, automatic zero-position, automatic 90-degree panning, left/right pan, automatic 360-degree inspection, and internal pressure monitoring with alarm in case of pressure drop. The camera is made of an aluminum/high-grade steel combination and is waterproof to 1.5 bar. **800/446-3392; www.vivax-metrotech.com.**



BURIED PIPE ASSESSMENT

InfraMetrix offers Broadband Electromagnetic (**BEM**) eddy-current technology for assessing buried infrastructure. The technology provides evidence of ferrous pipeline wall loss or other structural defects without digging. BEM provides an accurate profile of the pipe wall and detects metal loss down to 1/25 inch. It produces wall thickness contour maps that illustrate remaining wall thickness at surveyed sections. The method is truly noninvasive: It does not require direct contact with the metal and can determine wall thickness through coatings and linings. Pipes can be inspected without disrupting service. **877/745-4255; www.inframatrix.com.**

TRANSPORTER WHEELS

Cua Claws transporter wheels were developed to increase camera footage in the real-world situation of slippery PVC pipes. The wheels come in four sizes and are made of stamped 16-gauge steel. The wheels are furnace-brazed to attach a coating of 16-grit carbide chips for traction. The method of attachment enables long wheel life. The wheels fit most popular camera transporters without modification. Wheels come pre-drilled for the application. Sizes are 2.5-inch, 4-inch narrow, 4-inch wide, and 5.5-inch wide. **714/697-8697; www.cuaclaws.com.**



SUBMERSIBLE CRAWLER

The **P356 crawler**, part of the **Pearpoint flexitrac P350** system with pan/tilt/zoom camera is operable in demanding conditions. Made of solid brass and stainless steel, it can operate fully submersed in depths to 330 feet. With twin powerful 50-watt DC motors, it can propel through 6- to 32-inch pipes. The camera offers up to 460 TV lines, a <1.0 Lux sensor, a 10x optical zoom, and ultrabright white LEDs. Made of stainless steel and aluminum, it transfers front impact to the crawler body, protecting the camera from shock damage.

Able to operate in temperatures to 122 degrees F, and with an on-board tilt/roll inclinometer package offering $\pm 0.20^\circ$ accuracy and a multi-frequency switchable sonde, the crawler/camera package allows accurate inspections in rigorous environments. With the flexitrac P350 system, it allows total integration of pushrod reels, cameras and accessories. Users can switch from crawler to pushrod inspection without carrying a second system. **800/688-8094; www.radiodetection.com.**

VERSATILE AND EXPANDABLE CAMERA

The **VuTek GT Series** inspection system from **Insight Vision** includes a large high-resolution LCD color monitor for easy viewing, built-in DVR recording direct to an 8gb USB drive, optional built-in hard drive for more than 30 hours of recording, on-screen footage and text, a three-hour NiMH internal battery, pushrod with spiral-wound technology for low cost and low maintenance, and a portable, expandable design.

The **ClearView 1.3-inch** self-leveling color camera has a stainless steel body and sapphire lens and uses eight high-intensity LEDs for visibility in pipes up to 12 inches. It negotiates 3-inch 90-degree bends and most 4-inch traps. The digital command center has an all-around water resistant package with recessed connections and sealed keypad controls. It includes a built-in text writer, camera/sonde test port, AC/DC power cord and a protective sunshade cover. 800/488-8177; www.insightvisioncameras.com.



SMALL PAN-AND-TILT CAMERA

The **Mini Pan and Tilt camera** is the smallest pan-and-tilt camera head available from **Image Inspection Services**. The head can be pushrod- or crawler-mounted and can be used for 4-inch pipe inspections where straight-viewing heads cannot adequately view defects. It negotiates 90-degree bends in 4-inch pipe. The low-light-sensitive movable color camera head has dual directional lighting. It operates through up to 2,000 feet of multi-conductor cable.



All-solid-state circuitry withstands shocks and vibration. Remote focus, 90-degree turn, 360-degree rotate, adjustable close-up lighting intensity, and return-to-center controls are on the system joystick. The camera provides digital signal transmission with auto self-leveling, tilt and rotation, automatic system diagnostics, and 360 degrees of endless radial rotation viewing. The rotating camera and lighthouse configuration provides 270 degrees of pan and tilt angle. The 70-degree lens viewing angle yields a total pan-and-tilt viewing of more than 300 degrees, providing 70-degree rear viewing capability for incoming lateral inspection when camera is moving away from connections. Combined with the company's Gopher crawler, the unit can inspect 6- to 24-inch lines. 800/667-6760; www.image-inspect.com. c

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BLOWERS

One (1) new Roots 1021 Whispair PD blower and one (1) very good used Roots 824 PD blower. www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

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ARE YOU MOVING TO FLORIDA? Would you like to start a septic and sewer cleaning business? I have license - will sponsor. For more information call Larry at 931-277-5541 or 931-248-1284. (CPBM)

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BUSINESS WANTED

WANT TO BUY: SEWER & DRAIN COMPANIES in Grand Rapids, Michigan. Aggressive, growing company looking to expand in Grand Rapids, MI. We'll move fast for the right deal. All replies totally confidential: skiii.triss@gmail.com. (C09)

CATCH BASIN CLEANER

2008 American La France Condor with a new VacAll VS10DC, 10-yd. debris body, dual steer dual sweep street sweeper and catch basin cleaner. (Stock #1791V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

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SOFTWARE FOR YOUR INDUSTRY! Easy to use; Affordable; Powerful. Online demos or call for guided tour. **30-YEAR ANNIVERSARY SPECIALS! THIS MONTH: 30% OFF Credit Card Processing Package when licensing related Summit Profit Builder™ software.** Reg. \$700 ... Now \$490. Expires 9/30/2011. Ritam Technologies, LP, 800-662-8471 or 208-629-4462 - www.ritam.com. (C09)

DRAIN/SEWER CLEANING EQUIP.

Mid-Atlantic Waste Systems Vacall Combination Sewer Cleaner for Sale! VACALL combination sewer cleaner, DEMO UNIT, 2008 Sterling, roughly 13,000 miles, 330 HP, 6 yard debris tank, 1000 gallons total water, General 80 GPM @ 2000 PSI water pump, lifetime warranty on debris tank and water tanks, MANY EXTRA OPTIONS, fully operational! Priced at \$221,500! Call for more information or to schedule a demo! 800-338-7274 ext 1034. Visit our website to view the equipment information: www.mawaste.com/equipment/stock.html. (C09)

Mid-Atlantic Waste Systems John Bean Jetter For Sale! 2009 John Bean sprayers DEMO jetter, Roughly 10 hours, (2) 350 gallon poly water tanks, 40 GPM @ 2000 PSI, 4 cylinder 80 horsepower John Deere diesel engine, 500 ft. x 3/4" hose, hose footage meter, articulating hose reel, cold weather recirculation system, KEG cleaning nozzle package, 3/4 x 10' leader hose; 25' hydrant fill hose, 2 1/2"; 1/2" x 25' washdown hose, model 785 wash-down gun, manual hose reel, 1/2". Call today for more information & pricing! 800-338-7274 ext. 1034. Visit our website to view this equipment: www.mawaste.com/equipment/stock.html. (C09)

For Sale: 1987 Sewer Equipment of America jetting machine with 1560 hours. Ford inline 6-cyl. commercial gas engine, D-65 pump, 500 gallon water tank, 500' of 1" hose, 150' of 3/8" hose, 2500 psi heavy volume, includes 1" and 3/8" heads. Turn-key, no leaks or other issues, ready to work. Trailer has good rubber and a 2 5/16" ball. Can demo, still working. \$8,900. 609-517-4296 NJ. (C09)

4" Percussion Milling Cutter Enz Golden Jet for 3/4" - 1" hose version 14.100. LIKE NEW - used on one job! \$3,500. Plumbing Anytime, Inc. 307-733-3534. (CBM)

HAZARDOUS WASTE UNITS

1998 Mack RD6885 with a 3000 US gallon DOT certified carbon steel vacuum tank unit. (Stock #6653V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

HAZARDOUS WASTE UNITS

1999 Sterling cab & chassis with a Cusco Turbovac 3800 industrial loader with a jetting system. (Stock #3163C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

1998 Sterling cab & chassis with a Cusco Mastervac 3800 wet & dry industrial loader. (Stock #5088C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

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DRAIN JETTER NOT STAYING BUSY?? Call Denny for the best in marketing and sales programs (30 years experience). PHCC/QSC partner (10 years). Classes held monthly; guaranteed results. 1-800-624-8186. (CP12)

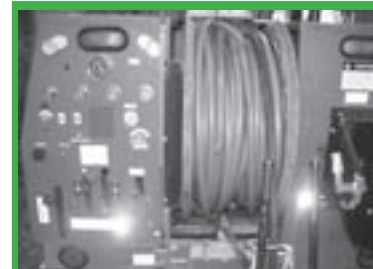
JETTERS-TRAILER

US Jet 4018 300. Excellent condition, light bar, spare tire, Hatz Silent Pac. Approx. 150 hrs. Garage kept. Remote control. \$25,000 OBO. 540-921-3542. (C09)



1985 Sreco HV-1800 Trailer Jetter: 65 gpm @ 2000 psi, 650 gal. tank. Very low hours. Approx. 500 ft. of 1" hose. Runs like new! Will deliver within 250 miles for free. \$22,500
Also have Spartan camera 100 ft. b&w monitor/vcr for \$2,500.
Dave 843-997-5570 SC (C09)

Spartan Model 737 Trailer Jetter, good shape, nice little unit. \$2,000. Dan 920-585-9924 WI. (CBM)



1993 Shamrock Mod# C-3520 Trailer Jetter: 35 gpm @ 2000 psi, 144Ci Ford gas engine, electric brakes, good tires, 500 ft. 3/4" hose, wash down/reel/gun. Very well maintained, 1987 hrs. Runs excellent. Turnkey jetter \$17,000 OBO
Call Dave 843-997-5570 SC (C09)

JETTERS-TRAILER

Xtreme Flow Hot/Cold Jetter! Model# HJ2TA8536, tandem axle trailer, 35 HP Vanguard 8.5 gpm @ 3,600 psi, 325 gal. water tank, 300' hose, General pump. List \$27,995. **Fully loaded! Call for special pricing! 800-213-3272; www.hotjetusa.com.** (CPBM)



1999 SRECO Trailer Jet: 40 gpm @ 2000 psi, FMC pump, only 220 hours, comes ready to work. New paint, electric brakes, 2-5/16" ball, 500 feet of good hose, nozzles, turn key unit. \$12,900
416-248-4990 Can. (C09)

JETTERS-TRUCK

Harben 4018 jetter with vac option. Factory built on 2006 Ford F-350 diesel chassis. New hose; ready to work!! \$36,000. 1-800-627-0778. (C09)

2000 PIPE HUNTER Model 100335 truck mounted sewer cleaner, 2000 GMC 7500 with Cat diesel, Allison automatic, 1000 gallon poly tank, hydrostatic driven FMC L16 pump, 35 gpm @ 3000 psi, rotating reel, new 3/4x600 hose, front spraybar, former municipal unit, 61,626 miles, 1420 hours. \$17,500. Call Bill @ MSC Equipment 800-969-1672 VA. (C09)

2006 GMC TC6500 cab and chassis with Pipe Hunter trunk mounted jetting unit, 3000 psi @ 50 gpm with a 1,000 US gal. water tank, rear mounted hose reel with JET EYE camera system. **6,800 original miles, like new. \$129,000 sale price. (Retail for \$210,000).** (Stock #13234V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

JET VACS

Jack Doheny Supplies Inc. offers a full range of late model combo units and DOT industrial vacuum loaders. Call us @ 1-800-3DOHENY. (CPBM)

2004 Mack Granite CV700 with 2009 Dominator industrial vacuum loader. AMI-370 450 HP, quad rear axle; 235,484 miles. Vac pump: 10,671 hours, high power jetting system, 35 GPM @ 2000 PSI. 500' 3/4" hose 2,000 PSI, hydraulic lift tank, integral water compartment (tank split: debris 2900/water 400). Excellent condition. \$125,000. ardimorgan@landmanagementgroup.net or 901-850-5303 TN. (C10)

JET VACS



2002 Model V311LHAD Sterling Vac-Con LT7500: Cat 3126 motor, 90,000 miles, Allison auto. trans., Cummins B3.9 aux. motor, 3-stage vacuum to 11-yard HI-LOW debris tank. 1" jet reel to Cummins motor @ 60 gpm capacity. 1000 gallon water capacity. 60,000 base load cap. Shop serviced! Many new parts! Everything works great! Comparable to vehicles \$120,000 in this condition.
.....Priced to sell \$92,000 OBO
201-788-5282 NJ
or stuart@drainbusters.com C09

1998 International cab & chassis with a Vactor 2100 combination unit. (Stock #1914C)
www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)



1997 Ford Jet Vac 8000: Low mileage, great condition, PD blower combination 2,000 Lb. @ 80 GPM, automatic transmission.\$75,000
617-212-0162 MA CP9

Mini Jet "N" Vac/Hydro Excavators. Perfect for: Vertical Hole Drilling/Pot Holing/Vacuuming. For details call **1-800-213-3272; www.hotjetusa.com.** (CPBM)



1990 Autocar w/2000 Model Vac-Con PD4211: PD blower jet vac, rebuilt 3406 Cat, rebuilt HT-750 Allison. Municipal truck.....\$53,900
814-696-1000 PA CP09

Aquatech C2000, 1,000 gal. water, 1,000 debris, 60 gpm. On 1980 International diesel w/auto trans. Positive vacuum pump, 500' 1" hose on front reel. \$8,500 OBO. 916-399-9595 CA. (C09)

JET VACS

1987 International Vac-Con V390TH w/DT210 HP, auto, air brakes, hydraulic driven 3-stage fan, 9-yd. debris tank, 850 gal. water, Cummins rear engine. Recently replaced 80 GPM@2000 PSI water tank. New 600' 1" jet hose, tubes, clamps, paint. Former city truck, very clean in and out. \$17,500 OBO. amorgan@landmanagementgroup.net. 901-850-5303 TN. (C10)



1988 Ford L8000 Vac: Ford @ 210 hp, A/T, 81K miles, 6K hours, spring susp., spoke wheels, Vac-Con body, Cummins showing 1,292 hrs., s/n: V290T-0488186.
.....\$22,500
715-546-2680 WI CBM

2008 Sterling LT7501 with a VacAll AJV1015, 10-yd. debris body, 1500 gal. water, combination vacuum/jetting unit. (Stock #13366)
www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (C09)

1991 Camel 200, 6-speed, 65 gpm, 2000 psi, Roots 624 blower, tandem axle, ready for work, 169,000 miles, excellent condition. \$28,900. Call 920-655-7302 or 920-866-9109. (CBM)

Vactor 2110 J4. 2002 Int. 2554 with Allison auto trans., 90% tires, eng. miles 36,000, fan 775 hrs. and eng. hrs. 59,000. Very clean and excellent condition. Owner retiring. \$75,000 OBO. 540-921-3542. (C09)



2006 Vac-Con V311LHAE/1500: Low miles 35,947. Big Bore ISM425V, 410 hp, 11-yard debris, 1500 gallon, hydrostatic drive, 10' boom with wireless remote, 50 GPM @ 3000 PSI, hydro-excavation pkg. Loaded.
503-491-3393 OR
www.envirocleanequip.com C09

(2) 2006 Peterbilt Vac-Cons - Hi dump, 12-yd. Call or email for info and photos. \$180,000 each. Flpipetec@bellsouth.net or 904-284-2141 FL. (C09)

1999 Sterling cab and chassis with a Vactor 2100 combination vacuum loader and high pressure sewer cleaning system. (Stock #2129V) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)

JET VACS

1997 Camel 200 Triplex 80 GPM pump w/ PD Blower, Behind cab reel mounted on Ford with 275 HP Cummins diesel, Allison automatic transmission. Just over 66,000 miles. One owner and in great shape \$78,000 OBO. Call Jack @ 614-419-4579, see at www.zia municipalsupply.com. (CBM)

1998 to 2008 Jet/Vacuum high pressure sewer cleaning combination units manufactured by Vac-Con and Vactor in good working condition. Also a 2010 high pressure sewer cleaning system with 300-360 GPM @ 2000 psi, in excellent condition. 240-375-6582 MD. (C09)



2003 Sterling L7500 Vac Truck: Cat 3125 @ 315 HP, A/T, 55K miles, spring susp., 2003 Vac-Con V390LHAD, 3 compressor fans, 10' telescopic boom, HS drive, articulating hose reel, hi-dump debris tank.....\$99,500
715-546-2680 WI CBM

1996 Vactor 2110, PD blower, 60 gpm, 2000 psi pump, extendible boom, articulating hose reel, epoxy-coated debris tank. See pictures at www.empireequip.com. Truck located in Fresno, CA. \$45,000. Call 559-276-0186. (CPBM)

1990 Camel 200 80 GPM/2000 psi, Roots TS32 blower, mounted on Ford with 240 HP diesel, automatic. Just over 40,000 miles. Municipally owned and in great shape. \$48,000 OBO. Call Jack @ 614-419-4579, see at www.ziamunicipalsupply.com. (CBM)

LEASE/FINANCING

North Star Commercial Credit: Commercial Loans for Trucks or Equipment. Flexible purchase programs to fit your budget. 21 yrs. in the industry. Contact **Tom Myers - 877-804-2274.** (CPBM)

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SAPPHIRE NOZZLES for UHP, laser-etched, heat treated, excellent quality, fantastic savings! 772-286-1218. info@alljetting.com; www.alljetting.com. (CBM)

SAPPHIRE NOZZLES to 60,000 psi for all major UHP units. Factory direct. Wholesale price. Apex Waterjetting Technologies. 772-260-1100. (CBM)

PARTS & COMPONENTS

US Jetting provides aftermarket rebuilding services and **replacement parts for Harben® pumps.** Low prices, fast response. Why pay more? Call today. 1-800-538-8464, ext 25 or 18. (CBM)

PIPE BURSTING EQUIPMENT

TT Technologies Grundo-Crack Pipeburster 4"/6" and 6"/6", \$10,000. Earth Tool (Vermeer) Pipeburster forward expander/back-out 8" to 12" capable, \$20,000. Cherne Air Testing System with two 8" test plugs, \$1,100. davidlefon@gmail.com or 434-466-2321 VA. (C11)

PIPELINE REHABILITATION



2004 Hammerhead Mole HB5058 Hydroburst System: complete with rods, burst heads, expanders and blades for 6-12", power pack, hydraulic hose, complete package ready to work. Excellent condition, only 43 hours! We will deliver within the US.\$45,000 OBO
440-232-0042 OH C09

Winch truck with 3-spd. hyd. 15k# Braden constant speed 6 capstan head with 1200' 1/2" cable. Articulating hyd. arm. No need for top or down hole rollers and bracing. Can be used for pulling poly liner, large diameter bailing, bucketing or pipe bursting. 2 part the cable and get 22,500 of pull with a 500' run. Mounted on 1974 International diesel with a 13-speed. \$15,000 OBO. 916-399-9595 CA. (C09)



2009 Pace American Pipe/Pool Lining Trailer: LIKE NEW, only used a few times. Aluminum launcher. Two winches w/500' of 1/8 cable, rated 1800 lbs. One packer that does 8" & 10" patches, 10' long. 125' of 6" flex liner. 220' of 6" standard liner. 330' of 4" flex liner. 200' of 4" standard liner. One pool lining system with 2" & 1 1/2" liner-never used.....\$65,000
Ron @ 724-624-0404 PA C09

PIPELINE REHABILITATION

One trade-in model of Pipe Genie heavy duty pipe bursting equipment. Excellent condition, looks new. 30-ton, 100 feet cable, full 2 year warranty. 877-411-7473. (CBM)

POSITIONS AVAILABLE

Gradall Industries, Inc. is looking to expand our current staff of Regional Sales Managers for our Vacall product line. Vacall products include combination sewer cleaners, street sweepers, catch basin cleaners, and industrial vacuum loaders. We are looking for individuals who are self-motivated, possess strong organizational skills, and have a desire to succeed. Desired candidates will have a Bachelor's degree in a related field and 3 to 5 years industry specific experience. CDL is a plus. EEO/AA Qualified candidates are encouraged to apply online at www.vacallindustries.com or by sending a current resume to: Gradall Industries, Inc., Attn: Reg. Sales Mgr., 406 Mill Ave SW, New Philadelphia, OH 44663. (C09)

UTILITY SERVICES GROUP is a growing Mid-Atlantic company seeking CCTV, GROUING, FLUSHING, VACUUMING, CIPP, LATERAL LINING and MANHOLE REHABILITATION foremen, management, technicians, and laborers. Applicants should have a minimum of one year experience in the sewer industry. We are an EOE offering great advancement, pay and relocation subsidy. Send resumes to HR@usginc.net, Fax: 717-737-6093, or USG HR Department; P.O. Box 3143; Shiremanstown, PA, 17011 (C10)

Halifax Water is inviting applications for one (1) regular CCTV Video Inspection Operator in the Wastewater and Stormwater Services Department. This position requires the deployment and operation of specialized closed-circuit video equipment on mobile or stationary platforms to conduct inspections of sanitary, combined, and storm sewers under the Halifax Water jurisdiction. To view the details of this job posting please go to your web site: www.halifaxwater.ca Halifax Water is an equal opportunity employer. (C09)

JOIN THE INDUSTRY LEADER! Since 1943, Spartan Tool has been leading the way in sewer and drain cleaning. We are currently seeking territory managers to join our team of sales professionals in supporting our outstanding industry reputation. Ideal candidates must have an understanding of the sewer and drain industry, coupled with exceptional customer service and territory management experience. If selected, you will benefit from base salary, commissions, company vehicle, and great benefits. Candidates are asked to forward their resume to Spartan Tool's Recruiting Director, bkuty@spartantool.com. (C09)

POSITIONS AVAILABLE

NLB Corp., an international leader in the manufacturing of high-pressure water jetting equipment, has an opening for a Branch Manager at our Crown Point, Indiana location. The scope of this position is managing a branch office with a rental fleet of high-pressure water jetting equipment and personnel at the location. For more information on the position and details how to apply visit the Employment section of the website at www.nlbcorp.com. EOE. (C09)

PRESSURE WASHERS



NLB 10,000 Lb. Pressure Washer: Diesel, approximately 800 hours.....\$19,000
617-212-0162 MA CP9

PUMPS

New water end barrel for Vactor water pump, \$1,250.00. 714-381-4141. (CPBM)

Buy & Sell all makes and models, **new & used** vacuum pumps & high pressure water pumps, and good used replacement parts. Call for an inventory sheet and save. **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)

RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted jettors. All available for daily, weekly, monthly, and yearly rentals. **VSI Rentals, LLC, (888) VAC-UNIT (822-8648) www.vsirentalsllc.com.** (C09)

RODDING MACHINES



2001 Ford F650: Cat 3126, 6-cylinder diesel, Allison 5-speed auto, no CDL, OK Champion power rodder S660-36ATO, 7,000 lb. pulling force. 2 others in stock!
.....\$39,500
215-703-4386 PA C09

RODDING MACHINES

1985 Champion .049 machine. V4 Wisconsin, 1000' continuous rod, hose, cutters, saws, and spare parts on 1975 Ford 1-ton. \$8,500 OBO. 916-399-9595 CA. (C09)

ROOT CONTROL

1992 hose thruster machine used to apply Vaporooter Sanafoam to sewer lines. Single axle trailer can be connected to jetter truck. \$8,500 OBO. 916-399-9595 CA. (C09)

SEPTIC TRUCKS



2004 Sterling Vac Truck: Cat C-7 engine, 300 hp, Fuller 8LL, lockers, 222" WB, PTO, double frame, spring susp., 18/46 axles, cruise, 109K miles \$99,500
715-546-2680 WI CBM

2010 Peterbilt 348 with new Presvac 3600 US gal. carbon steel vacuum pressure tank with Masport HXL400WV vacuum pressure pump. (Stock #8806V) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)

2001 Sterling Septic Truck: 370 Cummins, 3450 gallons, 8-speed Fuller transmission, Rockwell rears 46,000, 147,000 miles, Vacutrux body, Wallenstein pump. Illness forces sale. \$40,000. 315-673-1036 NY. (P8C9)



1978 Mack Vac Truck: Mack diesel, M/T, 10,500/19,040 axles, camelback susp., spoke wheels, 22.5 tires. \$24,500
715-546-2680 WI CBM

SERVICE/REPAIR

REPAIRS: Sewer cam, reel/rod, monitor, locator and more. Warranty on Vivax/Metrotech, General Wire, Ratech, Spartan, Hathorn. Like new, refurbished reels for sale. Northern California 800-519-1998. (C11)

SERVICE/REPAIR

www.servicewithasmile.com
Sewer Cam Reel and Camera Repair: Authorized for General Wire, Ratech, Vision & Ridgid. Quality service on all brands. Need more info? Give Chuck a call. Electronic Repair Co., Birmingham, AL 35206. 205-836-0454; email: part@servicewithasmile.com. (CBM)

Dynamic Repairs - Inspection Camera Repairs: 48-hr. turn-around time. General Wire, Ratech, Ridgid, Electric Eel, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. **Rental equipment available.** For more info. call Jack at 973-478-0893. Lodi, New Jersey. (CBM)

TANKS



2007 Keith Huber King Vac: ..\$18,500
715-546-2680 WI CBM

TOOLS

T&T Tools: Probes, Hooks. Probes feature steel shafts with threaded and hardened tips. The insulated **Mighty Probe™** tested to 50,000 volts. **Top Poppers™** open manhole covers easily. Free catalog. **www.TandTtools.com.** Phone **800-521-6893.** (CPBM)

TRAILERS

WANTED: Looking for a relining trailer. Please contact Rachel at rachel@scottishplumber.com. (C10)

TV INSPECTION

2008 Rovver 125 Sprinter. Less than 200 hours. RC90 pan/tilt/zoom camera. 6"-30" pipe range. Truck has AC/heat, light package, like new, too much to list. \$105,000. Call John 813-299-0033 FL. (C09)

2008 Ford E-150 HD with 2005 Cyclops equipment (VN-004), color, pan, tilt, zoom over 700 ft. cable. Nice van 73k, 5.4 gas, automatic, AC, with rear heat and AC. Just sent unit to Cyclops factory in Texas for updates and service. Ready to make money for you. Nice compact unit. See more at: www.letsrollautoandequipment.net (stock #08-01). \$39,500. 719-338-3767 (more cctv vans from \$24,950. (C11)

TV INSPECTION

RST OMNI II Camera, pan/tilt/color, 2-VHF/CD recorders, 20" monitor, approx 1400' cable, plus some extra parts. Ready to use. \$8,000. Contact kottked@aol.com, 541-664-1192 (OR) for photos. (C11)

2001 GMC Savana G3500 van with Pearpoint P400 Series truck-mounted television pipeline inspection system-computer, VCR, camera, cables, hoist, 1500+lf. Van 115,000+ miles, 5.7L gas/auto, A/C/PS/PB/AM/FM. Photos upon request. \$54,000. Chaim903@yahoo.com or 903-491-9597 TX. Serious inquiries only. (C09)

2003 Cues Ford E450 TV truck. Laser profile equip., etc.. Email or call for more info and photos. \$119,000. Flpipetec@bellsouth.net or 904-284-2141 FL. (C09)

1986 GMC, aluminum body step van TV truck. Has 1999 Aries equip., etc. Call or email for more info. and photos. \$12,000. Flpipetec@bellsouth.net or 904-284-2141 FL. (C09)

1999 Cues Ford (gas) E450 TV truck. Call or email for info. and photos. \$55,000. Flpipetec@bellsouth.net or 904-284-2141 FL. (C09)

1995 Cues TV/Seal Truck step van, 6" - 30" packers, etc. Email or call for more info. and photos. \$55,000. Flpipetec@bellsouth.net or 904-284-2141 FL. (C09)

TV Ferret: Complete used, pan & tilt system, 600 ft. cable, 6" crawler. More turn-key systems. Starting at \$20,000. www.tvferret.com. 518-399-2211. (CBM)

1998 Cues Mainline TV System: GMC Savannah 3500, Cues w/Pro-Data on-screen titler, Honda generator, Sony combo DVD/VHS, 1700' of M/C cable, pan & tilt camera w/shorty transporter. \$39,500. 608-835-7767 WI. (CBM)

VACUUM LOADERS

1998 Sterling cab & chassis with a Cusco Mastervac 3800 wet & dry industrial loader. (Stock #5088C) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)



1990 International Vector: 72,500 miles, 16" Roots blower, 10-speed, 8" boom, dependable.....\$24,500
217-519-3898 IL C10

VACUUM LOADERS

1999 Sterling cab & chassis with a Cusco Turbovac 3800 industrial loader with a jetting system. (Stock #3163C) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)



2006 Sterling LT9500 Vac Truck: Acert C-13, Fuller 8LL, lockers, 18/40 axles, 4x6 drive, air ride, 24K miles, 208" WB, 227" frame behind cab, 22.5 tires, engine brake, disc wheels, 2006 Presvac tank, s/n: APV-4000-0705-7052, 4,000 gal. tank, Masport pump..... \$89,500
715-546-2680 WI CBM

1999 International with a Guzzler Ace 27" HG wet/dry industrial vacuum tank loader. **Demo/Rental unit.** (Stock #7390) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C09)



1989 Mack Vector: 16" Roots blower, 6-speed, 8" boom, dependable. \$24,500
217-519-3898 IL C10

WANTED

WANTED TO BUY: Any used make/model GapVax. Call 888-442-7829 PA. (C11)

Wanted to Buy: Vector 2100's and late model Guzzlers. Cash. 800-336-4369. (CPBM)

WANTED: We buy sewer trucks. Any year, any condition. Results immediately. 915-239-2266 or mmachinerymexico@gmail.com. (CBM)

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Fill in the online form

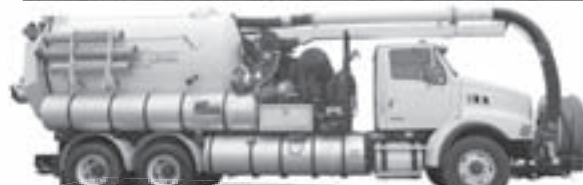
See our full inventory at www.StandardEquipment.com

STANDARD

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2003 Sterling/Vector 2115, 18" PD blower, 80 GPM jetter system, many optional items included.



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Letters to Remember

SCORE AND SBDC PROVIDE VALUABLE FINANCIAL ADVICE AND BUSINESS-PLANNING SERVICES TO SMALL-COMPANY OWNERS

BY PAUL HOLLEY

As a small-business owner, you can find yourself wrapped up in day-to-day details and overcoming daily challenges. But what about issues like financing options, long-range planning, marketing strategy and developing new services?

Those efforts might fall to the background, because you don't have the time to handle them yourself, the funds to hire someone else to handle them, or even the connections to find someone qualified to help you. But there's no reason to go

website (www.score.org) and get answers from an expert within 48 hours. The service is free, and all information discussed is strictly confidential.

JOIN A GROUP

Besides counseling, SCORE offices host workshops and seminars for new and existing small businesses. Fees are generally \$20 to \$75. The programs, scheduled throughout the year, cover diverse topics. For example, the Western Massachusetts SCORE office recently held a

schedule a free face-to-face meeting with an SBDC staff member. He or she can suggest strategies you can use, put you in touch with experts who have faced the same challenges, or recommend courses or workshops.

SBDC focuses on education. Seminars and workshops are offered through local offices. Prices for half- and full-day seminars generally run from \$40 to \$100. A recent review of local calendars showed a construction cost seminar in San Antonio, Texas; a QuickBooks workshop in Duluth,

Through SCORE, you can arrange a face-to-face session with a counselor for advice on things like cash flow management and financial projections. You can also submit questions via the website (www.score.org) and get answers from an expert within 48 hours.

it alone. Expert, free advice is available throughout the country from SCORE and SBDC.

LEARNING THE SCORE

SCORE is a nonprofit association in which more than 11,200 retired and working business professionals volunteer to help entrepreneurs. It began in 1964 as the Service Corps of Retired Executives. Today it just goes by the acronym, and it operates 370 offices in cooperation with the U.S. Small Business Administration.

SCORE counselors come from a broad array of backgrounds and real-world experience. Some have been executives or managers at major corporations, while others have owned small businesses. Specialties include finance, accounting and sales. All are trained to help small-business people. SCORE volunteers donated more than 1.4 million hours to serve 444,723 new clients in the past year.

So, how does this work? Let's say you've had success in residential pipe cleaning and you'd like to diversify into CCTV inspection or pipe bursting – but you're not sure you can make the financial leap to get the equipment and staff you need.

Through SCORE, you can arrange a face-to-face session with a counselor for advice on things like cash flow management and financial projections. You can also submit questions via the

workshop on business planning and cash flow. Meanwhile, workshops in Portland, Ore., covered time management, website marketing and finding new customers.

SCORE also has an online community (www.scorecommunity.org). Here, you can join discussions, post business opportunities, search for vendors, read how-to articles or list your information in a business directory.

The SCORE website includes more than 2,000 pages of content, including business articles, templates, workbooks and other self-help tools. To find a SCORE office, call 800/634-0245, visit the website, or email the names of your city and state to contact.score@sba.gov.

TO SCHOOL WITH SBDC

Small Business Development Centers (SBDC) are hosted by colleges, universities and state economic development agencies. The 1,000 centers in all 50 states provide free business consulting and low-cost training. SBDC offices serve a million business owners every year.

Your local SBDC is a good place to turn if you'd like help writing a business plan, locating sources of capital or getting details on state and local business regulations. For example, if you plan to offer a new service or buy another company, you can

Minn., and a marketing and networking workshop in Lewisburg, Pa. The sessions are held on campuses, at government offices and in other easy-access locations.

The SBDC education focus carries through to its national website (www.asbdc-us.org) where you can read *Small Business Digest* articles by business experts, view webinars, and find links to dozens of business-related websites.

America's Small Business Development Center Network is the starting point for developing working relationships with all local offices. Visit the SBDC website and enter your Zip code to locate an SBDC near you.

GETTING STARTED

Of course you can't expect to present a SCORE volunteer or SBDC staff member with a laundry list of business chores and expect them to tackle them all at once. Select one long-range issue – such as a company marketing strategy – and present it to a representative.

They will guide you through the process. Once you solve your problem, you'll feel such a sense of accomplishment and relief that you'll have them bookmarked as your go-to team for answers to more long-range planning issues. **c**

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