

MUNICIPAL

SEWER

&

WATER™

HUMAN SIDE: RECRUITING
YOUNGER TEAM MEMBERS
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SELECTING AND EQUIPPING
TV INSPECTION VANS
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INTEGRATED GIS IN
WATERFORD TOWNSHIP, MICH.
PAGE 14

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROGRAMS

January 2008

mswmag.com

Louisville 2008
Feb. 27-29, March 1 MAKE YOUR MOVE



PAGE 30

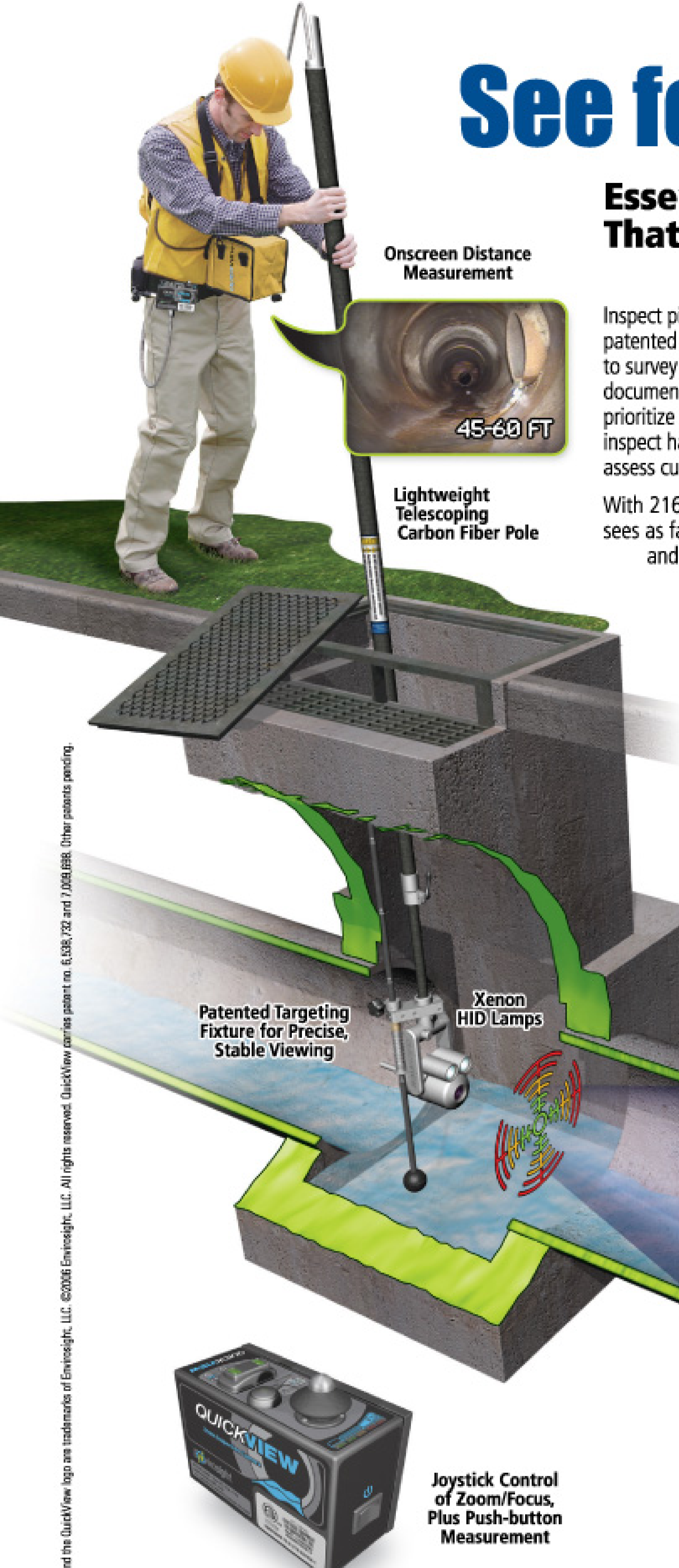
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The City of Marinette (Wis.) brings TV inspection back in-house

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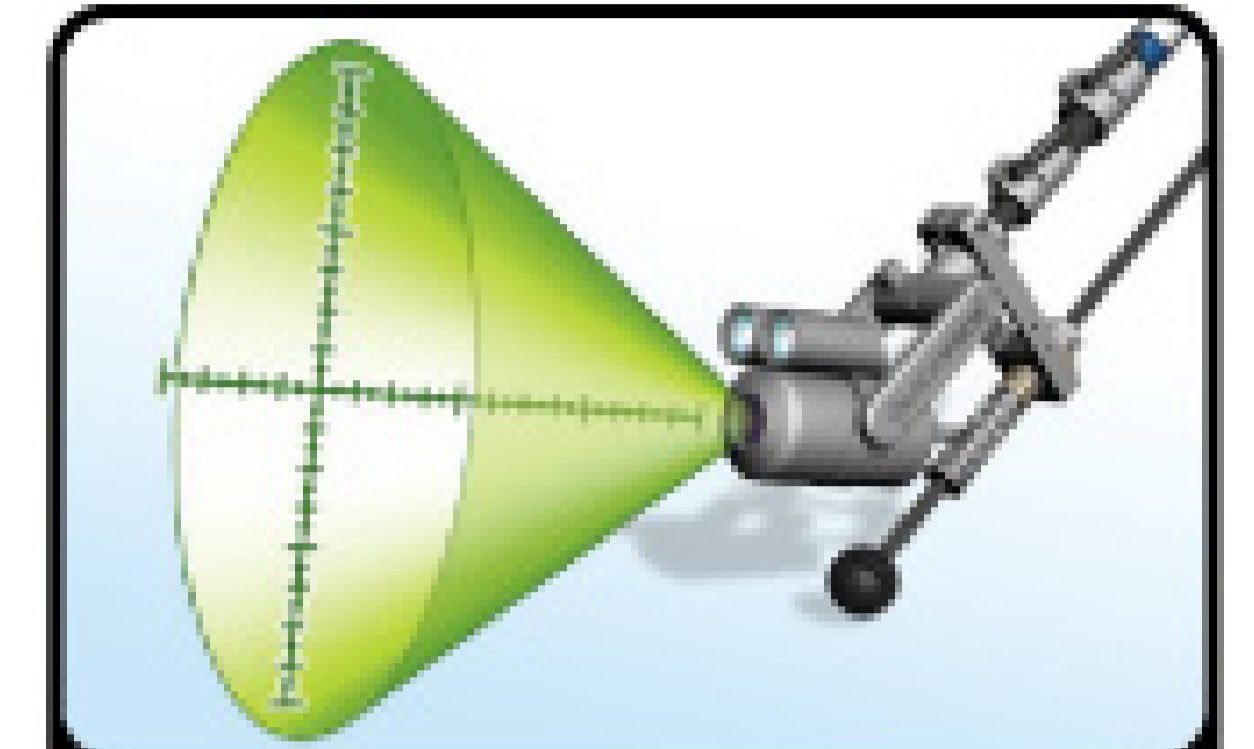
— **Accurate Locating Services,**
George Vlahos

"QuickView lets us check wall condition and pipe condition close to the manhole to determine what maintenance issues need to be addressed first."

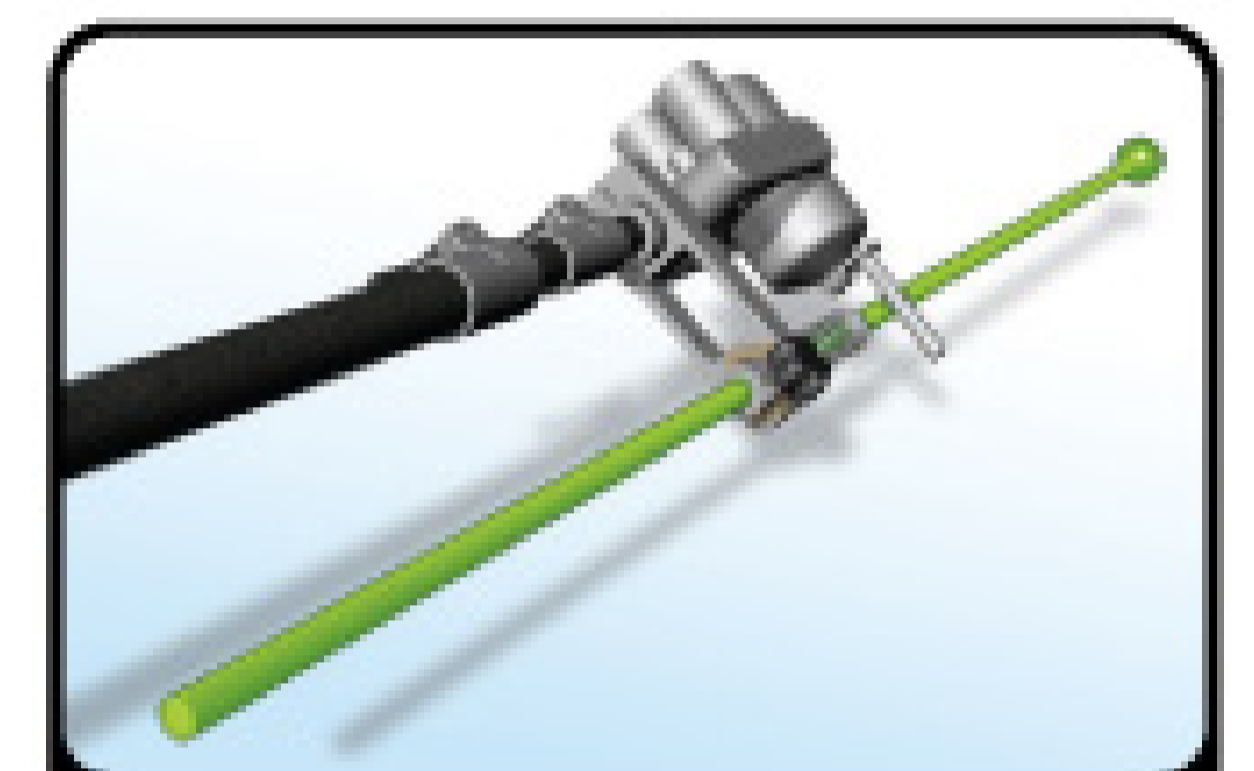
— **City of Plano, TX,**
Robert Morris, Supervisor

Patented Targeting Fixture for Precise, Stable Viewing

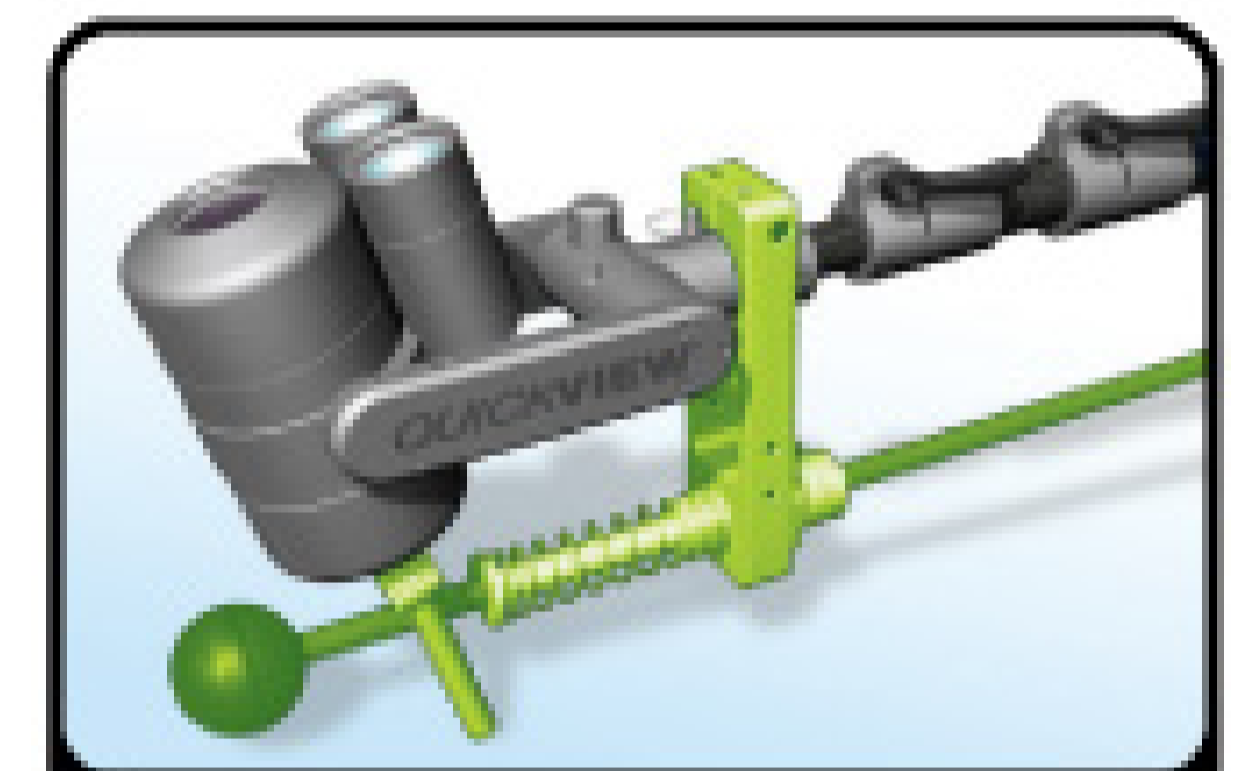
Xenon HID Lamps



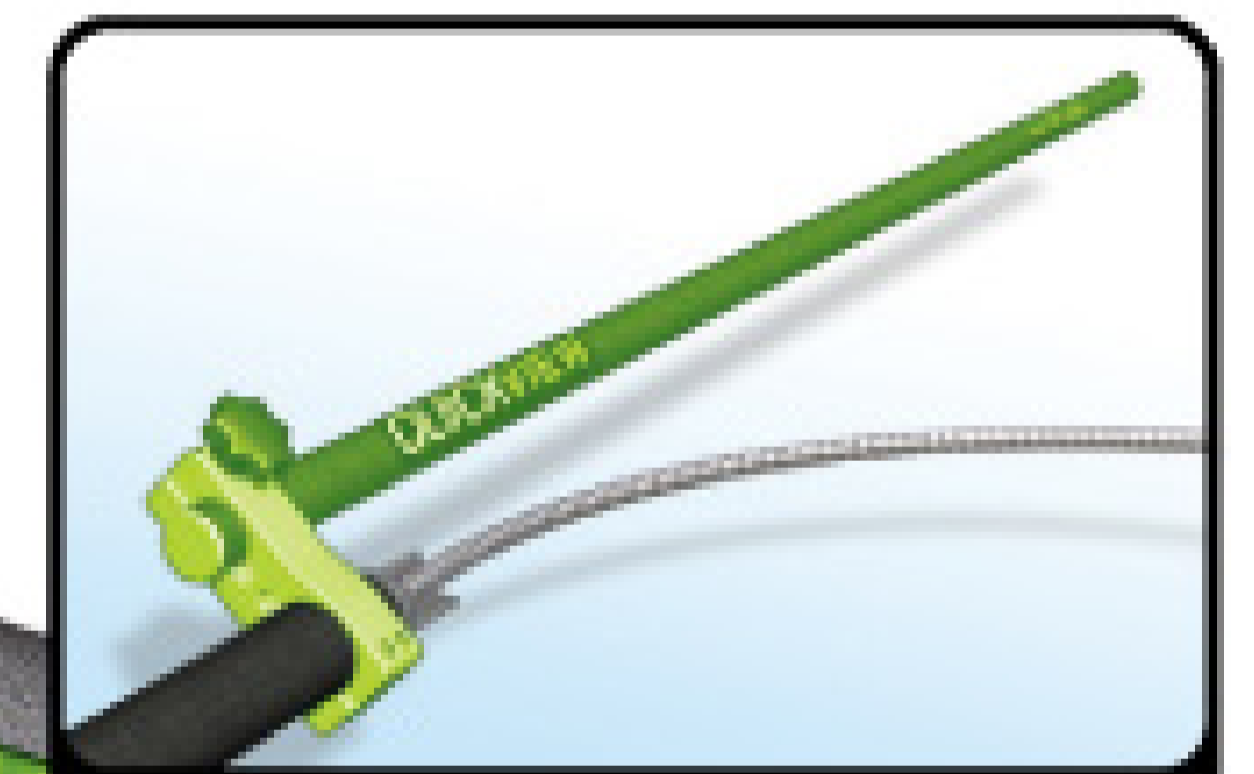
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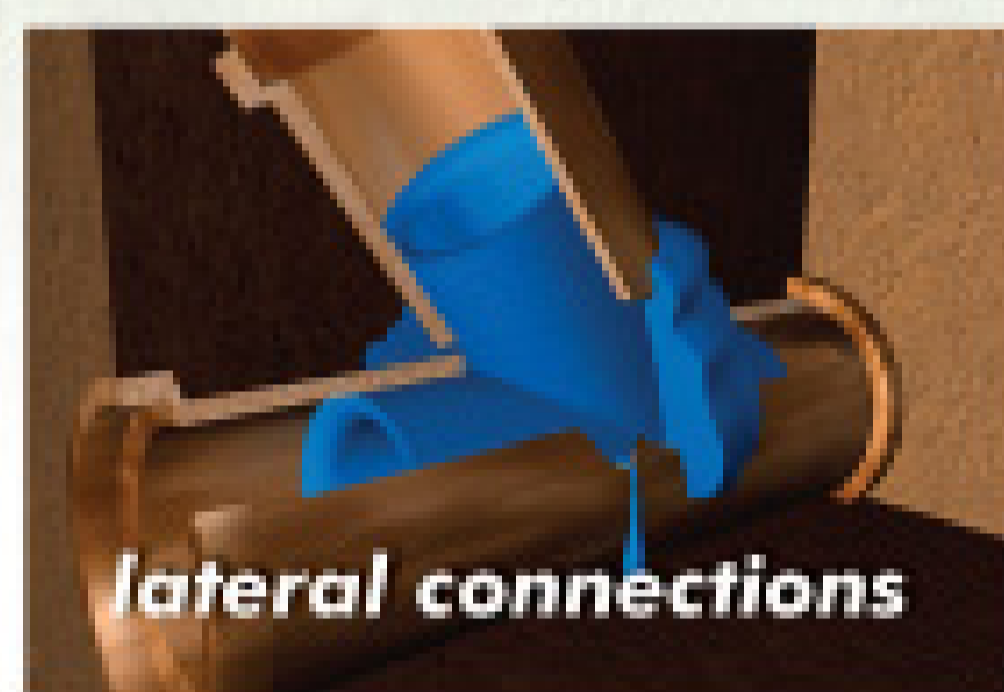
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manhole to manhole



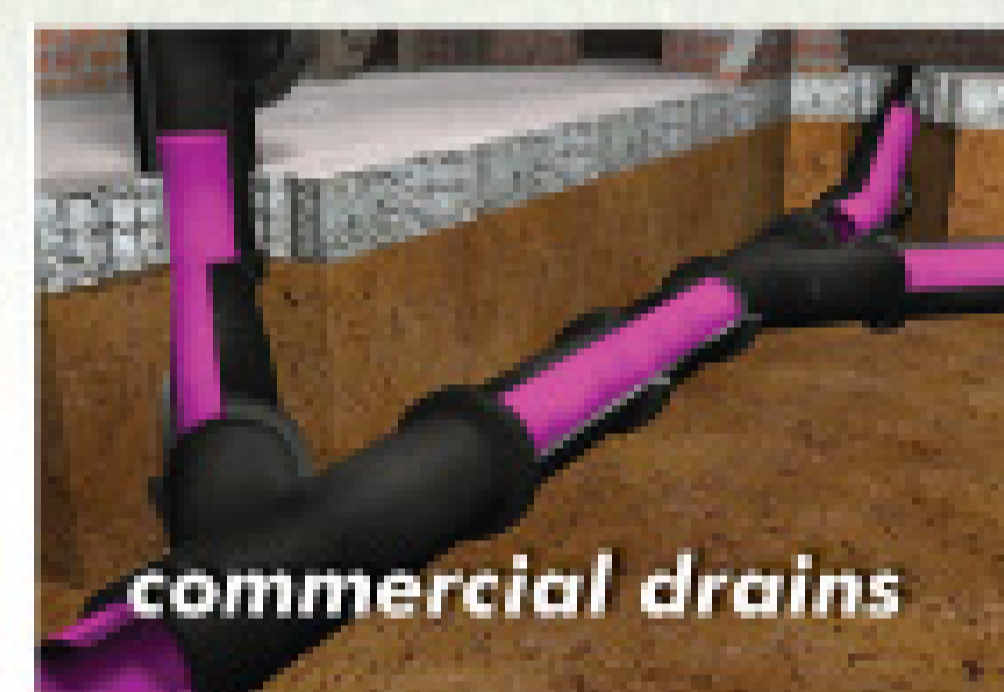
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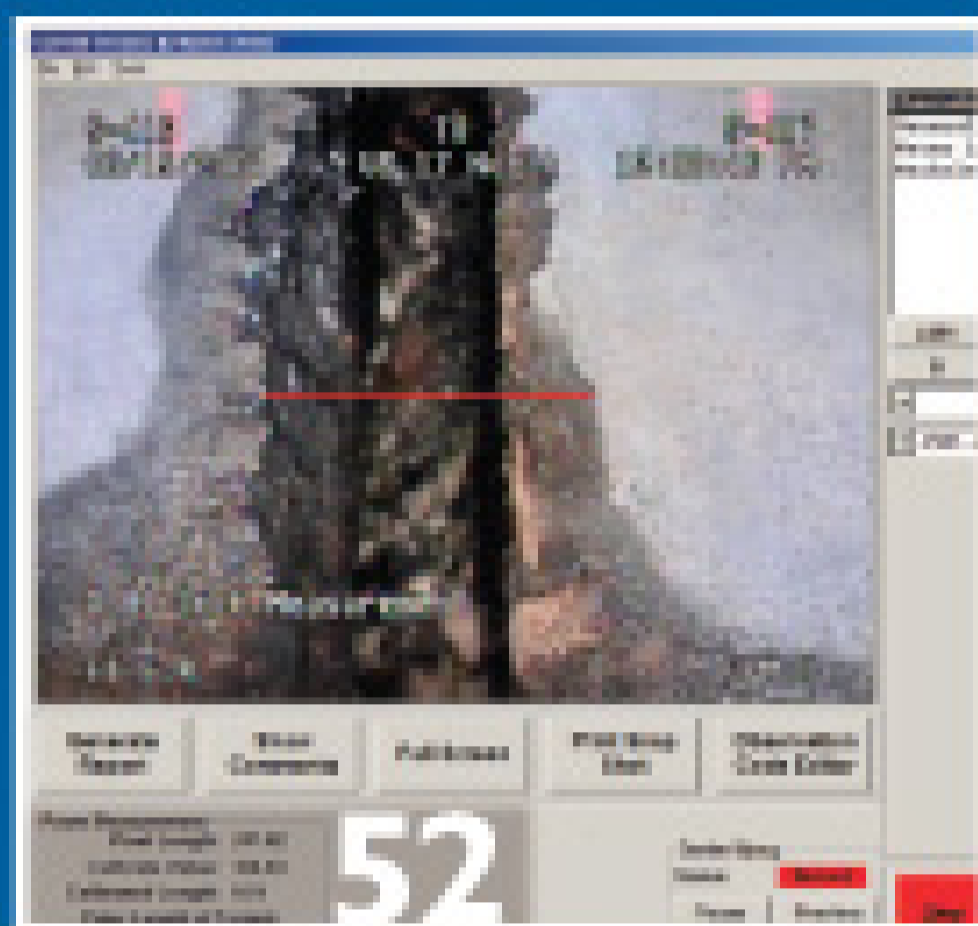
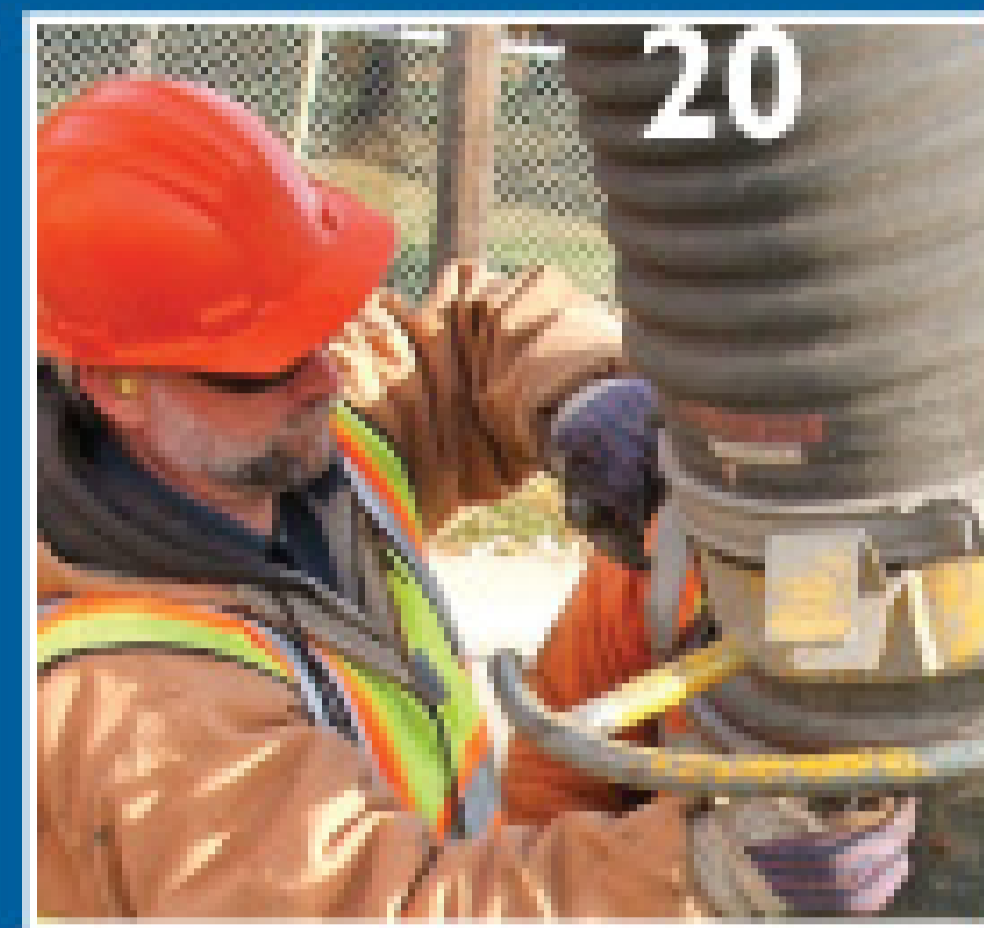
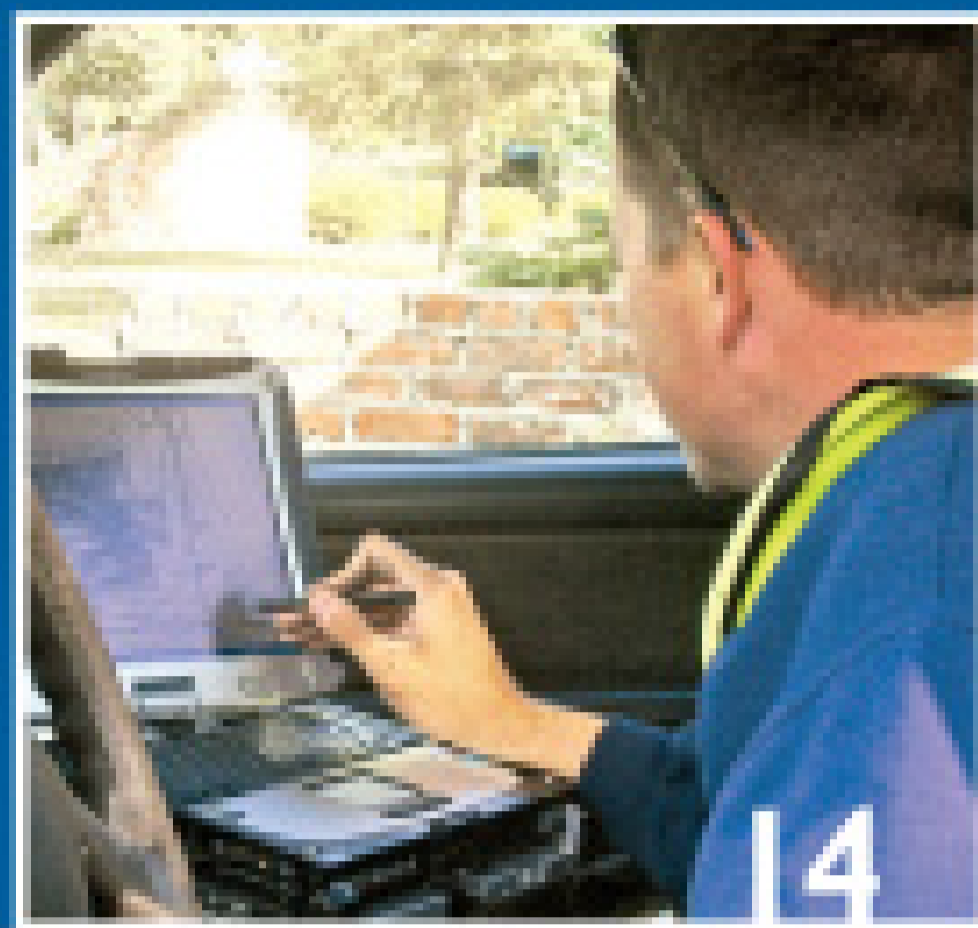
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INSIDE:

SERVICE VEHICLES AND EQUIPMENT



COVER:

Roger Keller (left) and Gary Kmiecik of the City of Marinette (Wis.) retrieve a Cobra Technologies camera, supplied by UEMSI, after a line inspection. The city has brought pipe inspection back in-house to improve cost-effectiveness. (Cover photo courtesy of the City of Marinette)



COMING IN FEBRUARY 2008

Pumper & Cleaner Expo Pre-Show Issue/Exhibit Preview

- ◆ Sewer: Directional drilling in Ogunquit, Maine
- ◆ Water: Incident response programs in San Antonio, Texas
- ◆ Storm: Innovative technologies in Los Angeles, Calif.
- ◆ Human Side: Community relations in Atlanta, Ga.

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Waterford Township (Mich.) uses a fully integrated GIS as the backbone for managing its water system and virtually all public works functions.
— Angus W. Stocking, L.S.

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Milwaukee County's fleet of vacuum trucks helps keep a large storm drain system flowing freely through all kinds of weather.
— Erik Gunn

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The chart-topping band Big & Rich brings a unique brand of country music to the Saturday Evening Jam at the 2008 Expo.
— Ted J. Rulseh

30 SEWER: In the Family

A northern Wisconsin city improves pipe inspection efficiency and reduces cost by moving away from contractors and taking the capability in-house.
— Erik Gunn

40 Cameras on Wheels

Custom inspection vehicles give municipal managers almost infinite options for taking CCTV cameras and software to streets and rights-of-way.
— Scottie Dayton

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A CCTV inspection van is a major investment. Before choosing equipment, weigh all the costs and consider all the variables in light of your program goals.
— Jim Aanderud

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By Ted J. Rulseh

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Adjustable manhole risers enable a Missouri utility to streamline its paving operation.
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— Ted J. Rulseh

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— Irv Gemora

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JANUARY 2008

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MUNICIPAL SEWER & WATER

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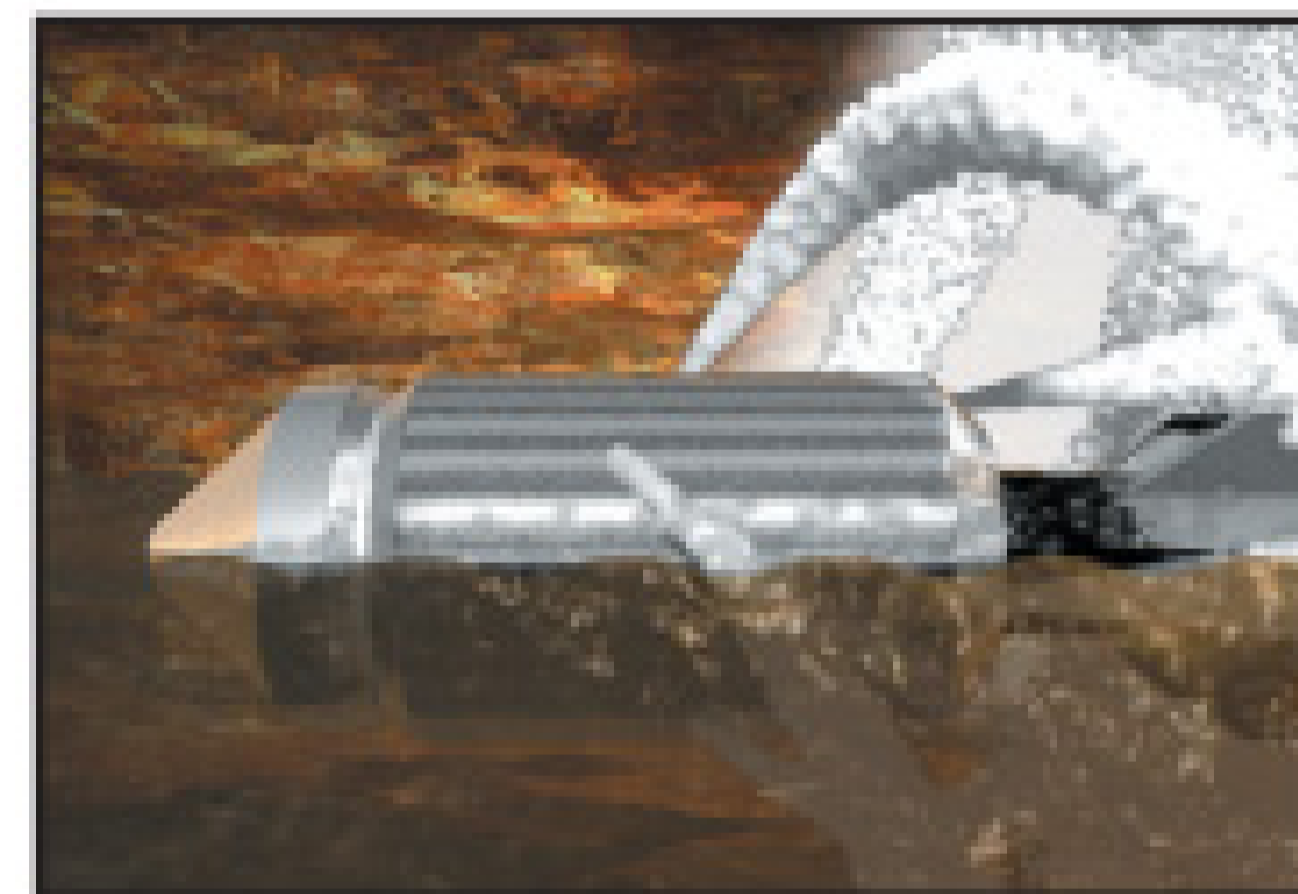


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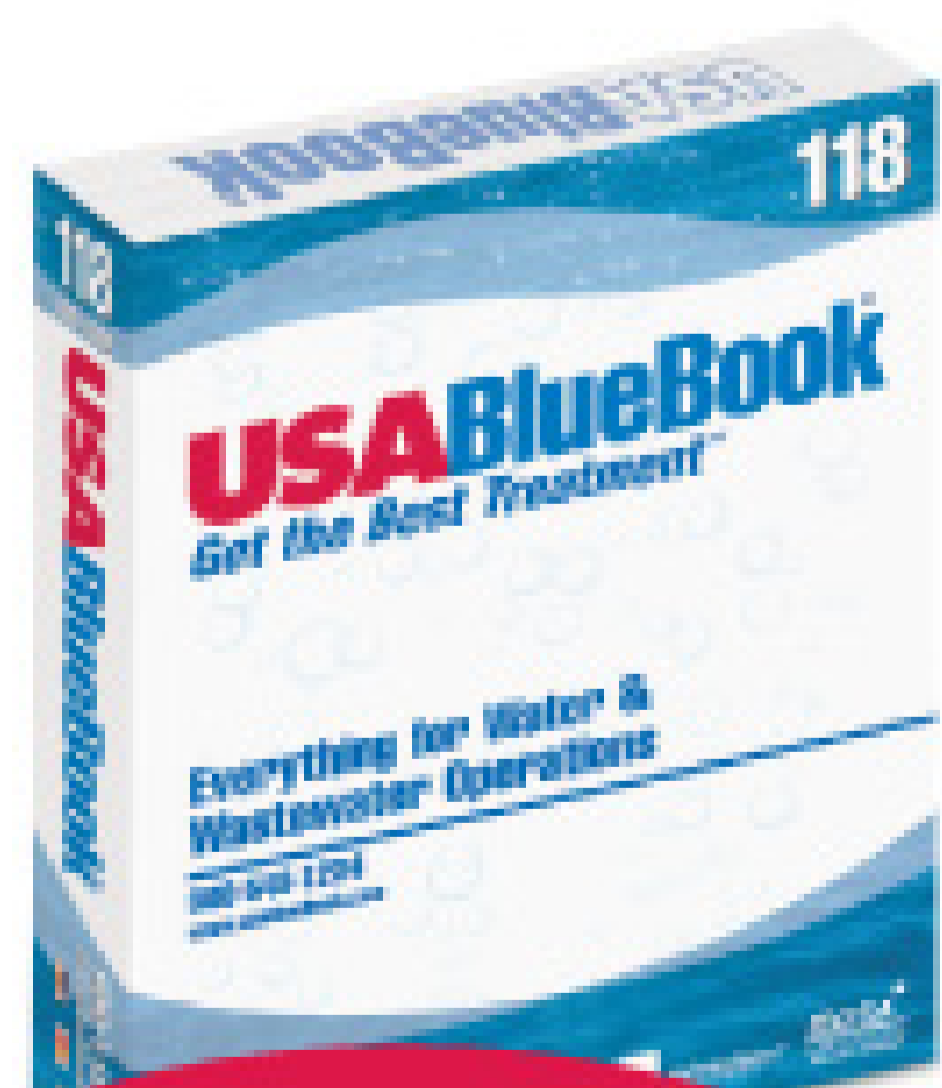


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Service vehicles determine to a great extent how much you can accomplish, and how well. Be sure to treat them like the valuable assets they are.

Whether in business or in the public sector, vehicles seem to end up on the expense side of the ledger. Of course they belong there, because you have to spend money to fuel, maintain, repair and replace them.

At the same time, vehicles are assets — especially if chosen and designed with care and maintained religiously. In business, the right vehicles can separate excellent companies from average ones. In municipal and utility maintenance, vehicles affect the quality, speed and cost of your service, and the image you convey to the public.

Investing wisely

This issue of *Municipal Sewer & Water* spotlights service vehicles, especially TV inspection vans. You'll find a roundup of manufacturers' inspection vehicle offerings, plus a professional's advice on how to design and purchase a camera truck.

In the latter article, author Jim Aanderud observes, "The purchase of an inspection vehicle must be justified through a critical analysis of the agency's needs and an objective view of the inspection program and its long-term cost and effectiveness. Unfortunately, many agencies minimize this critical analysis, and the inspection van never achieves its intended purpose."

Inspection vehicles of course are among the most sophisticated items in a municipal fleet. Still, similar concerns apply to picking vehicles for any purpose — be it line cleaning and maintenance, grouting, hydroexcavation or valve exercising. It is always essential to invest with care. And taking care does not mean simply getting the lowest price. It means choosing the

vehicle that best fits your needs and program.

To understand the importance of an efficient fleet, it helps to think in terms of what your real job is. Your aims are to deliver system reliability, solutions to taxpayer problems, and peace of mind, at affordable cost. The best vehicles to enable all that are probably not the cheapest ones you can buy.

Platform for efficiency

First, your vehicles have to get your people to jobsites quickly and reliably. Once there, the

To understand the importance of an efficient fleet, it helps to think in terms of what your real job is. Your aims are to deliver system reliability, solutions to taxpayer problems, and peace of mind, at affordable cost. The best vehicles to enable all that are probably not the cheapest ones you can buy.

onboard equipment and systems must help them attack and resolve the issue as smoothly and efficiently as possible. The better the vehicles support your field teams, the more productive hours you have each day. That translates to major benefits, such as:

- More feet of sewer main inspected per year; shorter cycle times for complete system inspections, and more effective pipe repair and maintenance planning.
- Faster resolution of sewer blockages that inconvenience customers and cause overflows.
- Shorter service interruptions for pipe lining, grouting and other repairs.

Second, your vehicles need the right equipment — enough to handle the issues your



FROM THE EDITOR

Ted J. Rulseh

people most often see. Yes, it's expensive to load each truck with high-tech options and fill it wall to wall with machines and replacement parts.

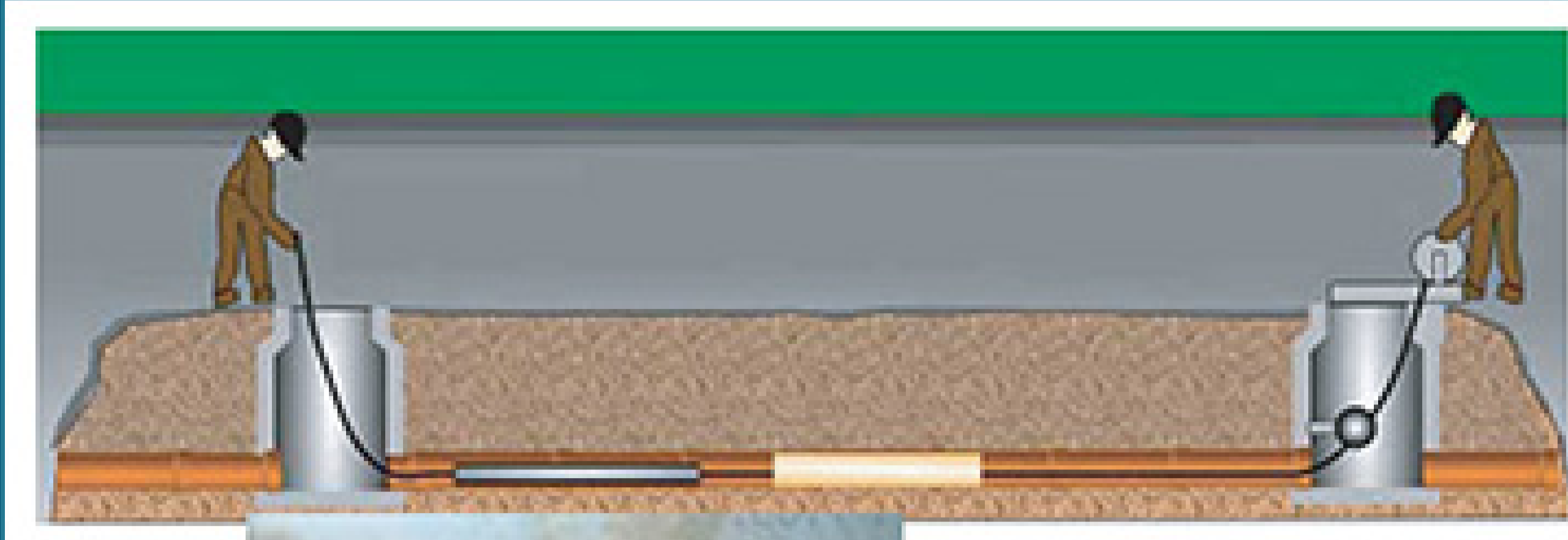
But skimping can be worse — that can mean your crews spend unproductive time traveling back and forth to the shop. Think it through. What are the items your people most often need while on calls? What vehicle options can help them save labor and reduce manual stress and strain?

Third, maintain your vehicles as if their lives depended on it — because they do. When budgets get tight, it can be tempting to scrimp on maintenance. But if you do, you run risks — of facing big repair bills, yes, but also of having a vehicle go down at just the time when you desperately need it. Set a maintenance schedule for each unit, and stick to it.

Professional look

There's another important thing you can do to turn your vehicles into assets: Keep them looking sharp. Brightly painted, frequently cleaned vehicles bearing your community colors and logo help convey the pride your department has in its work and the professionalism your residents can expect.

How does your service fleet measure up? A better fleet can give you more productive time in the field and a more positive image among the people you serve. Wise investments in your vehicles pay dividends in long-term cost savings, satisfied customers, and better-performing water and sewer systems. ♦



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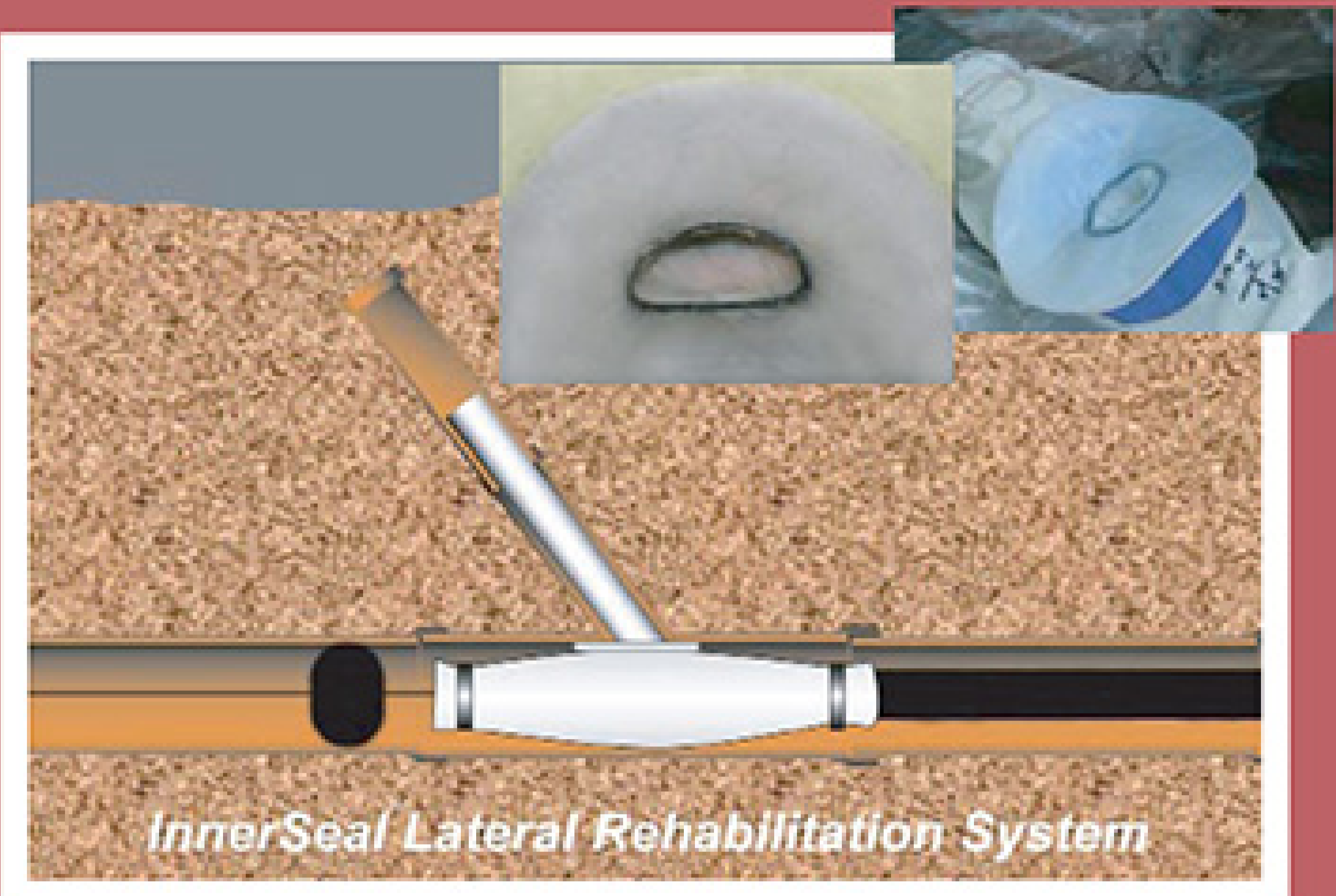
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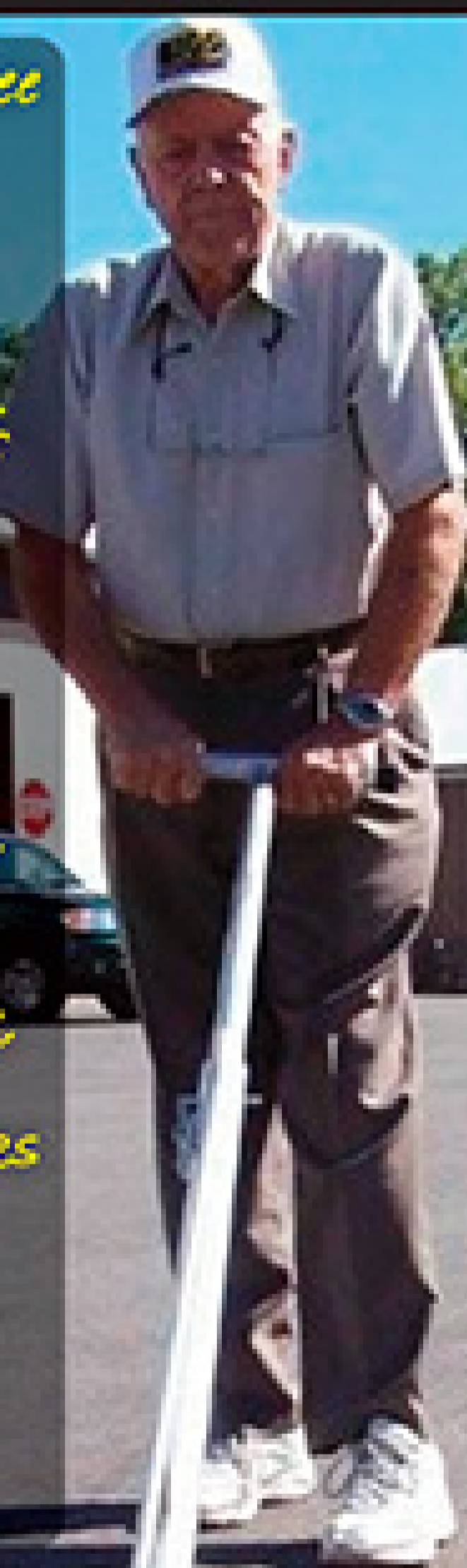
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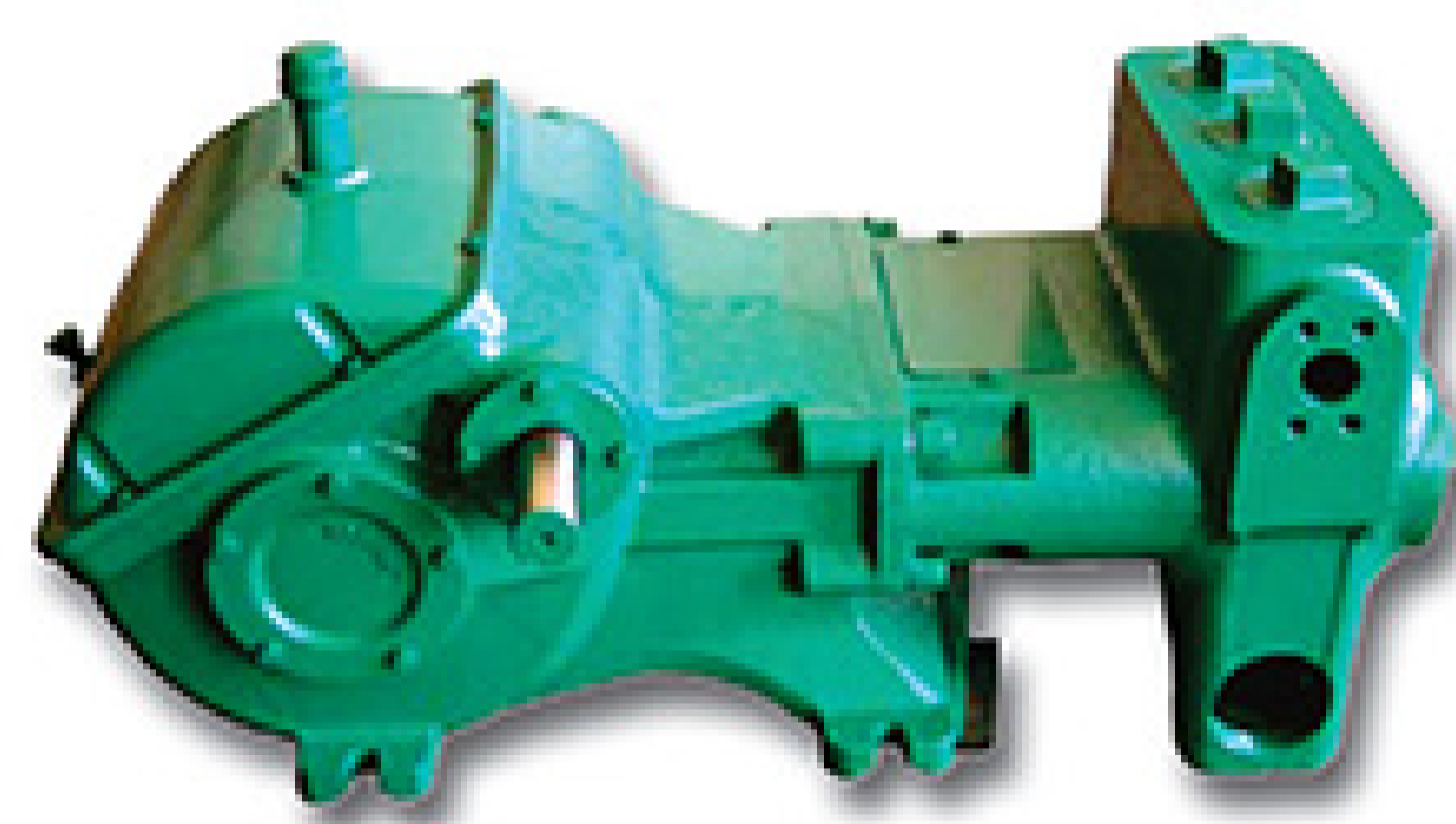
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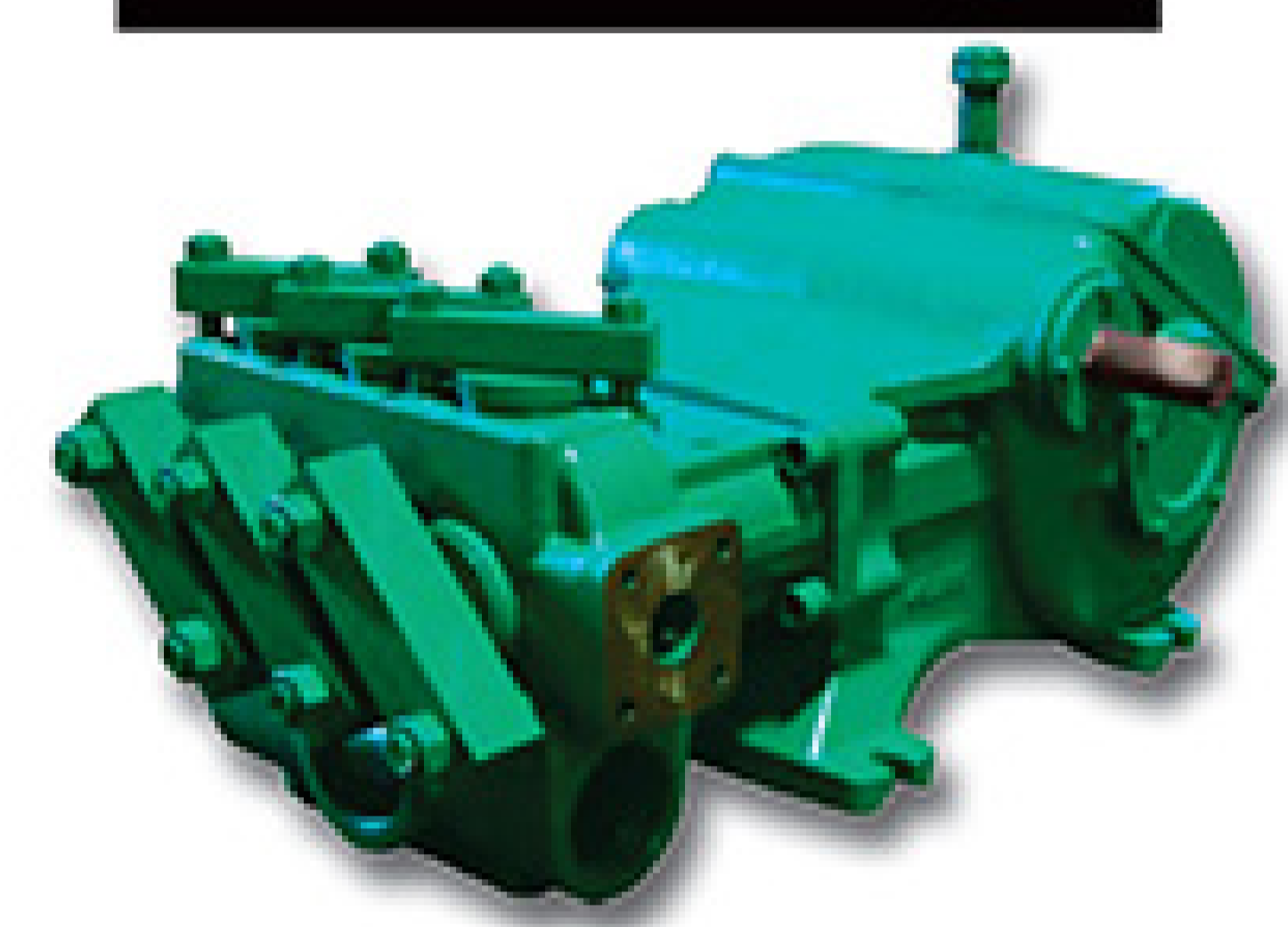
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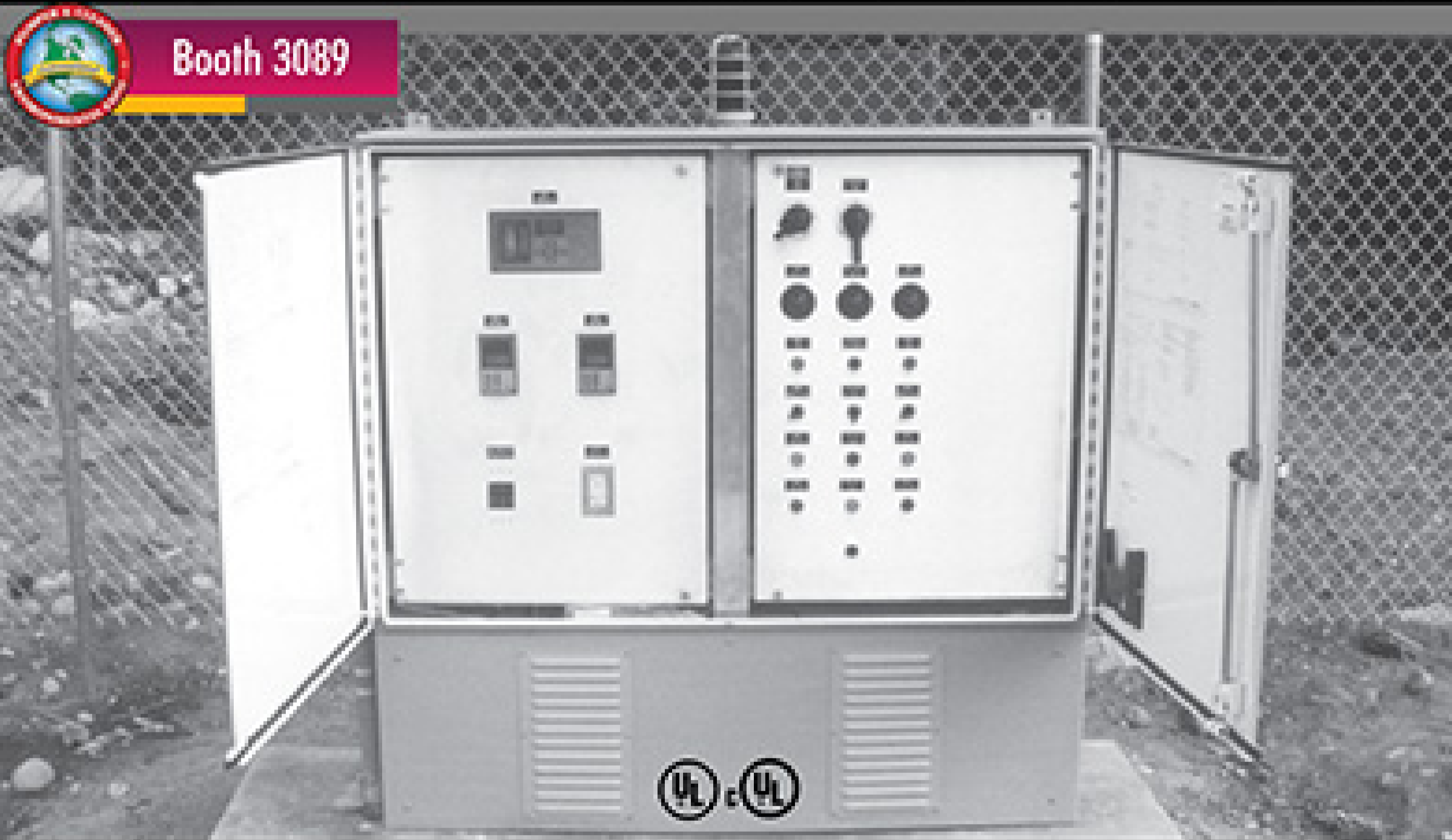
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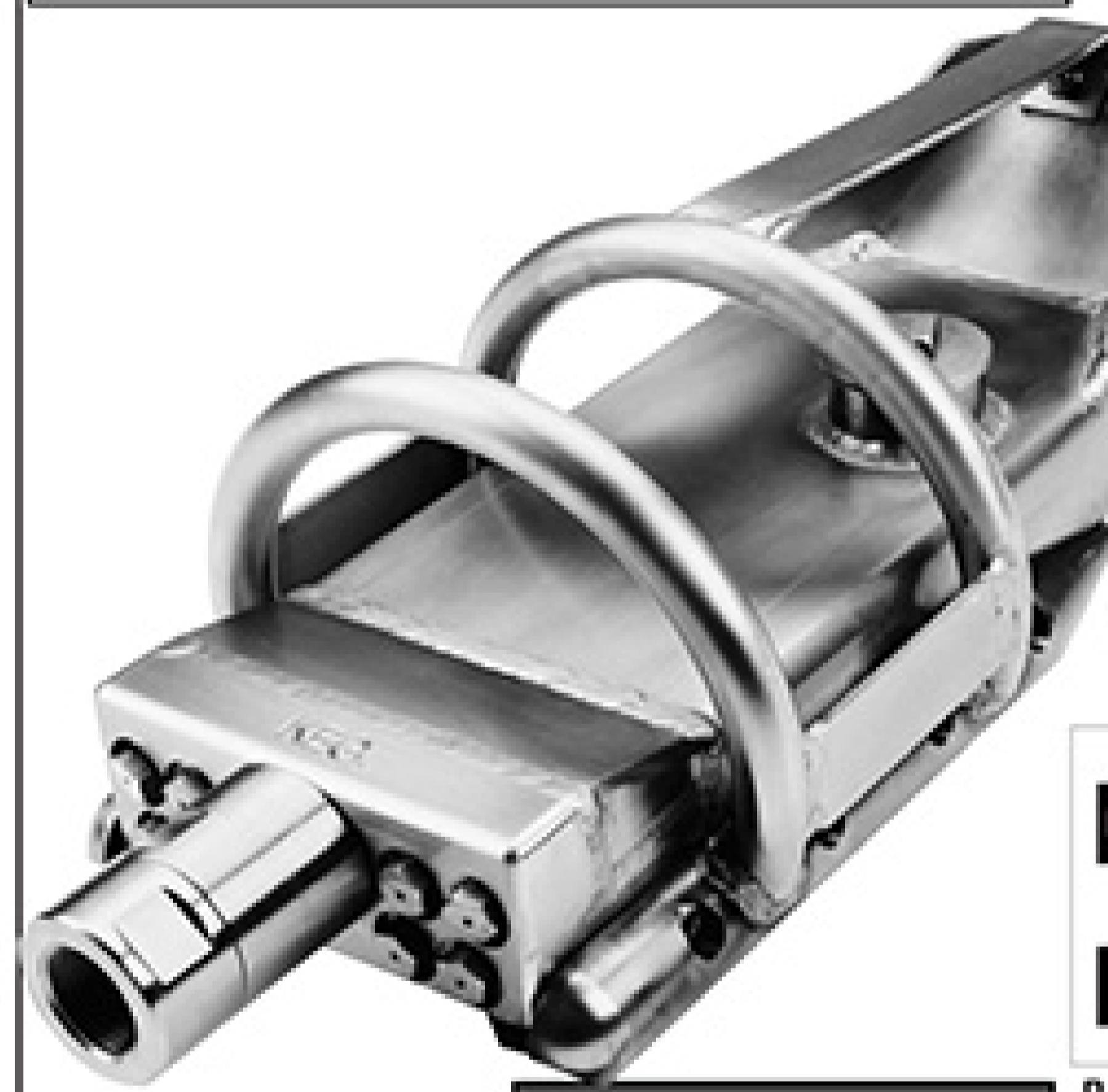
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IT IS THE SYSTEM

Waterford Township (Mich.) uses a fully integrated GIS as the backbone for managing its water system and virtually all public works functions

By Angus W. Stocking, L.S.

Waterford Township consists of 36 extremely well organized square miles near Detroit, Mich. The township's geographic information system (GIS) has become the dominant organizing metaphor for nearly all departments.

"Almost everything in public works and community government is tied to geographic locations," says Terry Biederman, director of public works. "Our goal is for

personnel to never leave the GIS environment, yet be able to retrieve spatial information, access documents and create work orders."

The water utility, with 24,000 connections, 360 miles of main, 11 treatment plants, and average demand of 8.5 mgd, is especially enthusiastic about GIS and has found ways to integrate asset management, document management, system modeling, planning, locating, SCADA and more into the GIS interface.

This means databases aren't duplicated, and users don't have to switch applications — ever. The result is big savings and maximum efficiency. In fact, the public works department is so efficient that citizens call with questions that have nothing to do with public works — because they know the DPW is very good at coming up with answers.

Getting started

"Our vision from the beginning was to have an enterprise-wide GIS," says Biederman. "Back in 1996, we did a needs assessment and hired a consultant who created a report detailing our hardware, software and staffing needs. That became our 'constitution' — the document we took to our board for approval and funding. We knew that having the right framework from the beginning was important, and that having dedicated staff was necessary."

Waterford is in Oakland County, and in 1996 Oakland had already selected ESRI for GIS software. Waterford selected ESRI as well and had begun converting the parcel base. While completing this

work, the township commissioned aerial photography at 6-inch per pixel resolution. Waterford now works with the county to update aerial photography annually.

Township staff also began digitizing assets into the system by using paper mapping to assign rough coordinates. "After getting the parcel base, we began to digitize," explains Bill Fritz, system administrator. "We had a water model in place and used college interns and staff to put in what was missing."

Approximate location was useful, but Waterford also acquired Trimble Pathfinder GPS receivers and began systematic, precise location of hydrants, valves and other features. Now, GPS location (with Trimble GeoXT receivers) is part of the department's routine.

"As you go you learn things," says information systems administrator Frank Fisher. "Now when we get proposed plans, we GPS as we go, instead of finding it later. We turn the GPSing into an inspection and get all the relevant information we can.

That includes attributes like hydrant color — color-coding indicates hydrant pressure and volume and is useful to the fire department.



PROFILE:
Waterford Township,
Mich., Department
of Public Works

FOUNDED:
1834

POPULATION:
74,000

AREA:
35.3 square miles

WEB SITE:
<http://twp.waterford.mi.us/>

Danny Watson (left) and Allen Gill discuss the repair while Tim Harmon backfills around the trench box. (Photos courtesy Waterford Township, Department of Public Works)





Chris Donais, civil engineering technician, uses a field laptop computer and Waterford Township's wireless network to view engineering plans from the document management system, while marking a water main for a utility staking request.

It also includes age, condition, number of nozzles, and other items.”

Integrated by design

Waterford places unusual emphasis on integration — working with many applications on a single database, and all within the

“Almost everything in public works and community government is tied to geographic locations. Our goal is for personnel to never leave the GIS environment, yet be able to retrieve spatial information, access documents and create work orders.”

Terry Biederman

ESRI GIS interface. This means the township is sometimes on the forefront of GIS applications and has occasionally led the way when working with vendors to adapt applications.

For example, Hyland Software worked with Waterford to link OnBase, Hyland's document management program, with ESRI ArcGIS, and with Cityworks from Azteca Systems Inc., Waterford's asset management software. Users can retrieve documents, assign locations, and create work orders and service requests with relatively few steps, and without leaving the GIS interface.

“Our goal is to minimize customization,” says Fritz. “We use existing

products that take us 80 percent of the way and work with vendors to get things integrated. We don't like to write the code itself, but we do like to push it to its limits.”

Advanced Programming Interfaces (APIs) also help. “Existing agreements mean that when applications upgrade, they'll keep working together,” says Fritz. “Certification by the National Association of GIS-Centric Software is also important. In fact, we'd like to work with certified software exclusively.”

NAGCS certified applications work directly with ESRI databases without redundant data storage and are designed for maximum interoperability with other GIS-centric applications.

All the pieces

“We built the GIS to show infrastructure, and as a platform for applications,” says Biederman. “Our vision was to build applications right in the GIS.” This focus made some application decisions easy.

For example, InfoWater from MWH Soft was one of a few NAGCS certified modeling applications available, and it came from an ESRI partner. So water and sewer modeling, which are highly specialized applications, could be done in the GIS with off-the-shelf software.

Because it focused on existing applications, rather than extensive customizing, the township has spent a lot of time analyzing and adapting existing software. One big decision made early on was to use Cityworks, a NAGCS certified asset maintenance management system.



Donais uses a Trimble GeoXT GPS unit to locate a water main while completing a staking request.

WHAT IS NAGCS?

The National Association of GIS-Centric Software (NAGCS) is a group of ESRI-authorized developers formed in July 2004 to promote interoperability of ESRI applications and to certify GIS software.

Certification is by independent evaluators, and requirements are:

- ESRI GIS geodatabase for storing the feature attributes.
- Feature data storage is non-redundant (no reliance on views, data mapping, database triggers, or “transparent” links).
- The feature data model is fully user-definable and customizable without vendor support.
- The feature data model format is non-proprietary, including data names, fields, tables, relationships, and other data design elements.
- The software is interoperable, providing maximum compatibility with any other GIS-centric application, including concurrent use of the feature database.
- Feature data coordinate location and connectivity are inherent in the feature (or asset) data model, enabling full utilization of the spatial analysis capabilities, including linear referencing and events.
- Feature data is created and maintained using ArcGIS Desktop, ArcGIS Server, or ArcObjects tools for editing. This includes data error identification and correction methods (particularly for linear network and polygonal features) that check for connected nodes, overlaps, missing segments, linear segments, flow relationships and adjacency.

Find out more at www.nagcs.org.

"To users, Cityworks is the GIS — it's the gateway to our business processes," says Biederman. "Everything related to a work activity is geocoded back to our infrastructure. We track costs, labor, materials, everything."

The water and sewer departments use Cityworks to manage data, schedule maintenance, track maintenance history, issue work orders, and organize customer information. The software eventually will be the basis of utility billing, SCADA access, wireless field applications and more. A user will be able to click on a section of, say, water main, and have instant access to design and engineering documents, video inspection footage, maintenance history, and other relevant data, all without switching interfaces.

Managing documents

For document management, Waterford uses OnBase. "The next evolutionary step for government GIS systems is document storage," says Biederman. "Nearly everything in public works and community government is tied to geographic location, and the ultimate goal is for all personnel to use GIS and leverage the power of document management within the application."

Currently, OnBase tracks about 330,000 documents, and all can be retrieved spatially — just click on, say, a house — or by conventional archiving methods. Documents in the system range from work orders to plans to deeds, and the number is growing rapidly.

A relatively minor piece of the system illustrates the advantages of integration. Working with Cityworks and MISS DIG, Michigan's one-call service, utility locating was reasonably automated, but it did take several steps and required the use of disparate systems, including e-mail and a separate database.

By adapting DigSmart from Bergmann Associates to work directly with Cityworks — and by extension to work directly with Waterford's GIS — the staff cut the time spent receiving requests and issuing work orders by 75 percent.

"What used to take six to eight minutes now takes two," says Biederman. And once again, Waterford pushed the technology. "The integration of DigSmart and

Cityworks represents more than just a solution for the Waterford Township," says Jim Schoenberg of Bergmann Associates. "It clearly shows how a common geodatabase can serve as the backbone for solving today's business needs."

With similar attention to detail and attention to integration, Waterford has found solutions for modeling, SCADA monitoring, planning, time management and other aspects of day-to-day operation. When new challenges arise, staff looks to the GIS as the root of solutions.

Other technology

Waterford looks to technology in other areas as well, but GIS is always a factor. The township's SCADA system is based on Opto 22 hardware, and GE Intellution software is increasingly integrated into the GIS. It can monitor ingress/egress, chlorine leaks, pumps and most other important functions, and it interfaces with an alarming package.

The township uses Pearpoint CCTV system for line inspection, and attaches footage to the GIS. The community has two Vactor 2100 combination trucks: a 1998 single-axle Ford with 9-yard dump and a 2004 tandem-axle Sterling with 15-yard dump. Each has their schedules optimized by RIVA asset management software from Loki Innovations, which runs within the GIS.

And meter reading is fully automated via an Itron system: two fixed collectors are mounted on water towers, the collectors are connected by ethernet to the broadband WiFi system, information is routed to Itron offices in Spokane, Wash., and Waterford staff can log in and retrieve it.

"Nobody has to drive anywhere or do anything," says Biederman. "We log in and monitor things like consumption and reverse flow, and we dump the readings file into our billing system." He adds one caveat: "Fixed collector systems do need high-resolution meters in order to get the most value."

Waterford has made a big investment in WiFi, and wireless broadband is available to city staff throughout the township. Most crews are equipped with Toughbook laptop computers from Panasonic. "They have access to the GIS just like they're sitting at a desk," says



Danny Watson and Derek VanDam finish placing a repair sleeve around a water main.

Biederman. Vehicles are also fitted with CompassCom hardware and software, for automatic vehicle locating within Cityworks.

Never finished

"This isn't the kind of project that gets completed," says Fritz. "We're continually adding and modifying. You don't just finish it and put it on a shelf."

Biederman adds, "Our GIS is a living thing. You don't want to computerize a bad business activity. You want to keep looking at it closely and improve."

And the system is always growing as Waterford finds more ways to attach government business to real world coordinates. If NAGCS certification can be obtained, MUNIS, the township's financial package from Tyler Technologies, will be incorporated, and various long-term planning and infrastructure investment applications are being considered.

Waterford knew from the

beginning what it wanted from a GIS: an enterprise-wide system that created value in every sector of government. The staff had one key piece of the approach figured out early — a GIS and complementary applications built around a single database and interface.

But the staff was not rigid. By paying attention to what worked and what didn't, and re-evaluating as needed, Waterford built a flexible, sophisticated system that goes a long way toward simplifying the complexities of local government. ■

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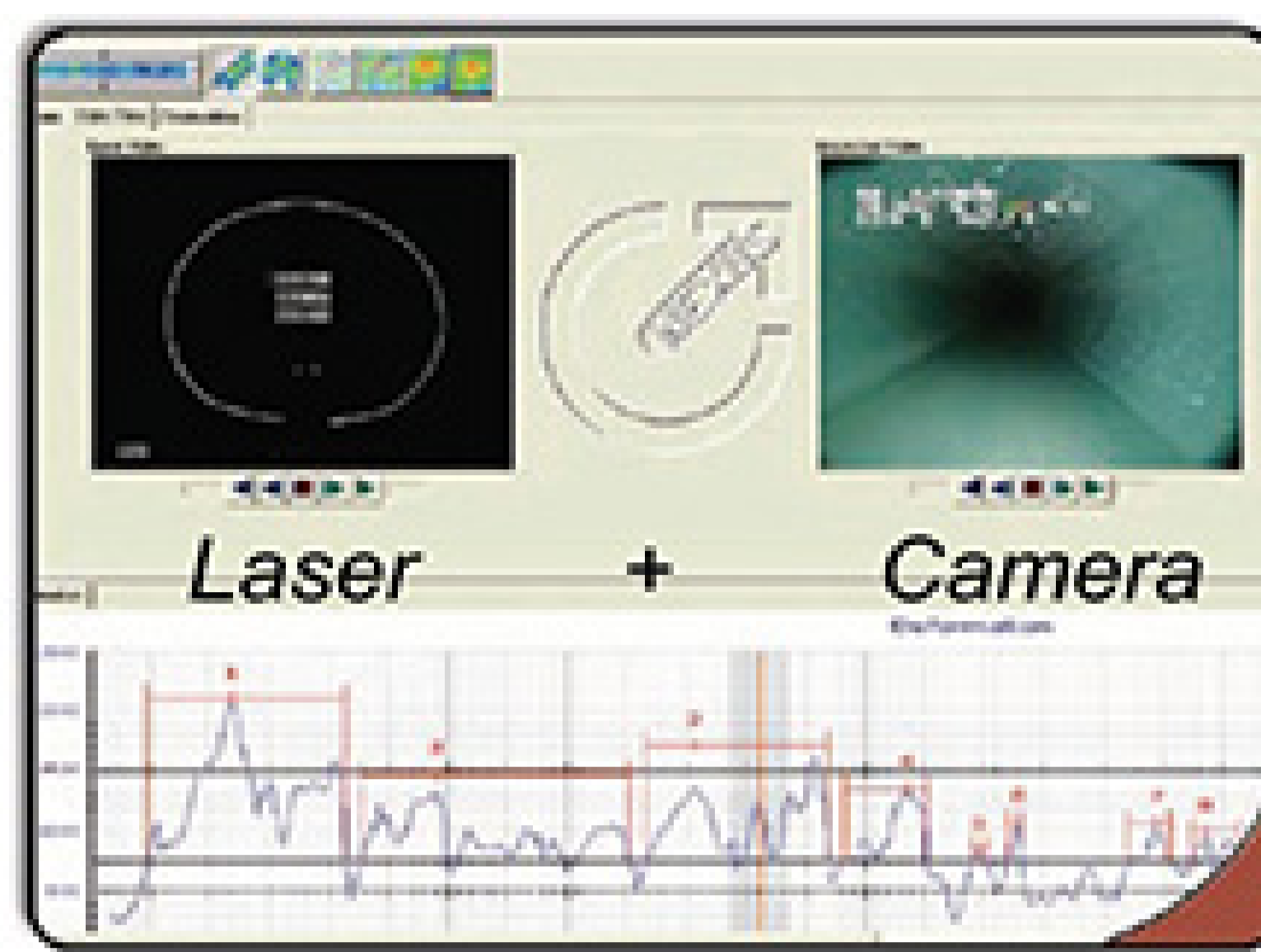
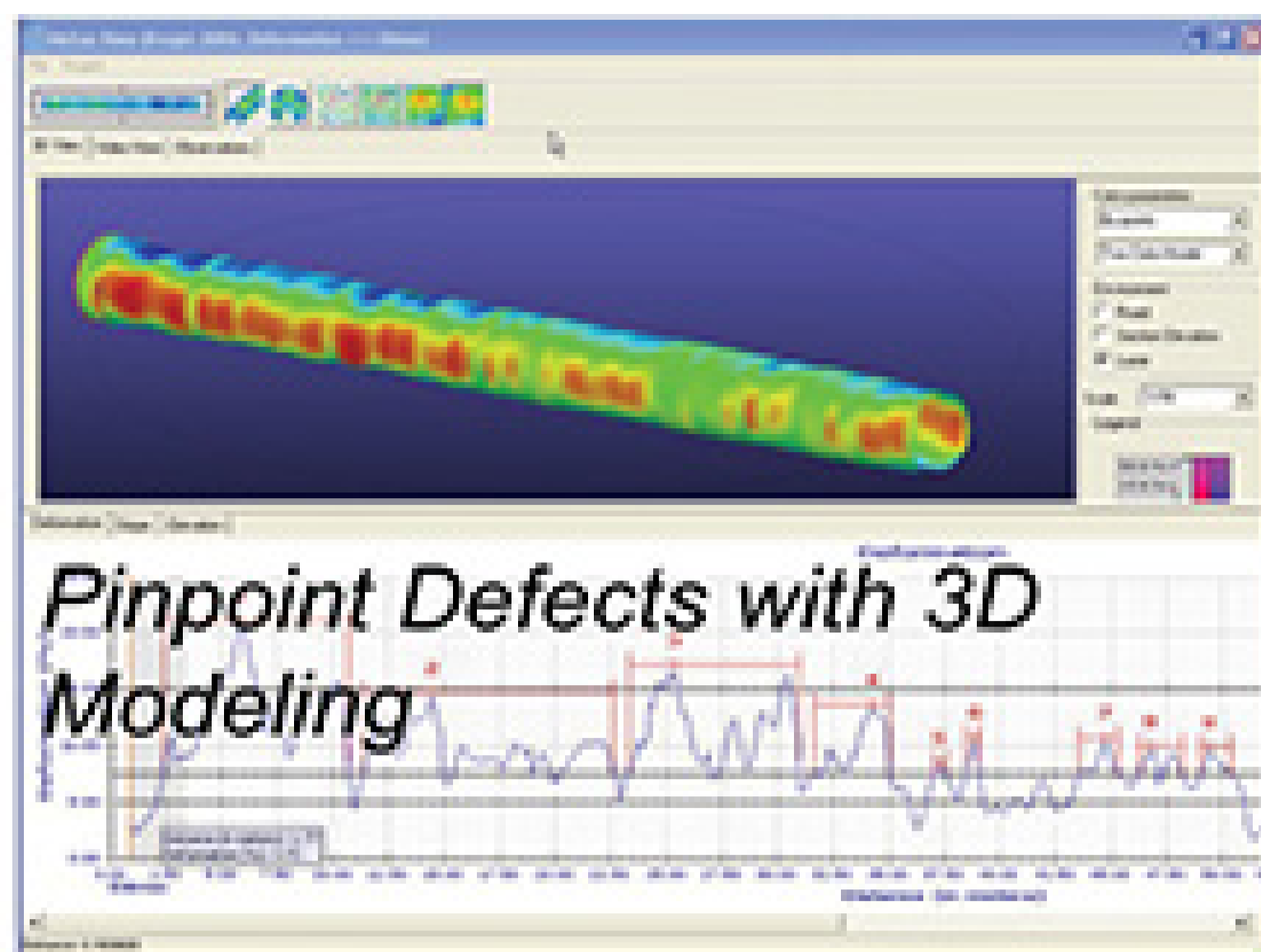
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ON PATROL

Milwaukee County's fleet of vacuum trucks helps keep a large storm drain system flowing freely through all kinds of weather

By Erik Gunn



It's a chilly, sunlit November morning and a Milwaukee County Highway Department crew is hard at work along Mill Road and 43rd Street on the far north side of Wisconsin's largest city.

Using a pick and a sledgehammer, Bill Luzinski pries up the heavy cast metal grate that shields a storm sewer catch basin, just west of the intersection against the median in the westbound lane of Mill Road.

Luzinski and his co-workers, Tony Minter and Oscar Rush, attach a 6-foot hard plastic tube to the vacuum hose of the crew's VacAll VS16C sweeper truck. Luzinski maneuvers the vehicle into place, and Minter and Rush lower the tube nearly five feet into the catch basin. The truck's pump roars as the tube sucks up dry leaves that have piled up nearly to the top of the storm sewer line that extends from the basin under the roadway, all but obscuring the outlet.

In minutes, the job is done. Minter and Rush sweep the frame on which the sewer grate will rest to ensure a good fit. The crew members replace the grate, then slowly drive the truck forward in the far left lane, hugging the median strip. As Minter drives the VacAll, Rush walks behind and uses the vacuum tube to clean up loose debris in the curb pan. At the next basin, less than a block away, they repeat the cleaning procedure.

This scene plays out often on Milwaukee County streets and highways. The county highway department is responsible for countless catch basins across hundreds of miles of roadway — so many that it can take up to two years to clean them all on a regular cycle. The backbone of the catch-basin cleaning program is a small fleet of VacAll VS16C trucks.

Bill Luzinski and Oscar Rush attach a hard plastic tube to the vacuum hose on one of Milwaukee County's VacAll trucks. (Photos by Erik Gunn)

PROFILE:
Milwaukee County
(Wis.) Department of
Transportation and
Public Works, Highway
Maintenance Division

POPULATION SERVED:
915,000

AREA SERVED:
241 square miles

INFRASTRUCTURE:
240 miles of storm sewers,
5,000 catch basins

EMPLOYEES:
130

BUDGET:
\$16.5 million

WEB SITE:
[www.milwaukeecounty.org/
HighwayMaintenance
22810.htm](http://www.milwaukeecounty.org/HighwayMaintenance22810.htm)



Workhorse vehicles

The vehicles are definitely among the county's workhorses, according to Bill Tietjen, Milwaukee County fleet manager. They perform catch basin cleaning mostly around other regular duties, such as cleaning up debris during highway construction (see sidebar). When the construction season gets extended, thanks to mild weather, as happened in 2007, catch-basin cleaning has to wait, says Chuck Smeltzer, Milwaukee County highway maintenance manager.

The VacAll vehicles are equipped with Cummins 350-hp diesel engines. Each has a 16-cubic-yard debris tank and a hydraulic pump delivering 12 gpm at 2,200 rpm. A 350-gallon polyethylene water tank rides behind the cab, served by a 120 gpm/75 psi pump that sends water through a 3/4-inch, 25-foot-long hose and accompanying nozzle, used to dislodge debris when needed.

"The worst conditions are when all of the muck gets in there and it is full from the bottom of the basin to the grate. We pretty much stay on top of ours, so that's very seldom a problem."

Derwin Pottinger

Each truck is also equipped with a 12-inch-diameter, 10-foot-long hose, along with tubes four, six and eight feet long to attach to the vacuum hose. The different-sized attachments suit the wide range of catch-basin configurations and other tasks the maintenance crews encounter.

Other accessories include a

reverse, bell-shaped leaf nozzle that opens the standard 12-inch hose to 20 inches in diameter for leaf pickup, and a reducing cone to allow 8-inch tubes to be attached to the standard hose. For catch-basin cleaning, the units are supplemented in tough situations by a Camel sewer jetter from Super Products LLC, according to Tietjen.

The VacAll fleet consists of three newer models, two from 2001 and one from 2006. A fourth unit is on order. A couple of older

models from the 1990s, both originally equipped as well with street-sweeping brushes, remain in the fleet for special use.

Easy maintenance

Mark Cesar, service supervisor for Milwaukee County fleet management, oversees the maintenance that keeps the vehicles ready for service. The truck operators daily grease the moving parts, including the boom. "We do a major inspection every four months or

every 4,000 miles," Cesar says. "We give them an oil change, check them over, lube them up and fix anything wrong with them." The sewer jetter also is on a four-month/4,000-mile maintenance schedule.

Between servicing, operating crews are charged with keeping the machines clean. That usually doesn't require much more than a thorough hosing out, Cesar says. The highway department has strong incentives for the staff to stay on



Left, one of the Milwaukee County Highway Department's VacAll trucks waits at an intersection to start a catch-basin cleaning project. Below, highway maintenance supervisor Derwin Pottinger and team members (from left) Bill Luzinski, Tony Minter and Oscar Rush clean the basin.



JACKS OF MANY TRADES

Milwaukee County's VacAll VSI6C sweeper trucks are the backbone of its regular catch-basin cleaning program, but the vehicles actually are used for various other purposes. A major use is to clean up debris when highways are rebuilt, according to highway maintenance manager Chuck Smeltzer.

As work crews take their jackhammers to old roads and break up the asphalt or concrete, the VacAll trucks are close behind, sucking up the broken pieces. They easily rise to the occasion, says Derwin Pottinger, a county highway maintenance supervisor. The only time he recalls being

stumped was when he encountered a stretch of road asphalt held together by a matting material. Once broken into smaller pieces, however, it yielded to the mighty vacuum.

And one of the county's three newer VacAll units rarely goes on the road. That's because it's assigned full time to the Milwaukee County Zoo. Each zoo exhibit is set up to convey animal waste into a common pit, explains Bill Tietjen, the county fleet manager. Then the VacAll truck makes the rounds from pit to pit every other day. That's one big-time pooper scooper.



Left, dry leaves fill a catch basin, piled nearly to the top of the entry to the storm sewer pipe that runs under the street. Below, a crew member uses a water hose to loosen debris inside the basin.



it operates them as long as possible, periodically replacing a vehicle as budgets permit.

Eyes and ears

As department employees go about their duties around the heavily urbanized county, they take note of areas where catch basins appear clogged or need full-scale repairs, not just cleaning. "We check our inlets on a continual

basis," Smeltzer says. The county's street sweepers also continually watch for evidence of clogged catch basins. Other road crews do the same.

Every Thursday, highway maintenance supervisors meet, review their always-expanding to-do list,

top of the cleaning process. "If they forget to do something, we direct-charge them, and they don't like that," Cesar says. "So they're pretty efficient."

With tight municipal budgets, the county fleet doesn't have a regular schedule for replacing its vehicles, according to Tietjen. Instead,

and set priorities, Smeltzer says. If there aren't already known problem sites, "the supervisors pick a roadway out and schedule a crew to check the inlets." Then it's off to work for the crews.

"The guys are the eyes and ears of the whole highway department," says Derwin Pottinger, a county highway maintenance supervisor. "When we're cleaning them, we also do an inspection. We want to make sure the drains are flowing freely."

Pottinger says dry leaves — a common obstruction in fall — are easy to handle. Add water, and it's another story. "The worst conditions

hammers in and chisel out the concrete," Pottinger says.

With 17 years on the job, Pottinger says nothing much fazes him. "I've probably seen almost anything in a catch basin that you can probably see," he says. That includes raccoons. One precaution he takes is to wear jackets with elastic cuffs to keep rodents or bugs in basins from leaping to safety and crawling up his arms.

Fall remains the big season for cleaning, as the autumn leaves pile up under the grates. Left untended, they can collect water from rain and snow, freeze and melt in the winter, clogging the lines and

"We do a major inspection every four months or every 4,000 miles. We give them an oil change, check them over, lube them up and fix anything wrong with them."

Mark Cesar

are when all of the muck gets in there and it is full from the bottom of the basin to the grate," he says. But that doesn't happen often. "We pretty much stay on top of ours, so that's very seldom a problem." Leaves are the most common debris, says Smeltzer, but empty bottles and cans turn up regularly.

Handling repairs

It takes about two years for the department to go through the entire inventory of basins for inspection and cleaning. Cleaning is also the first line of defense in uncovering bigger problems. Cleaning crews occasionally come across catch basins that require a complete overhaul.

As roads deteriorate, for instance, water that seeps beneath them can build up behind the walls of a basin until it collapses. Or clogged basins can accumulate water that freezes and thaws through the winter, ultimately destroying the basin housing. Problems like these may go unnoticed until a cleaning crew comes along, at which point workers alert the highway department and set in motion a full-scale repair.

Even then, the VacAll units come in handy. The first step to rebuilding a basin is to tear out the old one, and out comes a VacAll truck. "It'll get the basin cleaned out enough so we can bring the air

potentially damaging the basin structure. The highway department plows streets curb-to-curb so the catch basins don't get covered up by snow and can more effectively drain snowmelt, Pottinger notes.

All in a day's work

Back on Mill Road, the crew is finishing up. Bill Luzinski uncoils a hose and uses it to loosen some stubborn debris at the rim where the grate will rest atop the basin once the job is complete. Then he and his co-workers return the grate to its proper location.

Less than three hours into their shift, this crew is finished with catch-basin work for the day. Their next job: helping out a highway construction project. As driver Tony Minter puts the VacAll in gear, Luzinski and Pottinger follow in separate vehicles. And once again, the basins on Mill Road are free and clear to collect stormwater and snowmelt as the seasons turn. ♦

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Booth 17003

WITHOUT PREJUDICE

The chart-topping band Big & Rich brings a unique brand of country music to the Saturday Evening Jam at the 2008 Expo

By Ted J. Rulseh

“Big” and “rich” are not just adjectives for the band headlining the Saturday Evening Jam at the 2008 Pumper & Cleaner Expo. They are also the performers’ names.

Big Kenny (Alphin) and John Rich hooked up in 2004, and ever since then they have been lighting up the country music charts. Earlier this year, Big & Rich released their third album, *Between Raising Hell and Amazing Grace*. They arrive at the Expo at the height of popularity.

The term “country” hardly does justice to this duo and their backup band. “They play country music, but country music that has room for echoes of everything from the Everly Brothers to Limp Bizkit to Queen, from honky tonk to rock ‘n’ rap,” says a profile on the About.com web site.

The Great American Country web site observes that the music

includes “party songs and sober songs, drinking songs and thinking songs, songs about the legends of the West and songs about the casualties of our streets. Often as not, the songs fall into a few of those categories at the same time.”

Alphin and Rich call their offerings, “country music without prejudice.”

Different beginnings

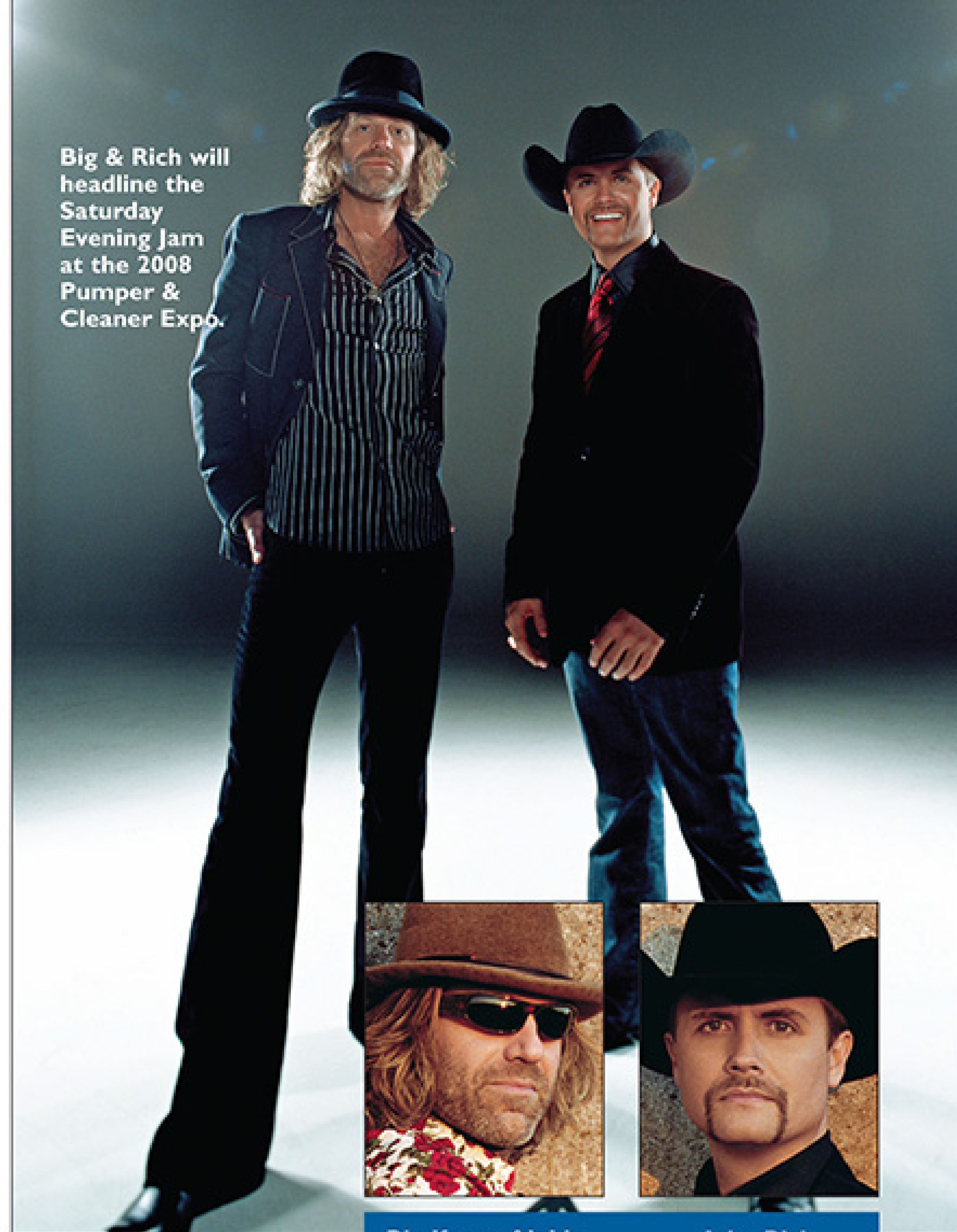
The first Big & Rich album was *Horse of a Different Color*. They followed that in 2005 with *Comin’ to Your City*. Attendees are sure to recognize singles like, “Save a Horse (Ride a Cowboy),” “Lost in This Moment,” and “Wild West Show.” The group was a 2007 Academy of Country Music nominee for Vocal Duo of the Year.

Big & Rich could hardly be called an overnight sensation: Both founders paid more than their share of dues. The two met in 1998. Rich had played with Lonestar, then tried a solo career that went nowhere. Alphin became a full-time musician while in his 30s. He signed a record deal, recorded an album that failed, then started a group called luvjOi.

The two men met at one of Alphin’s shows in a Nashville club. Eventually they began writing songs together and jamming at each other’s shows. Soon they were heading up weekly Tuesday night jam sessions at the Pub of Love, a club in Nashville.

“We wanted to do it on the worst night of the week in the weirdest place in town,” says Rich in a Great American Country pro-

Big & Rich will headline the Saturday Evening Jam at the 2008 Pumper & Cleaner Expo.



Big Kenny Alphin

John Rich

file. “So that if anybody showed up, they’d be there because they wanted to hear music, not because they wanted to schmooze.”

The sessions came to be called the MuzikMafia, and they featured a wide range of performers. One of them was Gretchen Wilson, who became a country star in her own right. Soon the sessions began drawing large crowds, and Rich and Alphin began thinking they were on to something. Eventually, Warner Bros. took notice and signed Big & Rich to a recording contract.

Cast of characters

Big & Rich don’t fit the image of the slick, Stetson-wearing country singers. Alphin is a former carpenter “with a rep as Nashville’s universal minister of love and a backlog of songs ranging from country laments to psychedelic rockers ...,” says the profile on About.com. “Rich is shorter, slyer and younger, a Texan with an

angelic voice and a wicked gleam in his eye.

“Big & Rich are throwing a party, and it’s important to them that you understand everybody is invited. They can be wild and wooly and uproariously funny, but there’s a method to their madness: These guys aren’t always serious, but you’re selling them short if you think they’re always kidding.”

Says Alphin, “We grab ‘em with the humor and the happiness, but then we want them to feel every emotion. And you can do anything you want with a song. You can make people laugh, but you can also make them cry if that’s what you’re after. And when it’s all over they feel better, they feel hope, they feel bright, they feel love.”

Adds Rich, “And sometimes they feel like somebody’s slammed a lightning bolt upside their head, which we like to do every now and then.” Expo attendees should be ready for a rollicking time at the Saturday Evening Jam.



John Corbett

Opening act

Opening for Big & Rich is the John Corbett Band. Corbett is better known for his acting — among other roles, he appeared in the HBO series *Sex and the City* and in the hit movie *My Big Fat Greek Wedding*.

Corbett released his first album, *John Corbett*, in 2005. The songs were written by top songwriters like Hal Ketchum, Jon Randall, Darrell Scott, Bernie Taupin and

Mark Selby. Corbett has opened for performers as diverse as ZZ Top, Lisa Marie Presley, Buck Owens, Charlie Daniels, Josh Turner and Asleep at the Wheel.

"Music has always been central to my life, much more so than acting," Corbett says on his web site. "Acting is how I make my living. Music has always been a passion — it's something I love, something I can't live without." ♦



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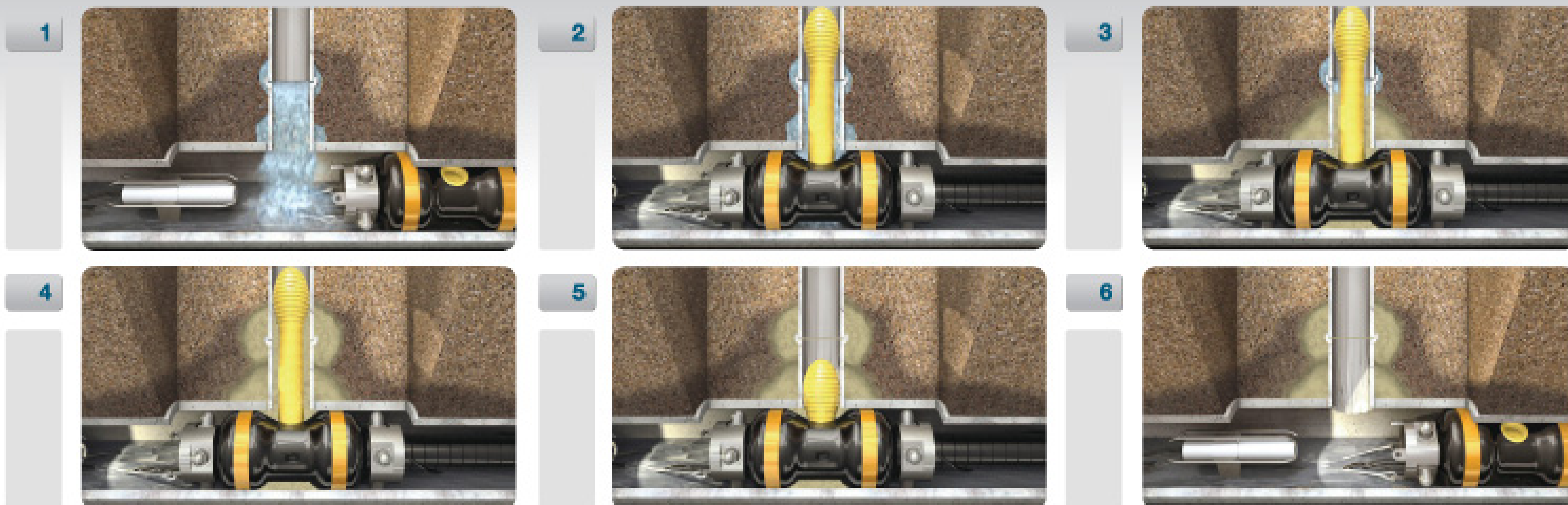
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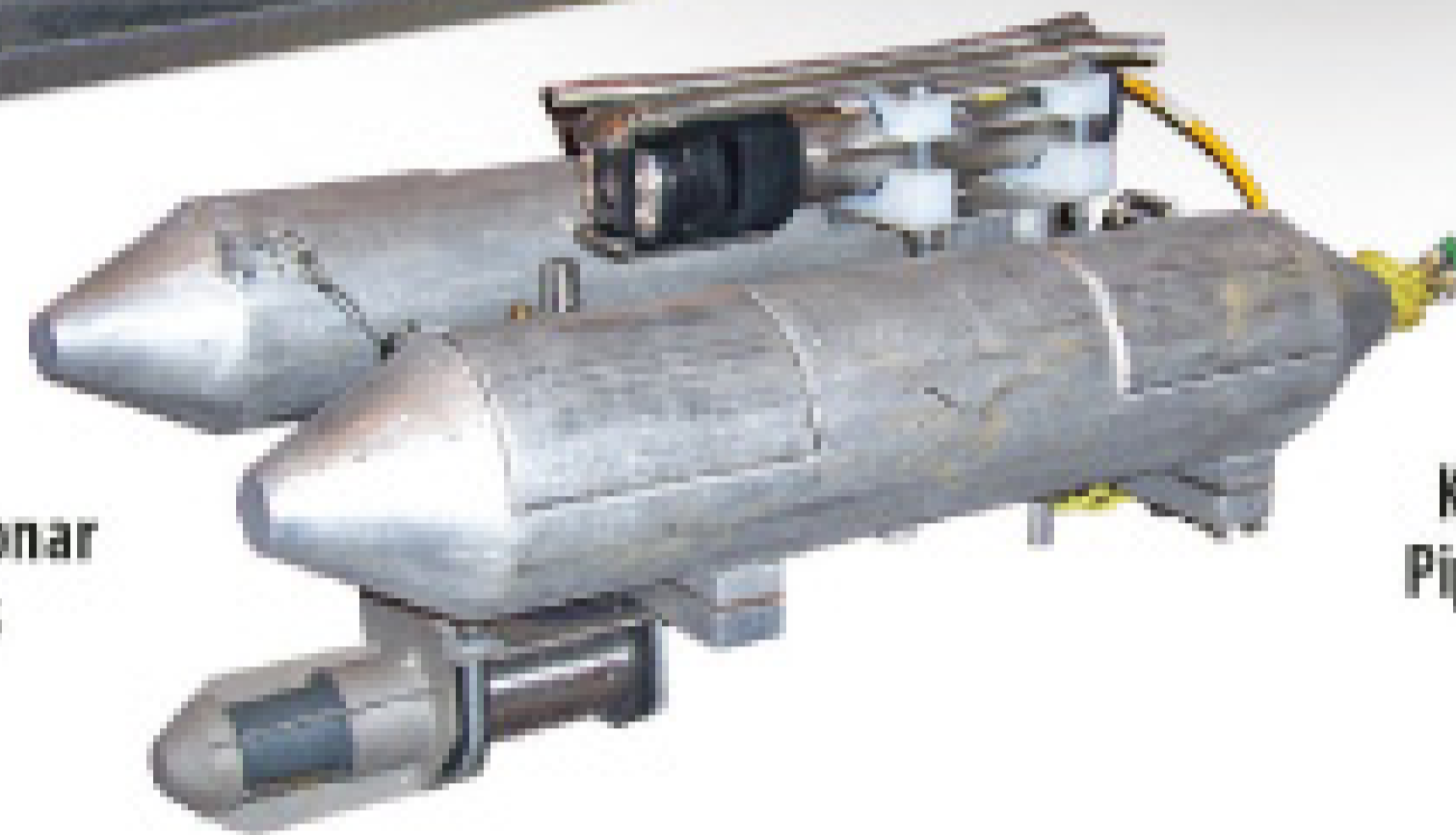
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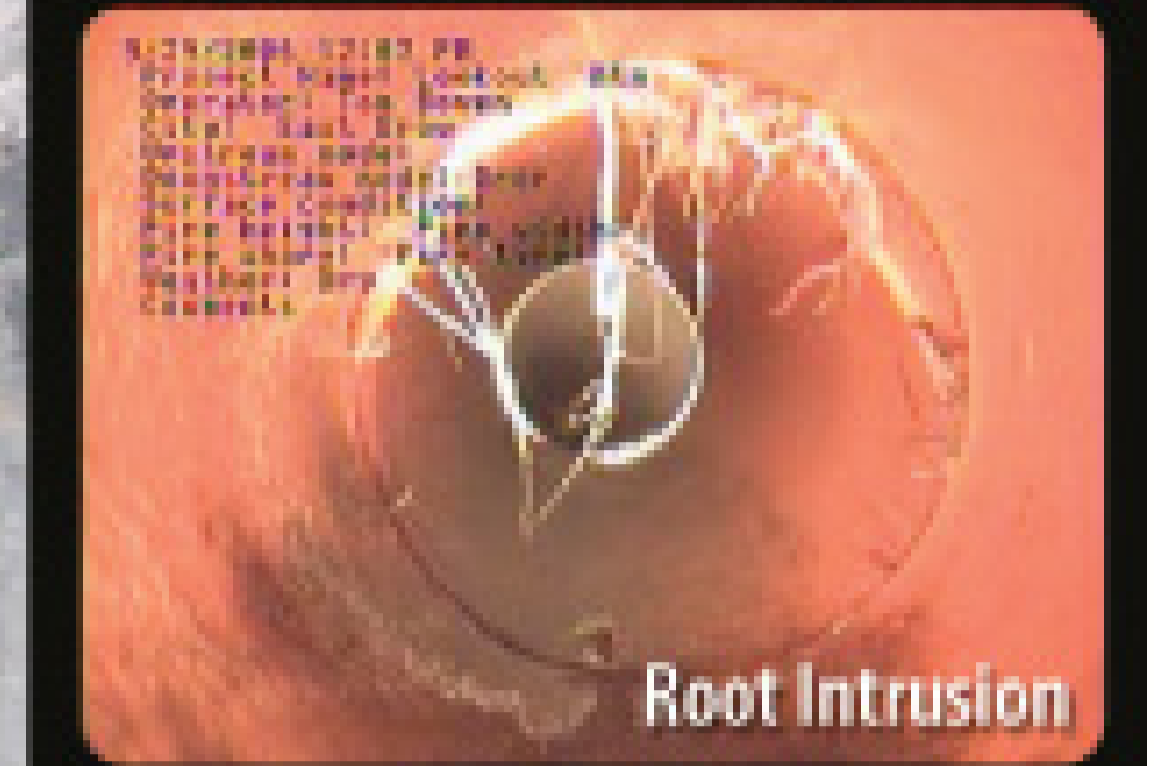
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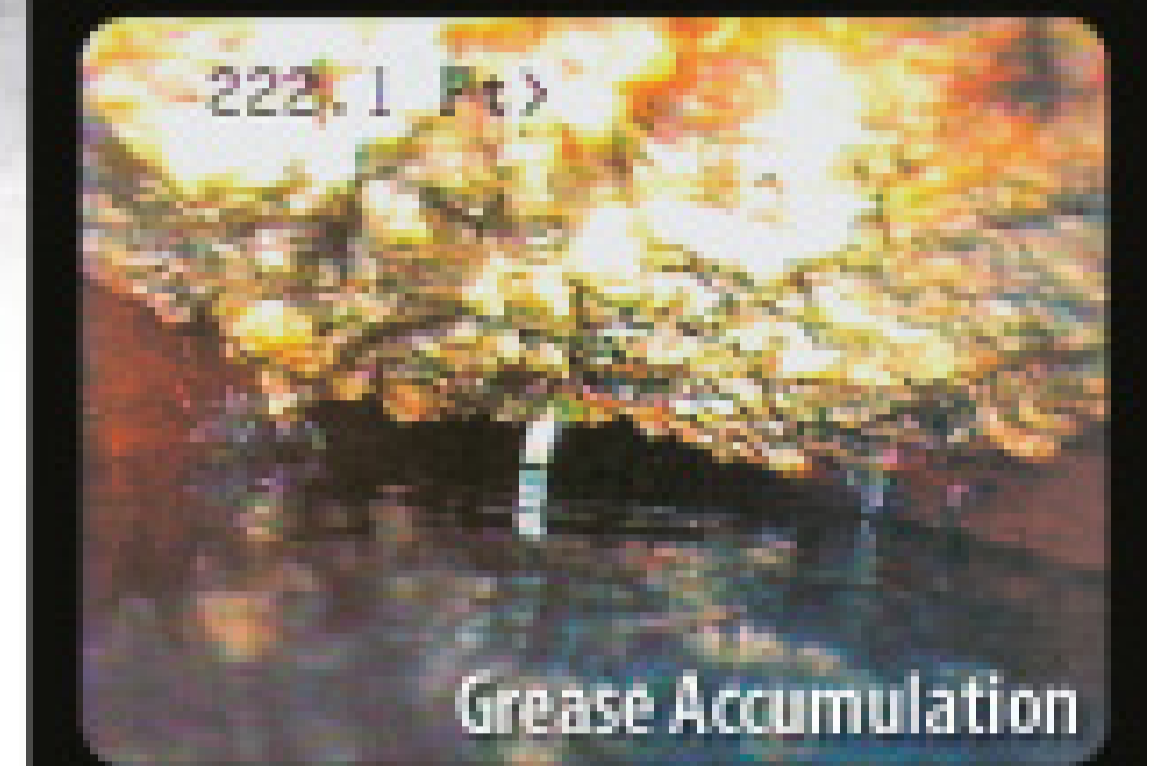
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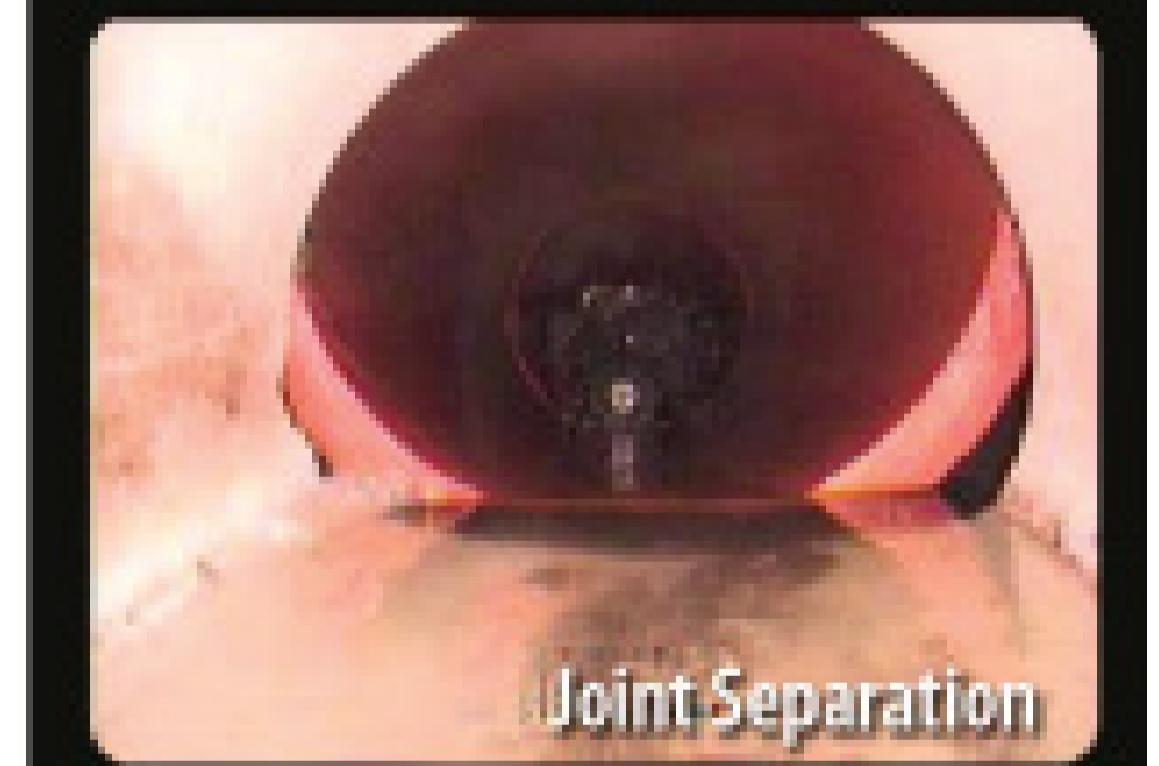
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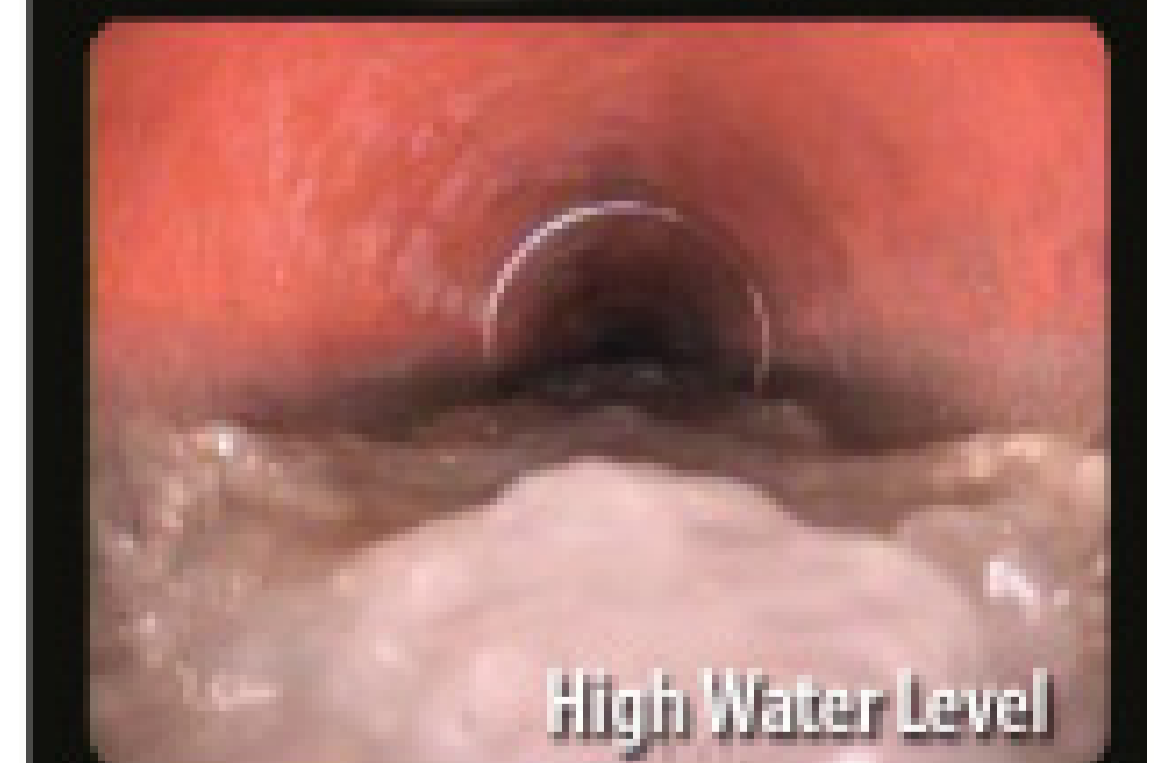
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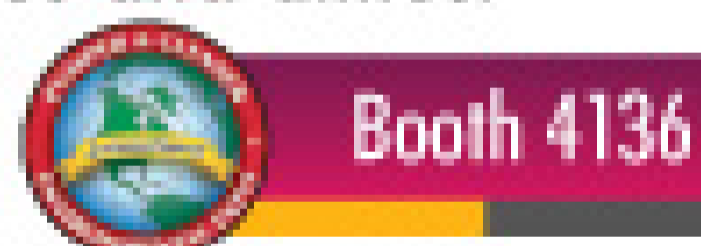
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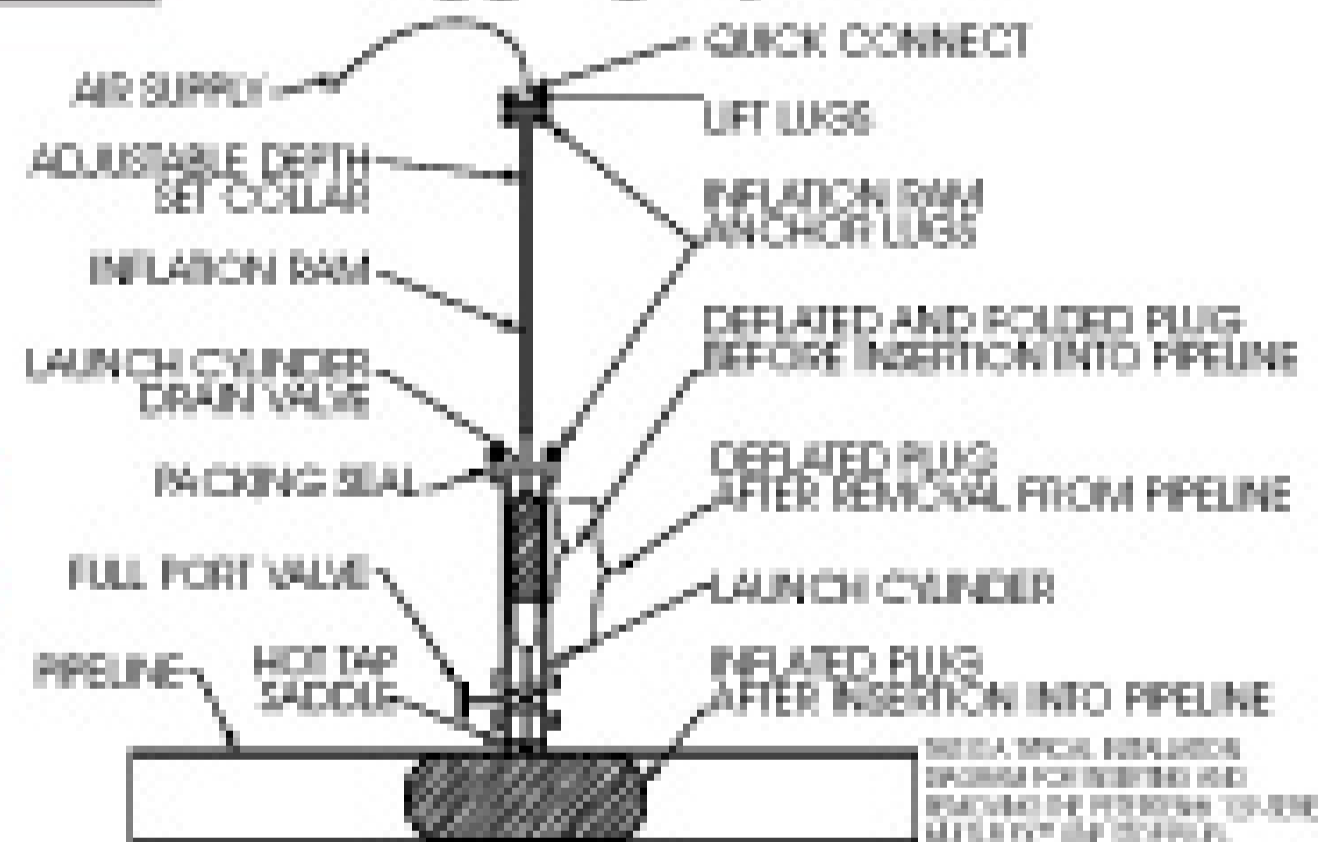
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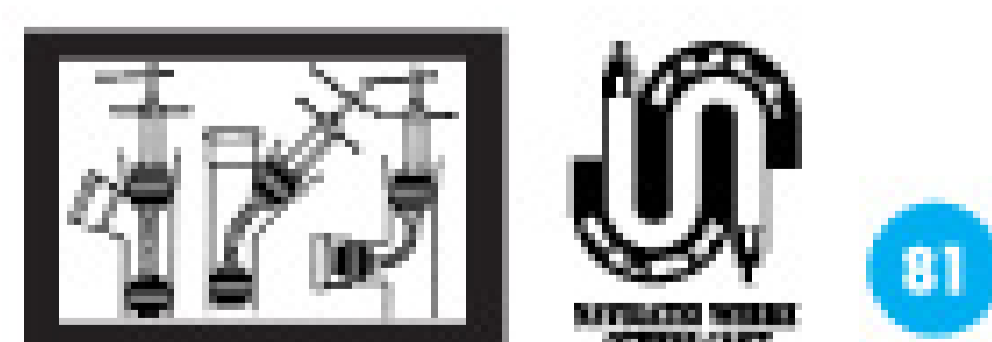


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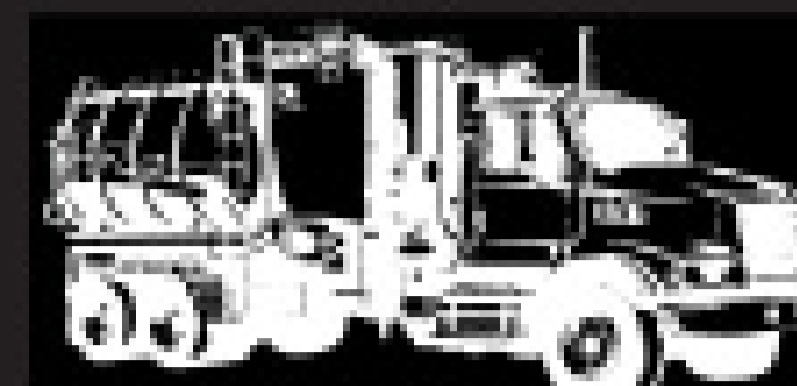
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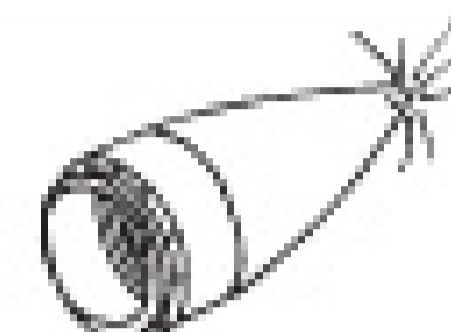
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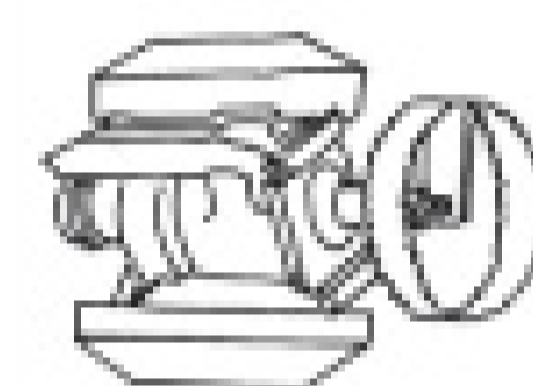
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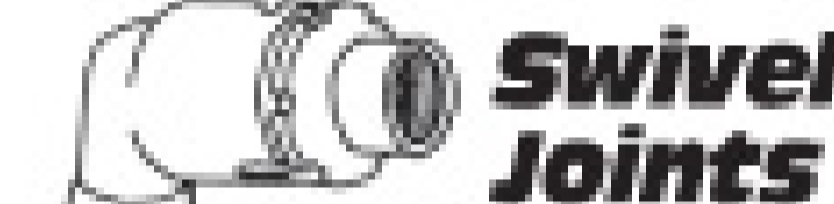
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IN THE FAMILY

A northern Wisconsin city improves pipe inspection efficiency and reduces cost by moving away from contractors and taking the capability in-house

By Erik Gunn

A population of 12,000, nearly 70 miles of sanitary sewer lines and 10 lift stations keep things pretty busy for the two-man crew that maintains the wastewater collection system in Marinette, Wis.

But in this era of outsourcing, the city's Wastewater Utility has done something unusual. Instead of turning to outside contractors for video inspections of the sewer system, the city has taken the work in-house.

As a result, operations are far more efficient, says Roger Keller, the Wastewater Utility foreman in charge of the collection system. There is no more juggling of appointments, no telephone tag with contractors, and no more delay in having to schedule an outside contractor to re-inspect lines that require repeated cleanings.

"We're really happy with it," Keller says.

Step by step

Until a few years ago, when the city needed a video inspection, it had to hire a contractor. That proved to be a recurring challenge. It meant juggling schedules with the contractor, and it also

meant significant "do-over" work.

"A lot of times we'd be cleaning the mains for televising, and when the video crew came in, they weren't clean enough," Keller says. His crew then had to go back and clean again, then bring the video contractor back.

Marinette moved away from that arrangement step by step. In 1995, the city purchased a Predator 2 mini-camera system made by UEMSI. This portable push camera system for 3- to 12-inch lines includes more than 200 feet of cable. It is used strictly for inspecting laterals.

It was especially useful for helping the city sort out when sewer line problems were the city's responsibility, and when they fell to the customer. When homeowners complained of a backup, the city crew could quickly investigate with the camera equipment. "We normally would go in right from the cleanout to the main to determine what the problem was," Keller says. "Then we were able to tell the homeowner whether the problem was theirs or ours."

Still, the small size of the camera limited its use, and contractors were needed to inspect the main sewer lines. But another city



Roger Keller (left) and Gary Kmieciak operate the jetter on Marinette's Vactor 2100 truck in preparation for a video inspection of a sewer. (Photos by Jim Kneiszel)

"Engineering was always asking us if we could TV this line or that line. We could not do that with that little camera we had."


Roger Keller

department took interest in the city's new-found video-inspection capability.

Moving up

"Engineering was always asking us if we could TV this line or that line," says Keller. "We could not do that with that little camera we had." So, in 2003, the city upgraded, purchasing a Predator Advantage mini-mainline camera, with 500 feet of cable and a power rewind.

In 2004 the city upgraded the power control unit and added a UEMSI Trax transporter — a crawler with treads to use with the



PROFILE:
City of Marinette, Wis.

POPULATION:
12,000

INCORPORATED:
1887

INFRASTRUCTURE:
68 miles of sewer main

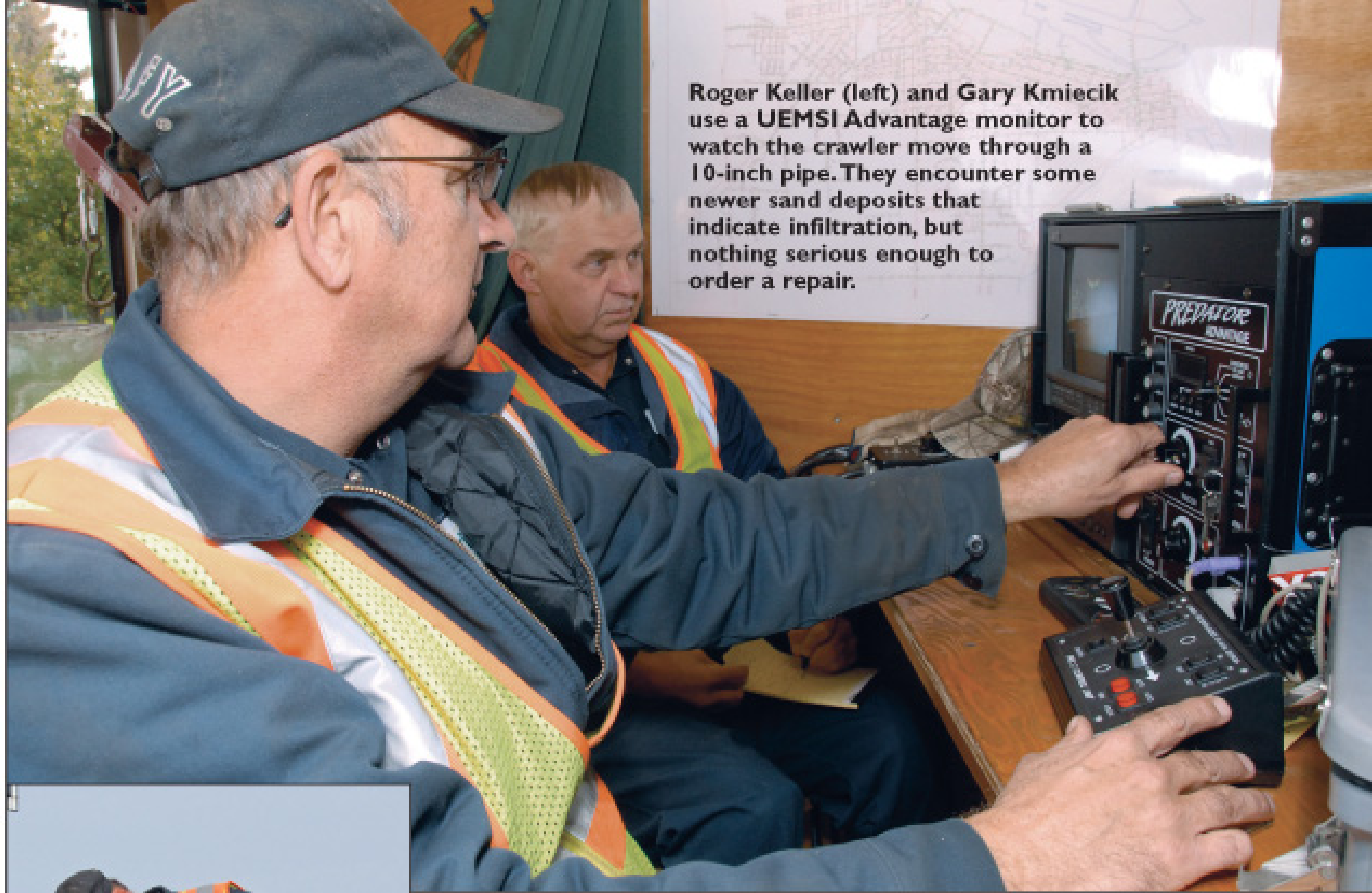
EMPLOYEES:
2 (sewer maintenance division)

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Predator Advantage. Like the Predator 2, it looks only straight ahead, but the transporter allows the Marinette crew to drive it through 6- to 12-inch lines to distances of up to 500 feet.

The engineering department's demands weren't the only reason

Roger Keller (left) and Gary Kmiecik use a UEMSI Advantage monitor to watch the crawler move through a 10-inch pipe. They encounter some newer sand deposits that indicate infiltration, but nothing serious enough to order a repair.



Ready access isn't the only advantage Marinette enjoys by owning its own sewer TV camera equipment. Less expense for paperwork is another.

When the city conducts its own inspections, says Roger Keller, collection system foreman, it keeps its reports short and sweet. Outside contractors provide much more elaborate reports, "but we don't really care about that," Keller says.

And those elaborate reports cost money, too. With its own equipment, the city doesn't have to pay for reports that may provide more detail or information than is really needed for the occasion. In fact, simplicity is pretty much the watchword.

Cleaning and inspection are not elaborate programs. When backups occur, Keller and his crew investigate and televise the problem line. Being able to do all the work in-house speeds up the task considerably.

That's because the inspection is part of what the city requires when it contracts for sewer line installations. "That's all incorporated in their bid," Keller explains.

A new look

The mainline camera quickly proved its value, and not just for post-cleaning inspections. "Engineering loves this camera," Keller says. "There are a lot of times where engineering just wants to see the condition of the line for an upcoming project. They usually want these things videotaped first to verify everything on them."

Out comes the camera. Information from the inspection is turned over to the engineering department, which adds the data to existing maps of the system. A recent post-cleaning inspection offers a typical example of the system's broader benefits.

A crew cleaned about 600 feet on Main Street. The next day, Keller set up the video inspection. "We had cleaned this really well, but when we went in 208 feet, we found a brick in there, and we couldn't go any farther. We had to go back in and get that out of there."

It's a perfect illustration of what the city doesn't know about its system. "We turn this information over to engineering so they can put it on their mapping."

Keller says. "On some streets, there has never been any information, other than it's, say, a 12-inch clay main," Keller says. To date, the city has inspected about 10 percent of its system.

On another sewer line inspection, the crew used the video equipment to detect a groundwater infiltration of 10 gpm. "Without videotaping that area, they would have just assumed it was all right,"

"It gives us the freedom to go ahead and start a project, clean it out, get that camera there, and see what's going on. It gives us a definitive answer as to what's going on."

Roger Keller

Keller says. The information moved that segment of line up on the city's priority list for replacement. This section was then replaced in conjunction with an interceptor replacement project.

Storm sewer applications

Keller's department is responsible only for sanitary sewers, but the cameras are called on for other work as well. The crew routinely gets borrowed to investigate the city's storm sewer system.

"The City of Marinette has extensively replaced the main storm interceptor lines," Keller says. "There are a lot of older ones." Videotaping has become an

important step in ensuring that the new lines are doing the job and in deciding which old lines will be the next scheduled for replacement.

In 2006 the city upgraded again, purchasing a Navigator DVD Ultra system from UEMSI. The system includes a camera with a self-leveling head that automatically keeps the picture upright. The camera fits in pipe as small as 2 inches.

The new camera allows the city to record directly to DVD. Better still, because it is compatible with the city's older mainline camera, the Navigator makes it possible to convert older videotapes to DVDs for playback and storage.



Gary Kmiecik sprays a disinfectant bleach solution on the UEMSI Prowler tracker with Cobra pan-and-tilt camera after an inspection.

for the new camera: The city was unhappy with the work of an inspection contractor. After buying its own mainline camera, the city stopped using contractors for most main inspections.

Today, outside contractors perform inspections only when the city is putting in a new sewer line.



Gary Kmiecik uses the Vactor 2100 on a line cleaning job.

In early 2007, the city purchased a Cobra Technologies camera through UEMSI. Now, for the first time, the city has pan, tilt and zoom capability in a camera that can look as far as 20 to 30 feet up a line. The city also replaced its track-based crawler with a Prowler wheeled transporter from UEMSI. Keller likes the wheeled transporter for its interchangeable wheels and because the design offers excellent traction.

Doing it all at once

The backbone of Marinette's sewer-cleaning operations is a Vactor 2100 series combination truck equipped with a positive displacement pump and a front-mounted jetter. The truck is rated at 80 gpm.

Keller and his co-worker, Gary Kmiecik, routinely clean and televise at the same time. To do this, the two crewmen position themselves at successive manholes. The man with the jetter extends it into the first manhole and up to the second. Then, as the jetter opera-

tor begins to withdraw the jetter back to the first manhole, the camera operator runs the camera into the second manhole and "chases" the jetter out.

The procedure requires both workers to be especially careful so that the cameras aren't damaged, but it saves time and allows the crew to be sure in real-time that the sewer is being thoroughly cleaned.

All in all, Keller is sold on Marinette's decision to do its own camera work. "It gives us the freedom to go ahead and start a project, clean it out, get that camera there, and see what's going on," Keller says. "It gives us a definitive answer as to what's going on." ♦

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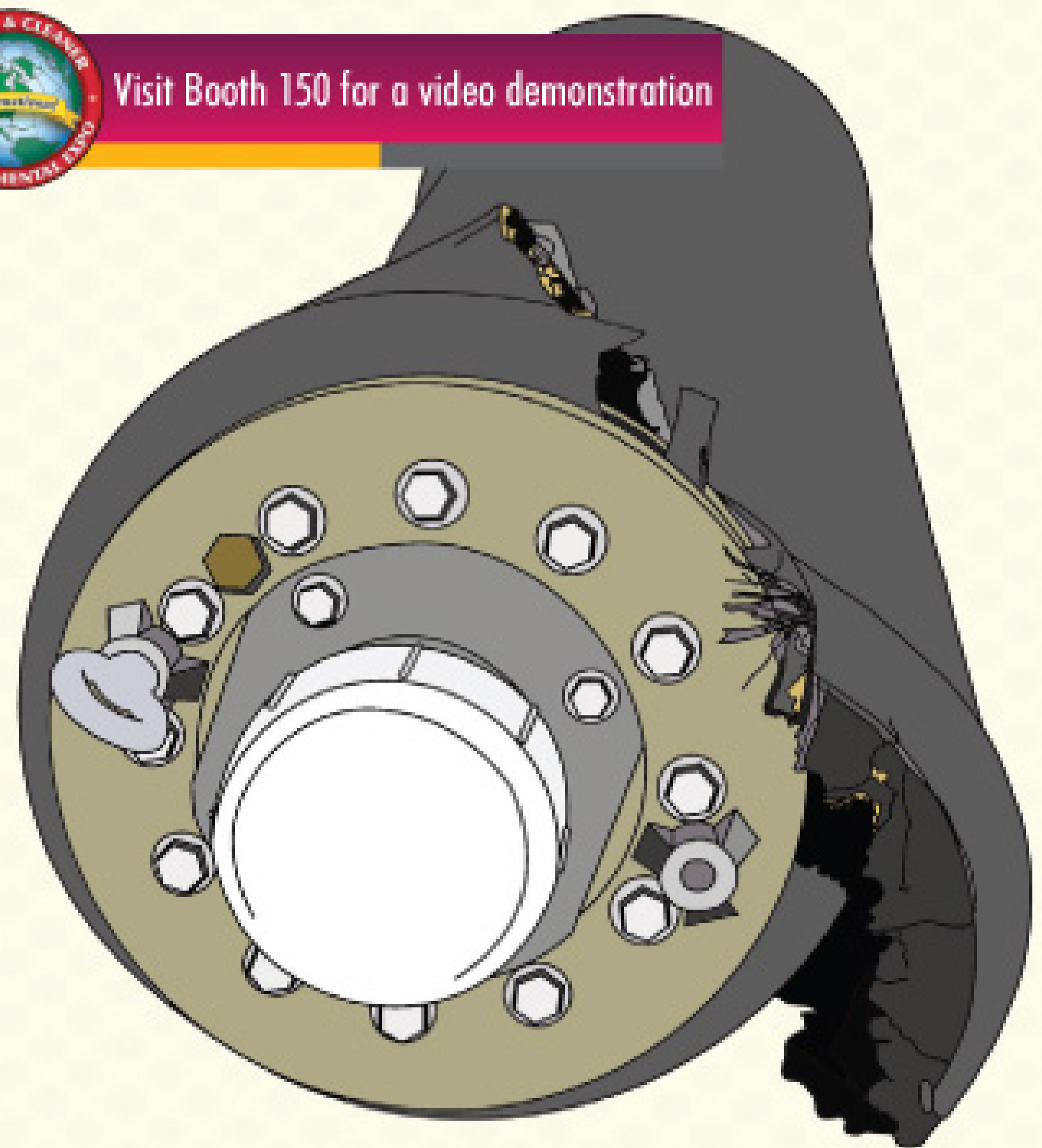
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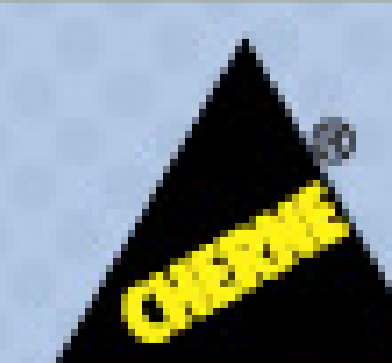
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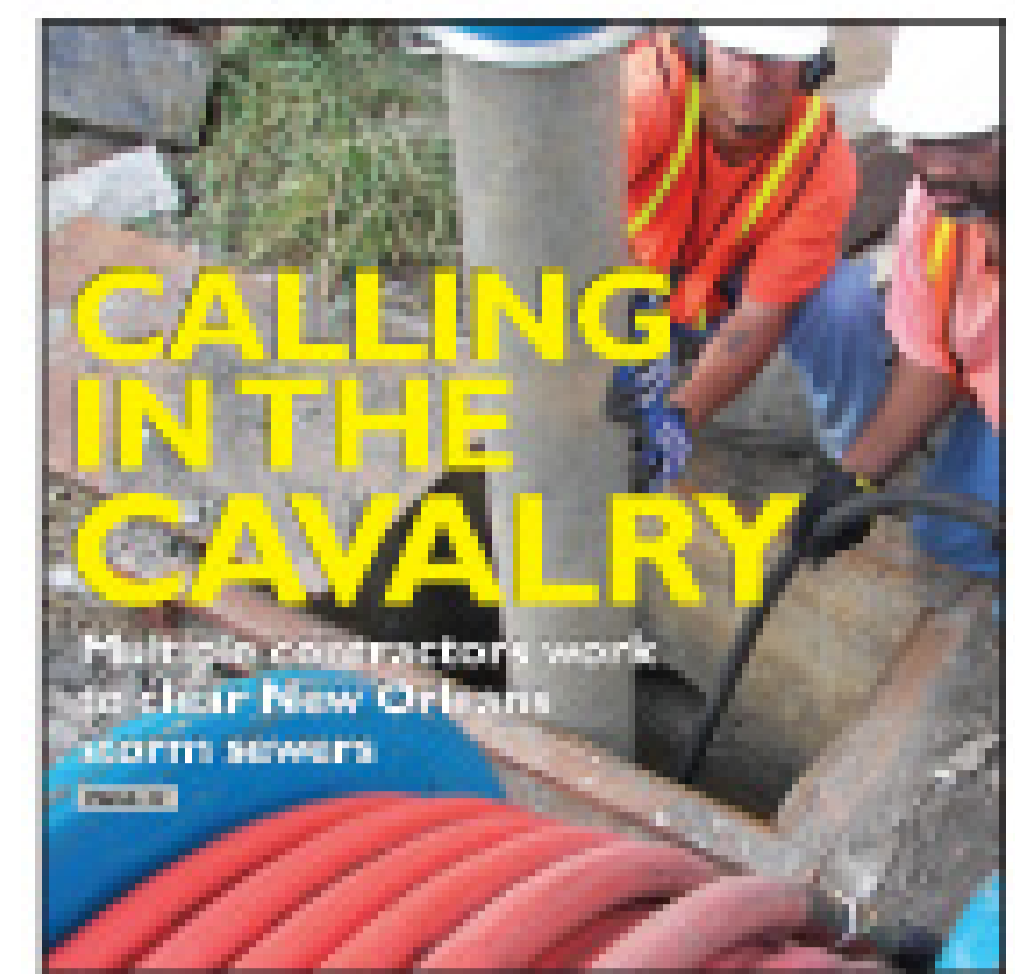
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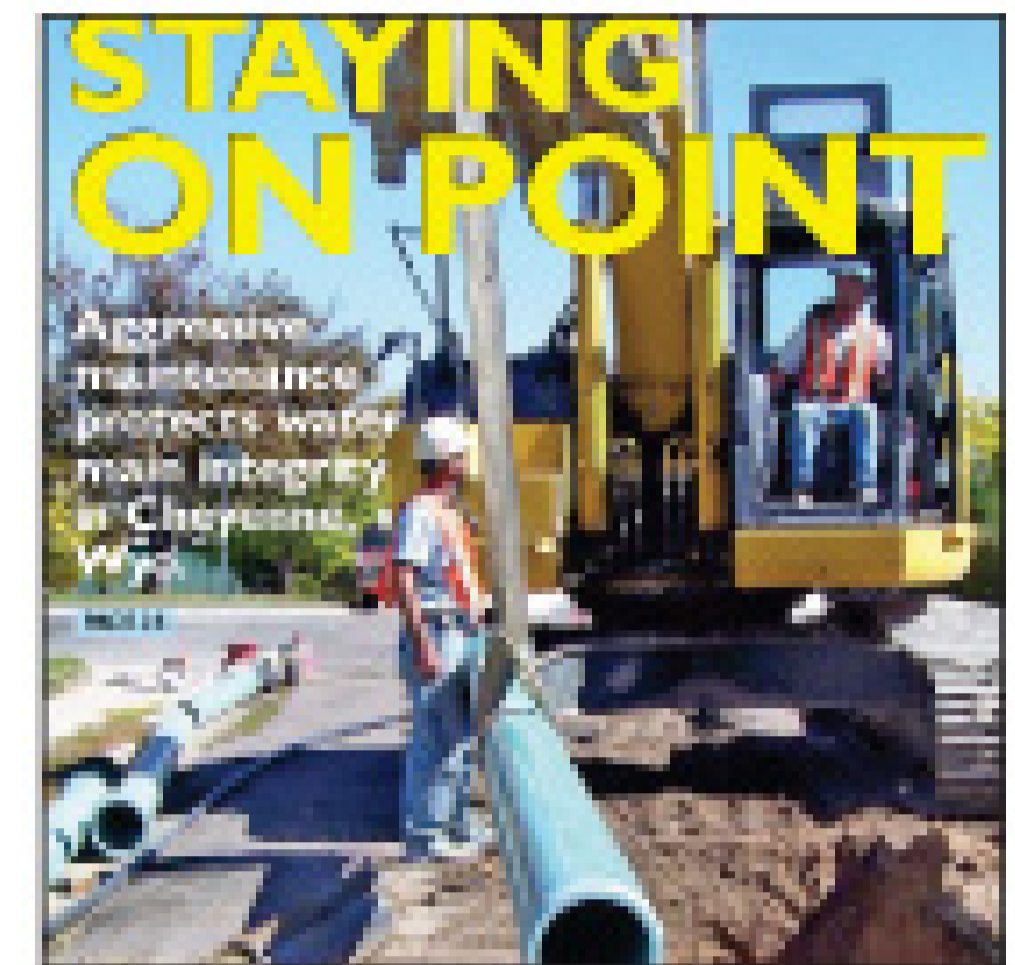
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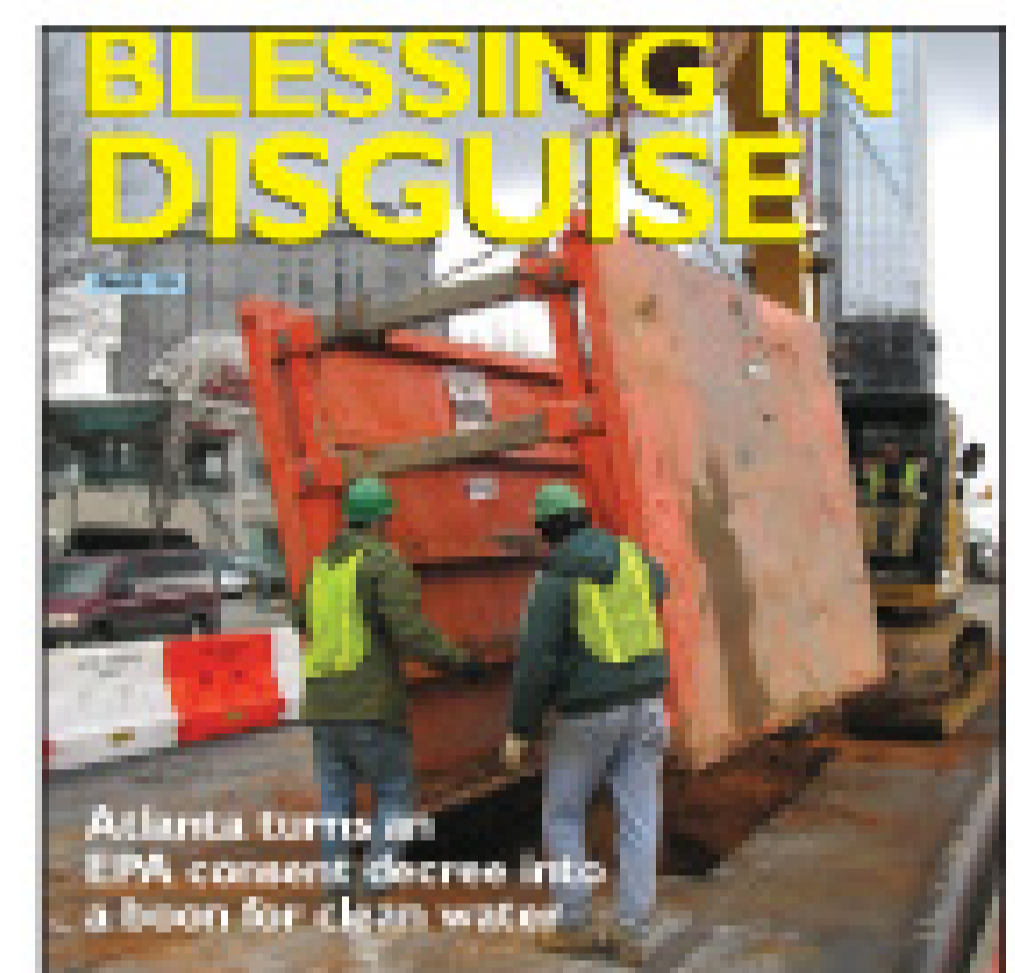
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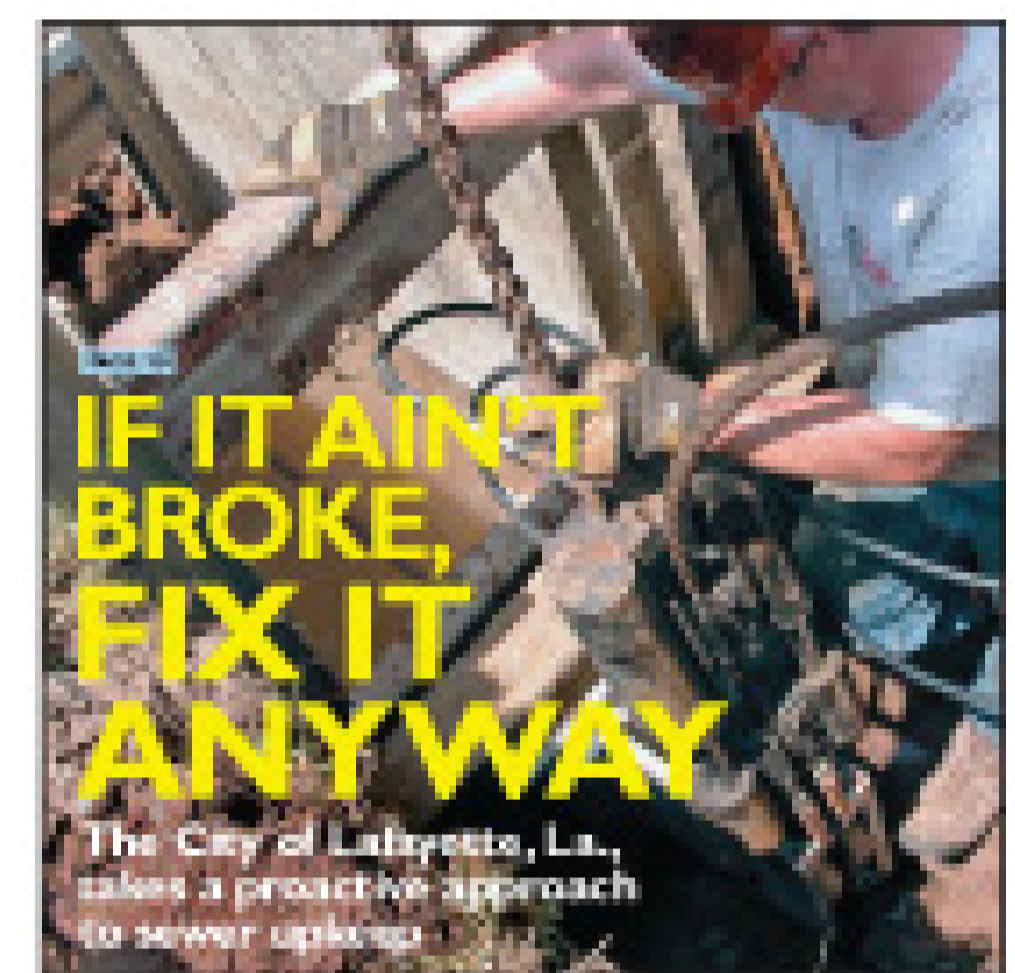
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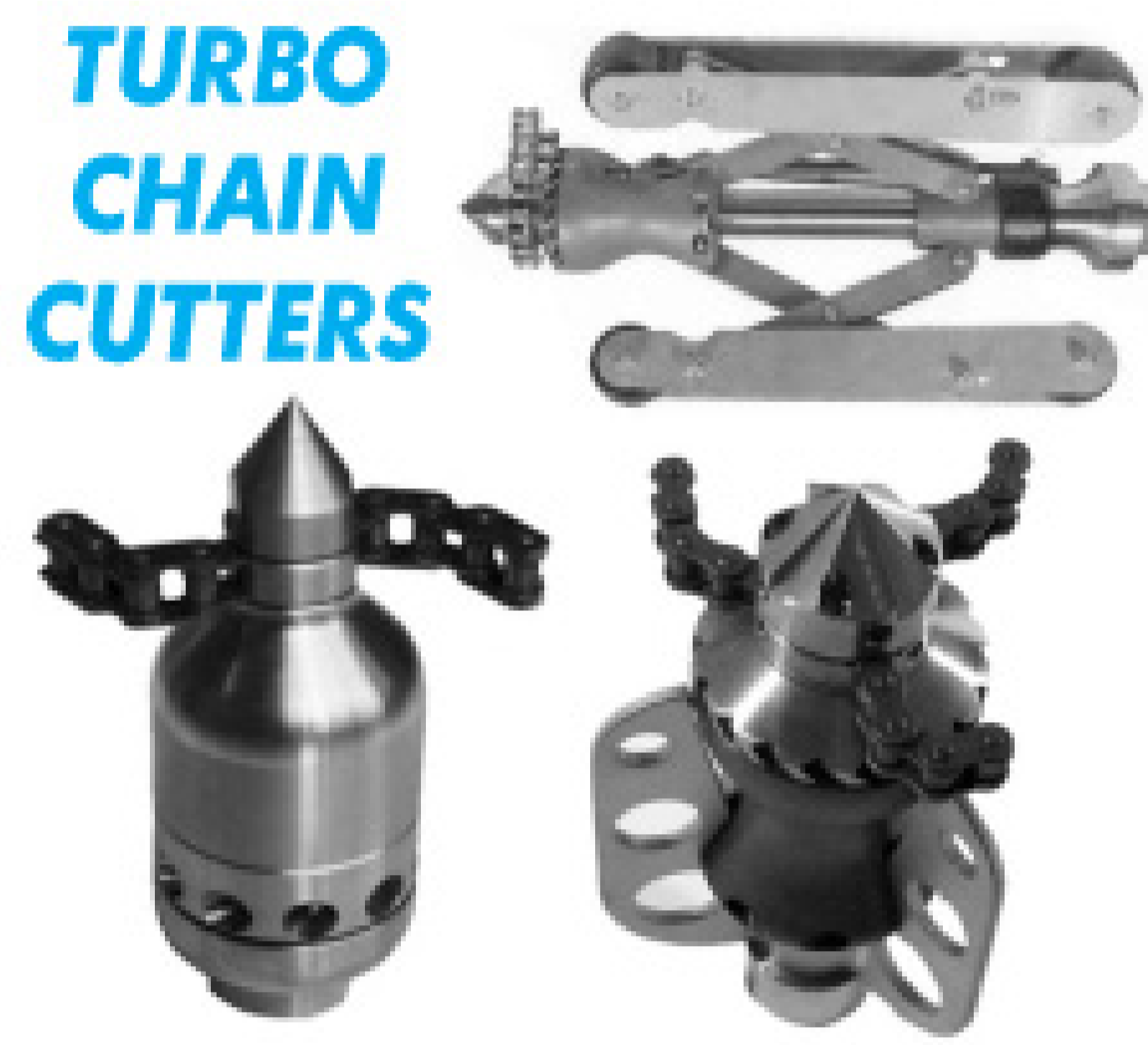
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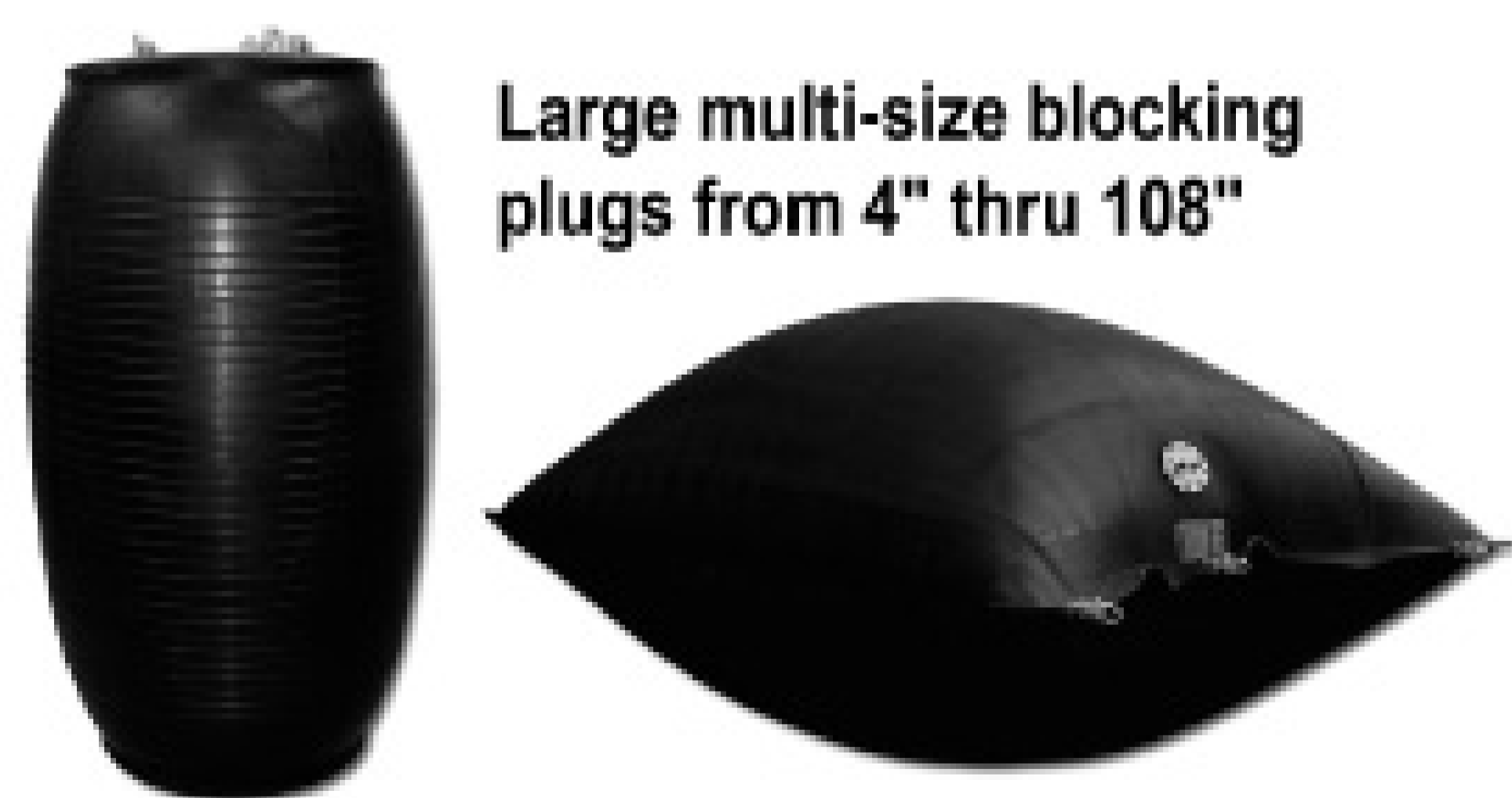
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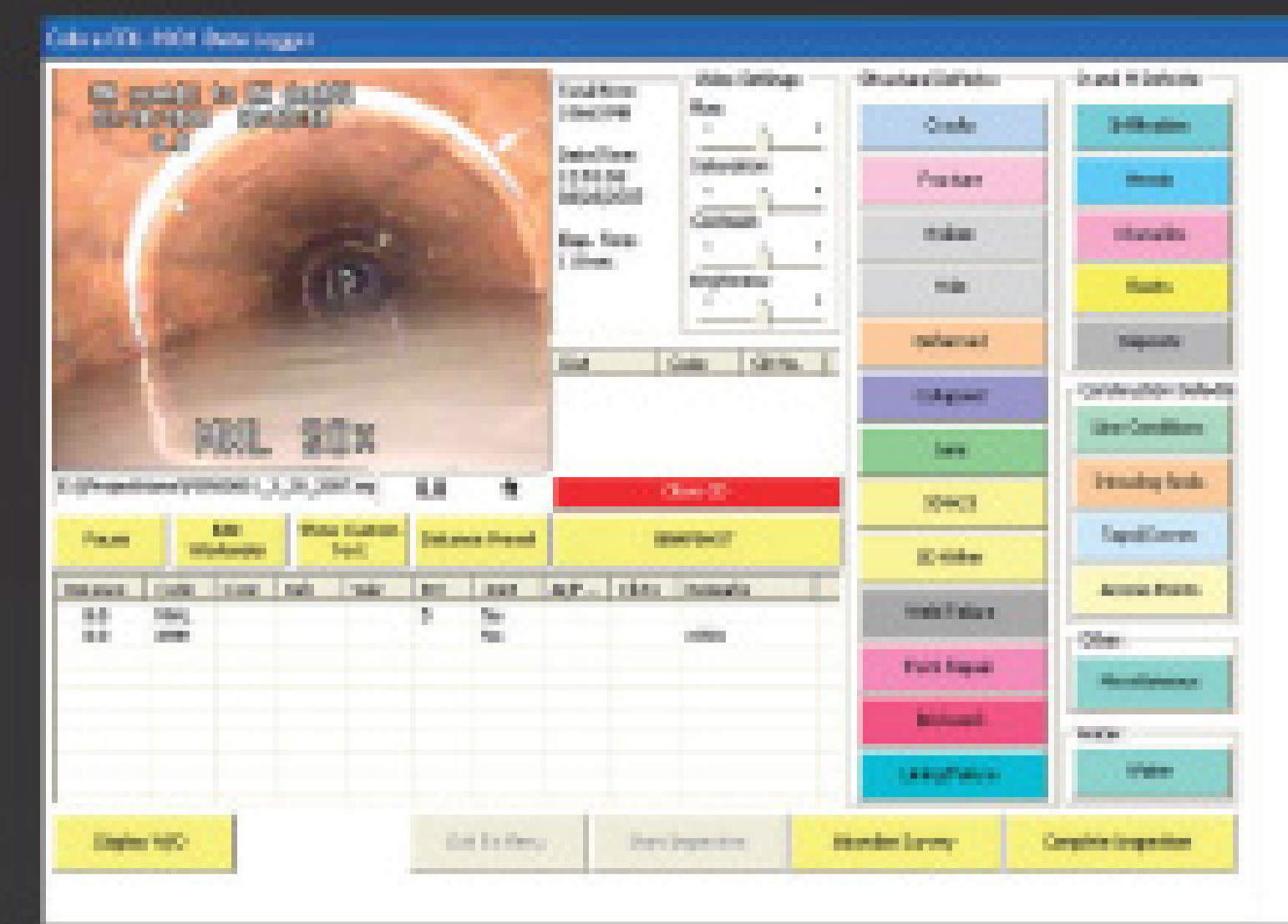


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CAMERAS ON WHEELS

Custom inspection vehicles give municipal managers almost infinite options for taking CCTV cameras and software to streets and rights-of-way

By *Scottie Dayton*

Pipe inspection systems may be only as good as the vehicles that carry them to the site and provide work platforms for the operators. Municipalities seeking inspection vehicles will find numerous choices for on-street or off-street operations.

The wide range of cameras, software, controls, and vehicle comfort and convenience features make the list of choices almost endless. Here is a summary of inspection vehicles available from leading industry manufacturers.

High inspection rates



Panoramo inspection vehicles from **RapidView IBAK USA** have walk-through or bulkhead designs. The large, well-lit workspace has equipment racks for tractors, cameras and accessories. To launch a tractor, the user opens a drawer beneath the KW reel, attaches the lowering claw, and inserts it down the manhole using the reel's integrated winch. Cabinets, ceilings and walls are covered with easy-to-clean fiberglass-reinforced plastic. Flooring is a durable, multiple-layer PVC.

The control room has the ergonomic BS 5 control and diagnostic display. Inspecting up to 1,640 feet from a single access point, the KW505 fiber-optic cable reel is operated from the main control or a remote pendant control at the rear of the vehicle. Side-by-side 20-inch LCD monitors allow users to review high-resolution digital files. Vehicles include backup monitors, arrow strips and safety strobe lighting. **800/656-4225; www.rapidview.com; Expo booth 2130.**

Clear vision



The **VisuVan** from **Ratech Electronics Ltd.** is a self-contained, all weather inspection vehicle. The cameras withstand harsh environments while working in sewers 6 inches or larger and can also inspect pipes, tunnels, smokestacks, and deep-water wells. Operators have complete fingertip control of inspections and monitor all phases from the climate-controlled TV studio. The inspection system includes rack-mounted hardware for modular access and computer-driven data collection.

Custom features include pan-and-tilt cameras, lateral camera launchers, rear vision systems, digital video recording, data capture, and manhole inspection cameras. Each system is tailored to customer requirements. A power inverter or generator and special-application and portable systems are available. **800/461-9200; www.ratech-electronics.com; Expo booth 144.**

New-age design



Mounted on a Polaris Ranger 6x6 ATV, the **Pathfinder series Discovery Cube** from **Aries Industries Inc.** includes the Pathfinder pipeline inspection system. The off-road vehicle can transport three operators and has a Honda 2 kW inverter-enhanced generator. The custom-built, custom-sized aluminum and steel enclosure has an electrical distribution system, equipment racks and shelves, storage compartments and drawers.

The package includes a 15-inch LCD monitor, DVD-VCR video recorder, camera and tractor power control units, video overlay, computer system with PipeWorks Pro reporting software, cable reel with 1,200 feet of lightweight Kevlar reinforced cable, pan-and-tilt color camera, and steerable tractor for 5- to 24-inch lines. **800/234-7205; www.ariesindustries.com; Expo booth 1008.**

TV/seal/cutter trucks



Custom TV/Seal/Cutter truck-mounted systems from **CUES Inc.** help municipal crews eliminate infiltration and inflow issues and rehabilitate structural problems in sewers. Equipment can be ergonomically mounted, enabling workers to complete condition assessments, grout mainlines and laterals, and reinstate laterals.

One integrated system facilitates pipe inspection operations and rehabilitation actions. The cutter reinstates lateral services, removes protruding taps, and brush-finishes cuts. Grouting is possible in 6- to 42-inch mainlines and 3- to 8-inch laterals.

The truck, with Evolution Interior I or II, is ergonomically designed for ease of operation, safety, and convenient storage. Granite XP asset inspection/decision support software is available to interface with asset management software systems and ESRI ArcGIS mapping systems. **800/327-7791; www.cuesinc.com; Expo booth 1068.**

Seeing eye



The **Deluxe CCTV inspection system** from **Cyclops Electronics Inc.** includes a non-stop rotation pan-and-tilt camera with high-resolution color, built-in lights, and wide-angle view. It is mounted on a heavy-duty transporter with forward-neutral-reverse gears.

The certified data collection system includes DVR, VHS VCR, automatic footage onscreen, 1,000-foot TV-tow combination cable, and powered cable reel with auto level-wind. Technicians can view what is happening on a rack-mounted 15-inch color LCD computer monitor, 10-inch CRT video monitor, or 8-inch flip-down rear monitor.

Other features include a rack-mounted combination cable reel-transporter controller and camera-light controller, a system analyzer with test cable, and complete manhole hardware. The system is installed in an E-350 Ford van with V8 engine, automatic transmission, AM/FM radio, air conditioning, and power steering and brakes. **830/249-9756; www.cyclops.tv.com; Expo booth 4200-01.**

Streamlined for access



Mounted on the chassis of the user's choice, the **Hi-Cube** truck from **RS Technical Services Inc.** has an operator control room with passenger door or walk-through into the driver's area. The equipment room, with tool cabinet and workbench, has brackets to store system accessories.

Standard inspection equipment can include the NovaSTAR Omni Eye III zoom or Ultra Mini cameras, mainline or standard push reel, mainline or Mighty Mini tractor transporter, and mainline controller. The POSM Pro or POSM Lite data collection system displays footage, date and time, and text information recorded in MPEG I, II, and 4 formats for burning to media or external hard drives.

Text is entered by keyboard, and five screens can be stored and recalled from memory. All CCTV control components are modular and are mounted for quick and easy operator inspection, adjustment and servicing. Options include a vehicle-mounted crane, closets, kitchenette with microwave over, refrigerator and sink, and restroom facilities. **800/767-1974; www.rstechserv.com; Expo booth 4069.**

Sleek design



The 2007 **GM Duramax** diesel inspection vehicle from **Pearpoint Inc.** includes a Dell 24-inch MultiSync wide-screen, high-definition LCD monitor for viewing live video from the Pearpoint pan-and-tilt camera and video pipeline software system. The split-screen presentation helps in surveying live, and while recording video, snapshots, and defects.

A multiformat DVD player-recorder functions as a second digital audio-video recording device. The control room with 377 Controller operates the camera, tractor, and synchronized drum with built-in keyboard for running PipeLogix flexidata software.

The equipment room has a full workbench, counter top, diamond-plate flooring, and rear-mounted 15-inch flat-panel LCD monitor. The P378 pendant controller operates the synchronized P599 drum, and 420 compact tractor with swivel rear end and 40:1 zoom-pan-tilt head, all from the back of the vehicle. Options include rear-mounted floodlights, beacons, arrow boards, water tanks, restrooms, sinks, cranes, and additional storage. **800/688-8094, ext. 221; www.pearpoint.com; Expo booth 1196.**

Maneuverable van



One-person operation



Van inspection system



Inspection vans from **Envirosight LLC** are on the maneuverable Sprinter platform with fuel-efficient diesel power train. Combined with an equipment bay, the advanced operator studio has flat-screen monitors, a rack-mounted computer running WinCan and DigiSewer side-scanning software, photo printer, desktop crawler controls, and WiFi communications for easy network uplink.

The studio, appointed with upholstery and theater lighting, grants a full view of the cargo bay and manhole through a large bulkhead window. The equipment bay, with diamond-plate storage cabinetry and vinyl walls, cleans up rapidly.

The van includes a compact Rower inspection crawler that can be lowered without a crane and requires only a small, fuel-efficient generator. The maneuverable crawler reduces the need to reposition the van to adjacent manholes to complete a pipe segment. Tailgate crawler controls enable true single-user operation.

The van also has a QuickView zoom camera that performs initial surveys to determine if a pipeline needs televising. A 30-gallon wash-down system helps keep the equipment clean. The vehicle's compact size and bright front and rear emergency beacons minimize traffic exposure and maximize operator safety. **866/936-8476; www.envirosight.com; Expo booth 1130.**

The **RCA Proline Sprinter** van with SAT-Star from **Rausch Electronics USA LLC** can inspect 8- to 48-inch lines and 4- to 10-inch laterals in one run. Both color cameras are pan-and-tilt. The mainline cable drum comes with 1,500 feet of Kevlar reinforced multiconductor cable. The lateral drum has 550 feet of cable with 100 feet for lateral launching. The camera tractor and both cable drums are fully automated and synchronized. When combined with the telescopic swivel winch, the system allows true one-person operation. Modular components are easy to upgrade.

The ergonomically designed control room has an industrial-grade rack-mounted Pentium processor computer, big-screen TFT monitor, main monitor, and backeye monitor. The 14-inch, high-resolution main monitor displays distance measurements of main and satellite cameras, pipe inclination, tape run time, date, time and camera position.

The control unit has a compact 19-inch rack system with temperature-controlled fan, multi-processor system with serial bus, low-voltage system, and galvanically separated power circuits. Other features include auto and manual focus, automatic illumination adjustment, auto picture upright, and sensor-controlled reverse-run-automatic synchronized cable spooling in SAT mode. **877/728-7241; www.rauschtv-usa.com; Expo booth 2031.**

Inspection systems from **Cobra Technologies** can be installed in a Ford, Chevrolet or Sprinter van. The vehicle has a walk-through door between control and equipment rooms, front and rear emergency lighting and arrows for operator safety.

The control room has the CobraTouch CDL 9000 series data logger with flat touch-screen monitor and PACP-certified software, CIMS data management software, rack-mounted industrial computer, rotating electronics equipment rack, printer, desktop controls, upholstered chair, lighting, and an 18,000-Btu air conditioner-heater. A window provides full viewing of the equipment room.

The equipment room has diamond-plate flooring, storage and a wash-down system. A static inverter using the main engine generation system provides system power. Inspection equipment includes a Cobra mainline crawler that works in pipes up to 72 inches using an 8-inch platform with wheels and remote elevator add-ons.

The Luxeon cold-lighting system on the Cobra pan-tilt-zoom camera automatically illuminates at full brightness by using the camera's power. Other features include a rear monitor, video reel interlocking electronic brake system, and level-wind screw and rear crawler pendant control for one-person operation. **800/443-3761; www.cobratec.com; Expo booth 7057A.**

Off-road vehicle system

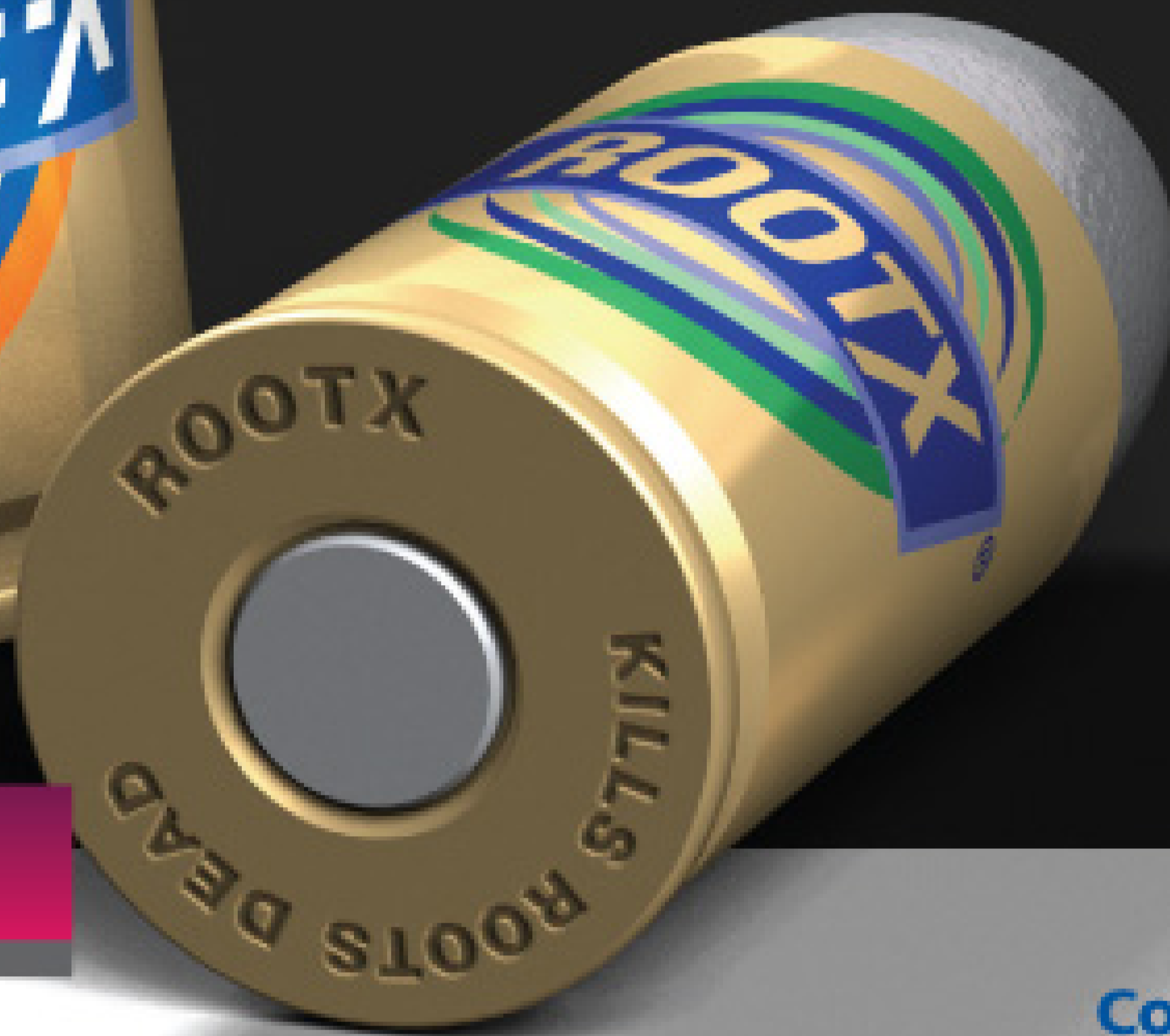


The **Predator Advantage** system from **UEMSI** can be installed on off-road vehicles. Inspection components include a 9-inch color monitor, DVD player-recorder, wheeled reel with 250 feet of push cable, CH-3 color camera head, and a viewing box for daylight operation.

A 4- to 6-inch brush skid, and 6- and 8-inch aluminum skids are standard equipment. The power control unit has built-in controls for the monitor, two- or four-head VCR, interchangeable multiple lighthoods, tractor, pan-and-tilt camera, and keyboard input jack. Options include a Tyger-tail cable guide hose and aluminum top manhole roller to protect the cable. Other components can be added to the push system as required. **800/666-0766; www.uemsi.com; Expo booth 3218. ♦**

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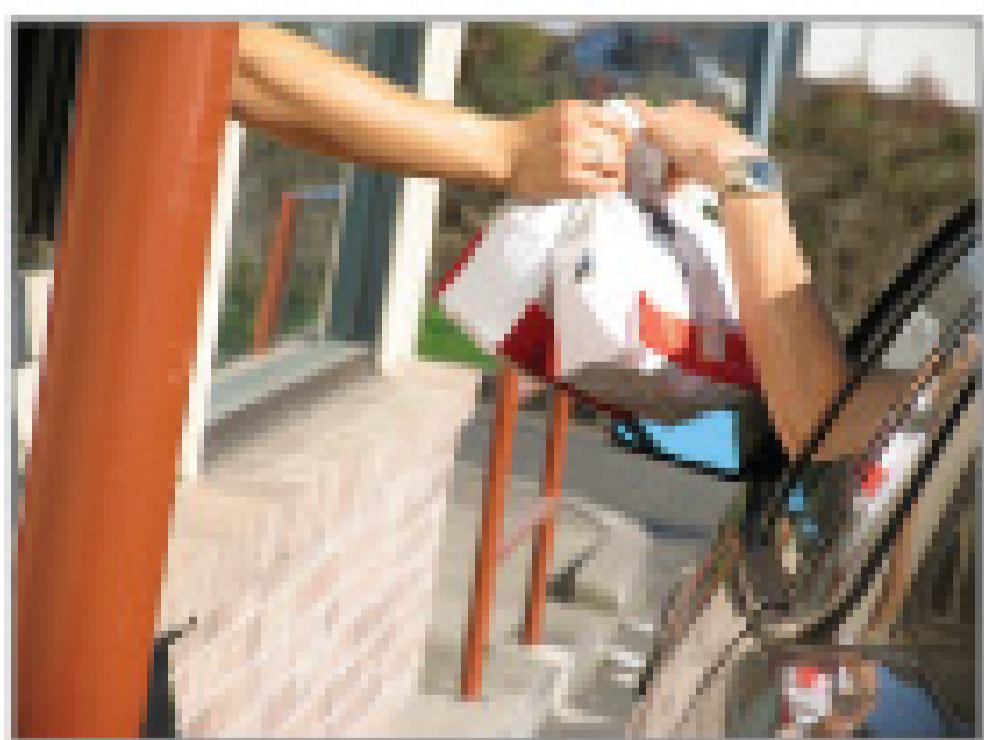


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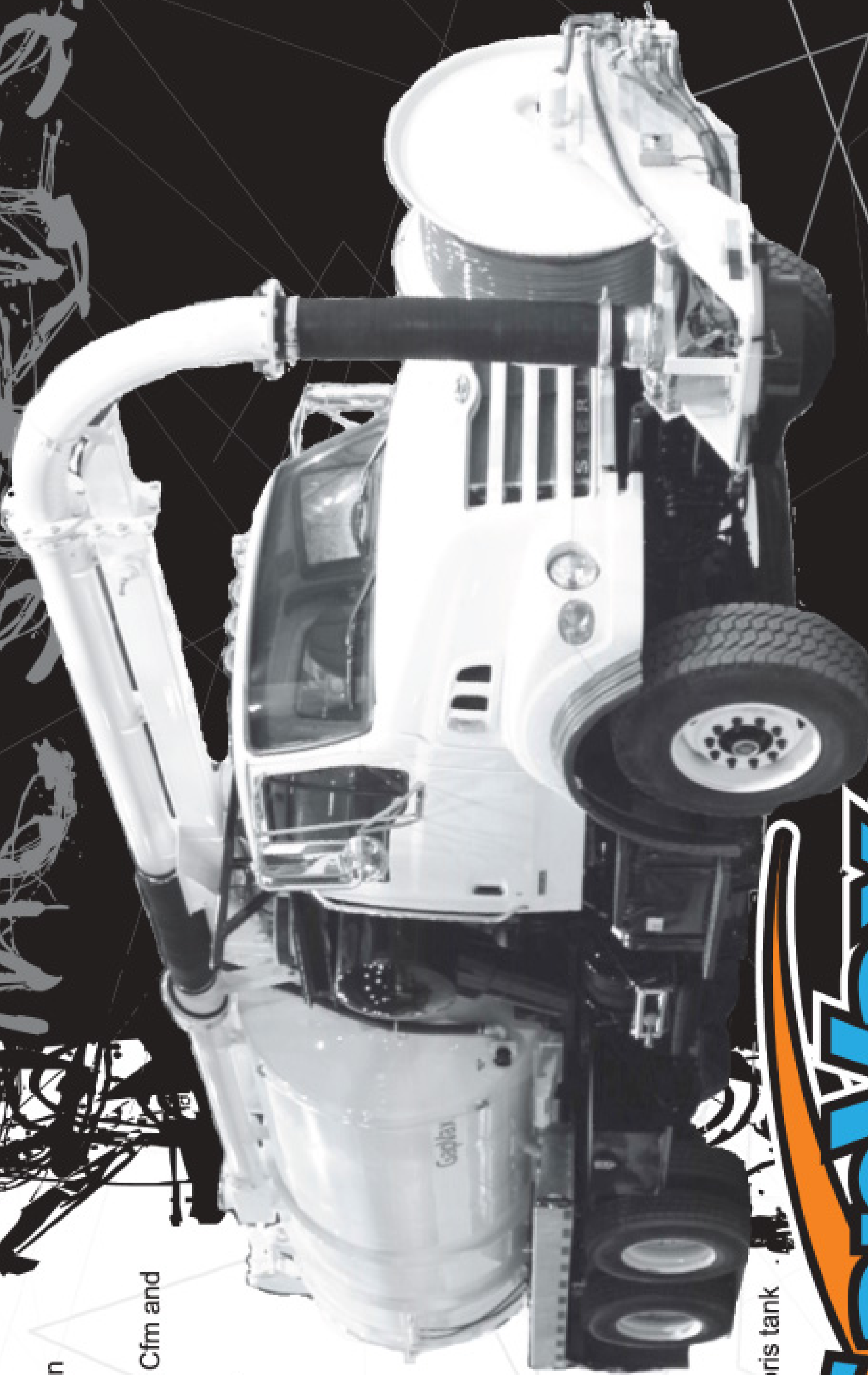
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DUE DILIGENCE

A CCTV inspection van is a major investment. Before choosing equipment, weigh all the costs and consider all the variables in light of your program goals.

By Jim Aanderud



The choice of a TV inspection van is not simple. It requires careful consideration of equipment, staffing, training, and other factors specific to the purchasing agency's needs.

So, you want to buy a CCTV inspection van. You've spent a lot of time looking at manufacturers and studying the differences between the crawlers and the cameras. You have pretty much decided what you want. But do you really know what you are getting into? Have you considered every aspect of the purchase and the long-term ramifications?

For a contractor, the purchase of a van largely comes down to finances. Can it operate profitably? If so, great! But if not, the company may go out of business, and that shiny new van will end up for sale for far less than the original purchase price.

A contractor will usually justify the purchase of an inspection van based on work on hand. If there is enough work to keep the van busy for six months to a year, that can be justification enough.

For a public agency, the process and the consequences differ considerably. Here, the purchase of an inspection vehicle must be justified through a critical analysis of the agency's needs and an objective view of the inspection program and its long-term cost and effectiveness.

Unfortunately, many agencies minimize this critical analysis, and the inspection van never achieves its intended purpose. As a result, there are hundreds of vans across the nation that are either rarely used or simply abandoned in city yards.

Smart decision-making

How does something like this

happen? It usually comes down to the fact that the purchase decision process was not properly carried out. A lack of information combined with misinformation can result in an ill-advised decision. The truth is that not everyone is properly served by owning a CCTV inspection van.

That said, let's look at some of the more common misconceptions that relate to the purchase of an inspection van. In the end, these are some of the more significant reasons as to why CCTV inspection programs fail.

Many people have the misconception that the retail price of a van is its final cost. They look at the price tag — say, \$120,000 — compare that to the \$60,000 they spend per year on contractors, and then think that in two years they will be ahead of the game. Nothing could be further from the truth. In fact, a host of other financial considerations drive up the cost of operating that van. What are some of those costs?

Employees. It costs money to have employees operating a CCTV inspection van. There are also expenses for training them to use the equipment and software, repair the equipment, and obtain certifications. If there are two full-time employees, that alone could easily exceed the cost of contracting inspection services.

Maintenance. The cost of repairs is often overlooked. Salespeople may downplay its impact by promoting cost-free maintenance for the first year. But the truth is that inspection equipment breaks down. No matter how rugged it is, it works in harsh conditions and is often handled by less-than-gentle employees. Although repairs may be infrequent when the equipment is new, they escalate dramatically as it ages. Repairs can easily exceed 15 to 25 percent of the original cost of the van per year.

Insurance, permits and licenses. Often, the people deciding to purchase a van are not the ones paying the bills. Therefore, they do not consider all the costs: auto and liability insurance, operating per-



mits, vehicle licenses, and other incidentals.

Tools and equipment. An inspection van needs specialized tools and equipment to work effectively. A well-outfitted van carries manhole hooks, gas monitors, ratchet sets, hand tools, power tools, traffic-control signs and delineators, arrow boards, computer battery backups and more. Over time, some of this equipment wears out or is lost and needs to be replaced. Other costs include software upgrades, and yearly software service agreements, and computer replacements at least every three years. These costs translate into thousands of dollars per year.

Consumables. Pipeline inspections are recorded to the computer. At some point, DVDs and hard drives are needed to export the data from the computer. Inspection reports must be printed and organized into binders. Light bulbs, screws, tires and many other small parts for the CCTV equipment must be counted. These consumables can easily rack up four-digit costs.

Additional inspection equipment. Once the inspection program begins, it may be necessary to add more equipment to inspect different types of pipe. A large crawler costing \$20,000 to \$60,000 may be needed for large-diameter pipe. Special wheels may be required for difficult areas. A back-up camera may be needed because loaners are not available. All this drives up the cost.

Technical considerations

Money issues aside, buying CCTV inspection equipment is not the same as buying a refrigerator. We soon forget the brand of refrigerator because it works well for years and needs virtually no maintenance.

However, when you purchase a CCTV inspection van, you enter into a relationship with the brand. A month will rarely pass without some interaction with the manufacturer or a service provider. Whether it's troubleshooting, buying parts, or shipping the equipment for repairs, the relationship with the brand is vital. Remember,

the question is not *if* but *when* the equipment will break down.

When shopping for high-tech equipment, it is also important to consider the type of pipeline inspections. Each manufacturer has strengths and weaknesses. For example, some camera systems are difficult to float, while others require an additional crawler to inspect 6-inch lines. Some have zoom capabilities, others have lighting limitations, and some have cable length restrictions. Know exactly what you need, and make sure the system you are considering fills those needs.

Never buy equipment you don't need. If the largest pipe in your system is 18 inches, it is a waste to buy a storm drain tractor designed to inspect 24- to 124-inch pipe.

The success of your inspection program may depend on how well the equipment manufacturer supports you. Consider how quickly they can make repairs and how well they can supply you with loaner equipment.

Also consider the location of service centers. Find out the turn-around time on repairs. Can you drive to a service center? Or does everything have to be shipped? If your van is down for more than a week, then the goals you have set may be jeopardized.

Before settling on a manufacturer, get a list of references of current users of the exact same equipment you are price-checking. Find out firsthand how happy they are with the equipment and how responsive the service has been.

Software is a significant consideration. Bill Roseberry, sewer superintendent for the City of Fullerton, Calif., suggests that agencies should not necessarily settle for the inspection software that comes with the van. "It is important to consider the various programs that are out there," he says. "Make sure that they are PACP compliant, user friendly, and exportable to GIS mapping."

There is an ongoing relationship with the software manufacturer. Make sure you are comfortable with their upgrade policy, their openness to customization, and

their responsiveness to troubleshooting. Know up front what their annual fees are. Call references to get an accurate picture of the company before entering into a contract.

Achieving footage goals

Many public agencies have highly successful CCTV inspection programs. At the heart of their success is an exceptional inspection operator. Without a motivated, driven and talented person at the helm of the van, your inspection program might well fail.

Unfortunately, it is difficult to find candidates who comfortably straddle the outside world of sewers and the inside world of computers and software. Settling for an under-qualified operator will doom an inspection program faster than anything else.

Marty Holmes, wastewater collections supervisor for Padre Dam Municipal Water District in Santee, Calif., says defined footage goals

for their inspection operator are the key to success. "We review what they have done on a monthly basis and then discuss their goals for the coming month," he says. "Ongoing accountability is what keeps us focused on our target goals."

In the end, when you perform due diligence in purchasing an inspection van, you will make the right decision and serve the taxpayers well. Take your time, and don't spend a dime until you know exactly what you are getting yourself and your agency into. In the end, that extra measure of diligence will pay huge dividends, in the short term and over the long haul. ♦

Jim Aanderud is owner of Innerline Engineering, a video pipeline inspection company based in San Diego, Calif.



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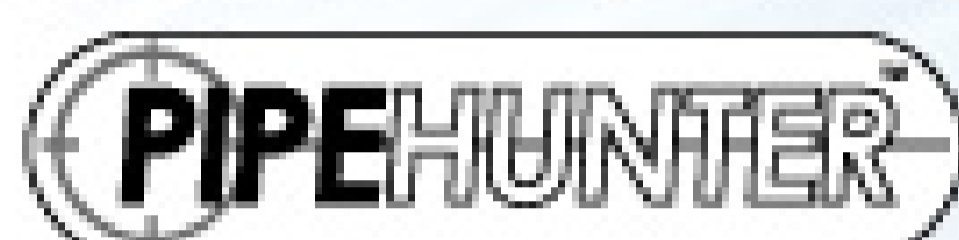
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ADS LLC Acquires Condor Solutions

ADS LLC has acquired Condor Solutions Inc., a research and development company headquartered in Huntsville, Ala. ADS, also headquartered in Huntsville, is a wholly-owned subsidiary of Nova Technologies Corp. and produces technology-based products for the water and wastewater industry.

MyTana Celebrates 50th Anniversary

MyTana Manufacturing Company Inc., founded by Sol Gottstein in 1957, celebrated 50 years of service to the cleaning industry in October. Headquartered in St. Paul, Minn., Gottstein moved to the Twin Cities from Des Moines, Iowa, in the 1930s, becoming the original St. Paul Roto-Rooter franchisee. It was while in Des Moines that Gottstein met cable machine developer and Roto-Rooter founder Joe Blank. Deciding to concentrate on the manufacturing side of the cable cleaning business, Gottstein sold the service portion of the company to his brother Nathan, who later sold it to the Roto-Rooter Corp.

Longtime employee John Sentman was assigned the task of making sewer cable machines, and is credited with developing the company's original product line. Taking on new ownership after Gottstein's death in 1992, the company introduced portable jetters in 1998 and followed with video inspection and locating equipment in 1999.

Recognized as one of Minnesota's 50 fastest growing private companies in 2000 and 2001, it also acquired MicroEngineering, developer of the self-leveling camera head. As it has from the start, MyTana continues to manufacture and service its own cable machines, jetters, locators and video inspection equipment.

Rocky Mountain Team Places 1st at Operations Challenge

The Rocky Mountain Water Environment Association's Commode Commandos placed first in Division I in the Operations Challenge competition at the Water Environment Federation's 80th technical exhibition and conference in San Diego, Calif. Forty, four-person teams competed in two division and were judged in collection systems, laboratory, process control, maintenance and safety. The events are designed to test the diverse skills required for the operation and maintenance of wastewater treatment facilities. Placing second in Division 1 was Hampton Roads Sanitation District, Virginia Water Environment Association.

Third place went to Trinity River Authority CReWSers, Water Environment Association of Texas. Placing first in Division 2 was Force Maine, New England Water Environment Association. Second place went to Brown Tide, New York Water Environment Association. Third place went to Fort Worth Regulators, Water Environment Association of Texas.

Envirosight, Vivax Form Alliance

Envirosight LLC, a provider of video inspection solutions, and Vivax, a manufacturer of push cameras and pipe location equipment, have formed an alliance to further the development of push camera technology and to grow the sales channel for such technology in the North American market. As part of the alliance, Envirosight will private label Vivax equipment, while Vivax will grant Envirosight municipal sales exclusivity. Envirosight will officially launch its new push camera line at the 2008 Pumper & Cleaner Environmental Expo. ♦

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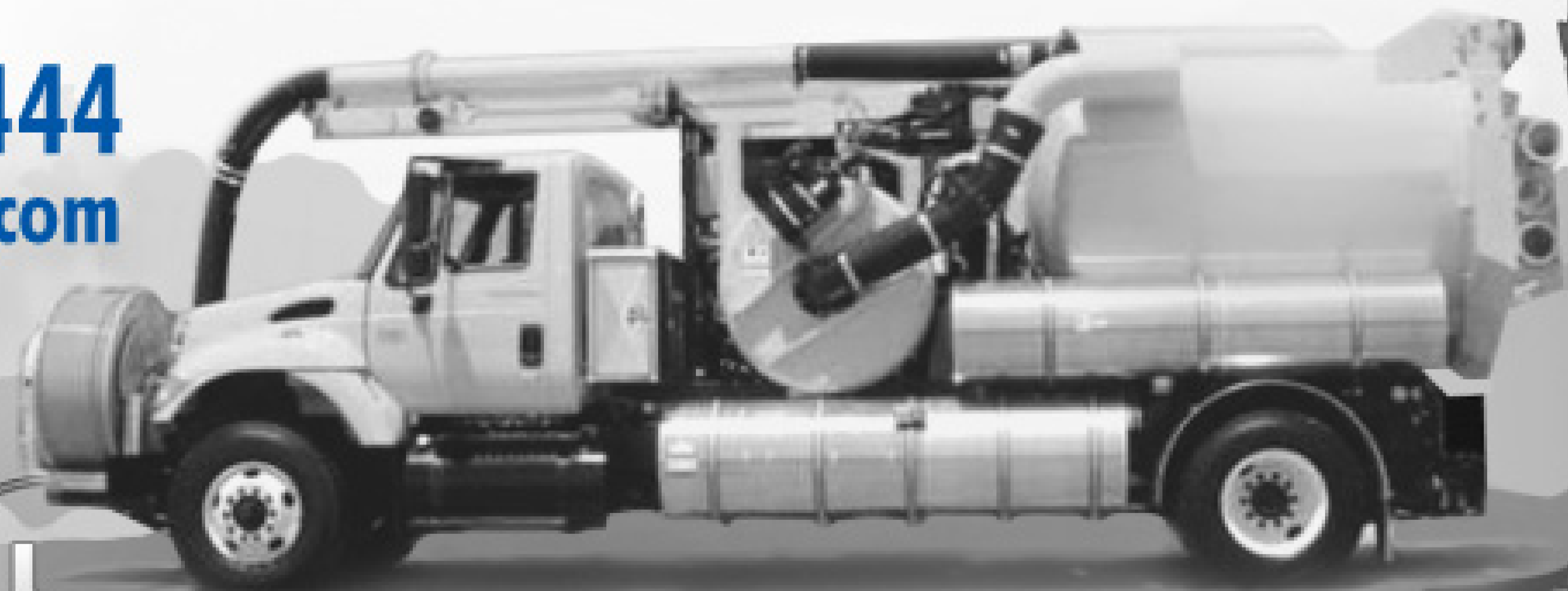
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MADE FOR FLEXIBILITY

POSM software from RS Technical Services supports inspections for many types of infrastructure and allows extensive user customization

By Ted J. Rulseh

Pipeline survey and reporting software is the critical link between pipe inspection cameras and actionable information. Software providers strive to make their applications versatile, flexible, easy to use, and compliant with standardized defect coding systems.

Pipeline Observation System Management (POSM) software is supplied and supported by camera manufacturer RS Technical Services Inc. The software (pronounced

“possum”) is designed to support inspections of sanitary sewers and manholes, storm drains, water distribution pipelines, and other types of infrastructure.

POSM is certified under the Pipeline Assessment and Certification Program (PACP) Version 4.2, the latest database and testing standard from the National Association of Sewer Service Contractors (NASSCO). It is also certified under the NASSCO Manhole Assessment and Certification Program (MACP).

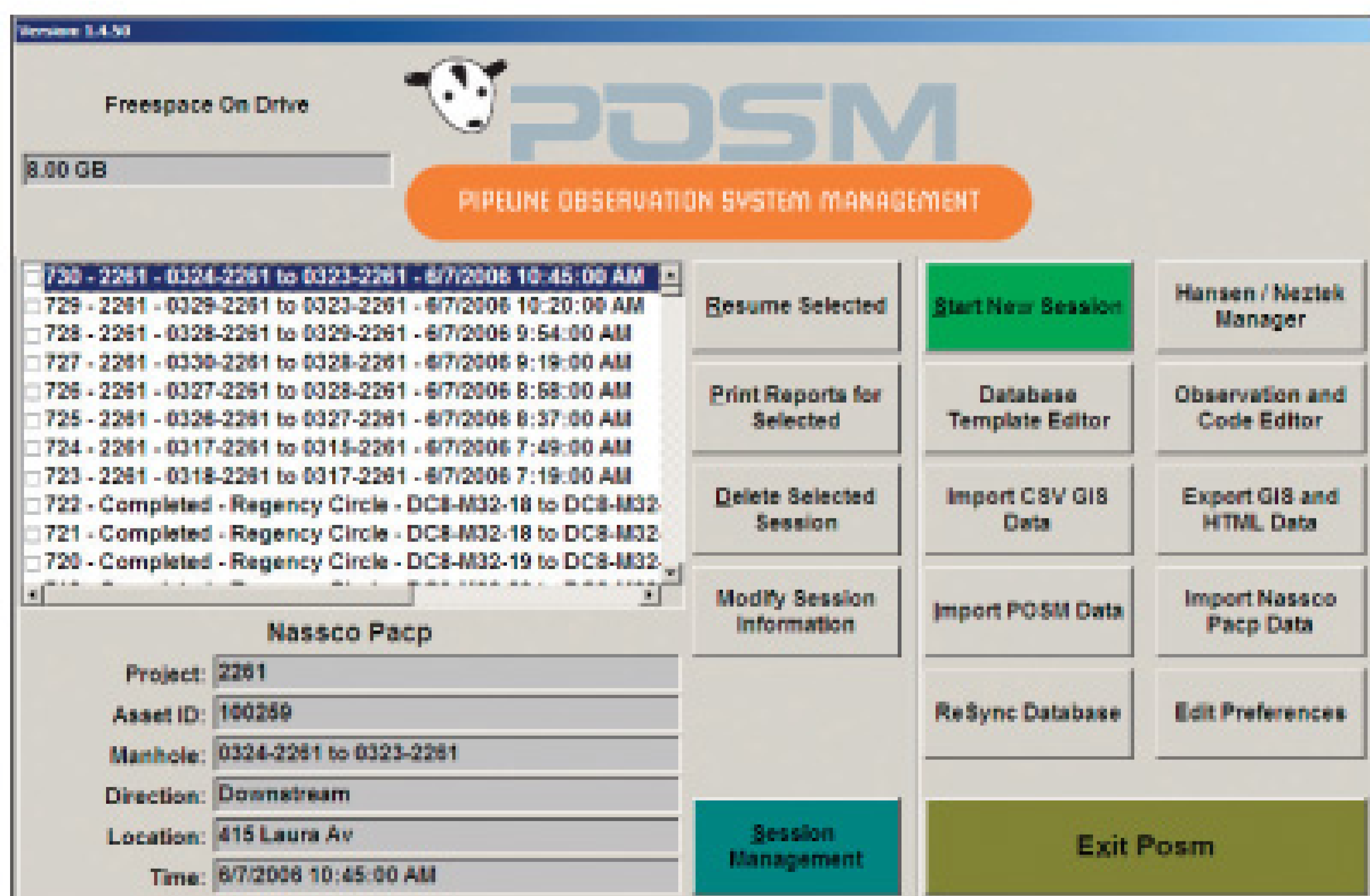


Figure 2: The Intro page allows users to start new sessions or print, modify, resume or delete previous sessions. The user can also open all POSM utilities such as Session Management, Hansen/Neztex Manager, Database Template Editor, Observation and Code Editor, Import/Export GIS, POSM, NASSCO Data, and edit POSM preferences.

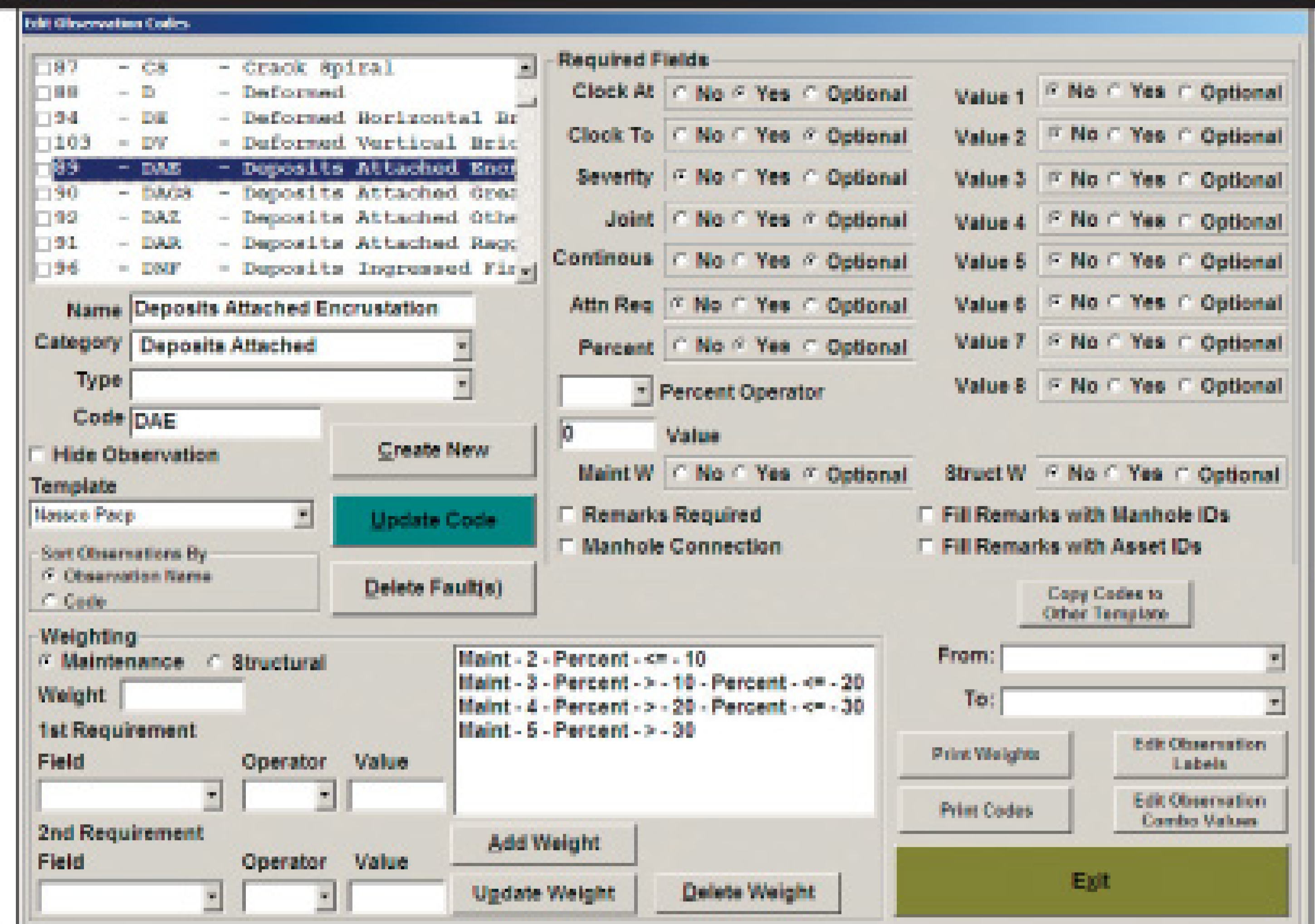


Figure 1: The Observation Code Editor lets users define a code set for each template that is created. Names and codes can be created for each observation code, and searchable categories and subcategories can be defined to make code searching faster. For each observation code, data requirements can be set. Users can rename field descriptions for each data requirement and define drop-down lists for the requirements, allowing them to quickly select values rather than typing them in while adding an observation. For each code, a weighting scale can be defined. Using this design, the code system can be modified for many different engineering firms or city coding systems.

In addition, POSM is fully GIS compatible and certified by Neztex Systems Ltd. for database transfers in Hansen infrastructure management applications. On Dec. 5, Bob Katter, software engineer, gave an online demonstration of the product.

Walk-around

POSM software works with virtually any manufacturer’s CCTV cameras. The software gives users complete flexibility to customize databases. Users can tailor some 150 data fields and so support not only pipe and manhole inspections but wet-well inspections, valve testing, smoke testing, and many other functions.

Users can tailor the Header Page to include numerous fields or only a few, depending on the level of detail desired. “Some customers may want as few as five fields — what manholes, what date, what operator, and so forth — so they can quickly start recording an inspection without having to enter extensive data,” Katter says.

The POSM database can adapt to the users’ existing database and language. “The database controls

what the software looks like,” says Katter. “Users can define any aspect and change the whole look of the program to suit their preferences.”

Colors and graphics simplify

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SUPPLIER:
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www.rstechserv.com
Petaluma, Calif.

LOCATION OF DEMO:
Via Internet

DEMONSTRATED BY:
Bob Katter, software engineer

LIST PRICE:
\$12,500
(Includes POSM software and license key, 3-year hardware and software support, industrial Rackmount Intel Dual Core computer with RAID hard drives, text overlay unit, 800-watt min. UPS, Training, installation, monitors, printer and VCR or DVD recorders not included)

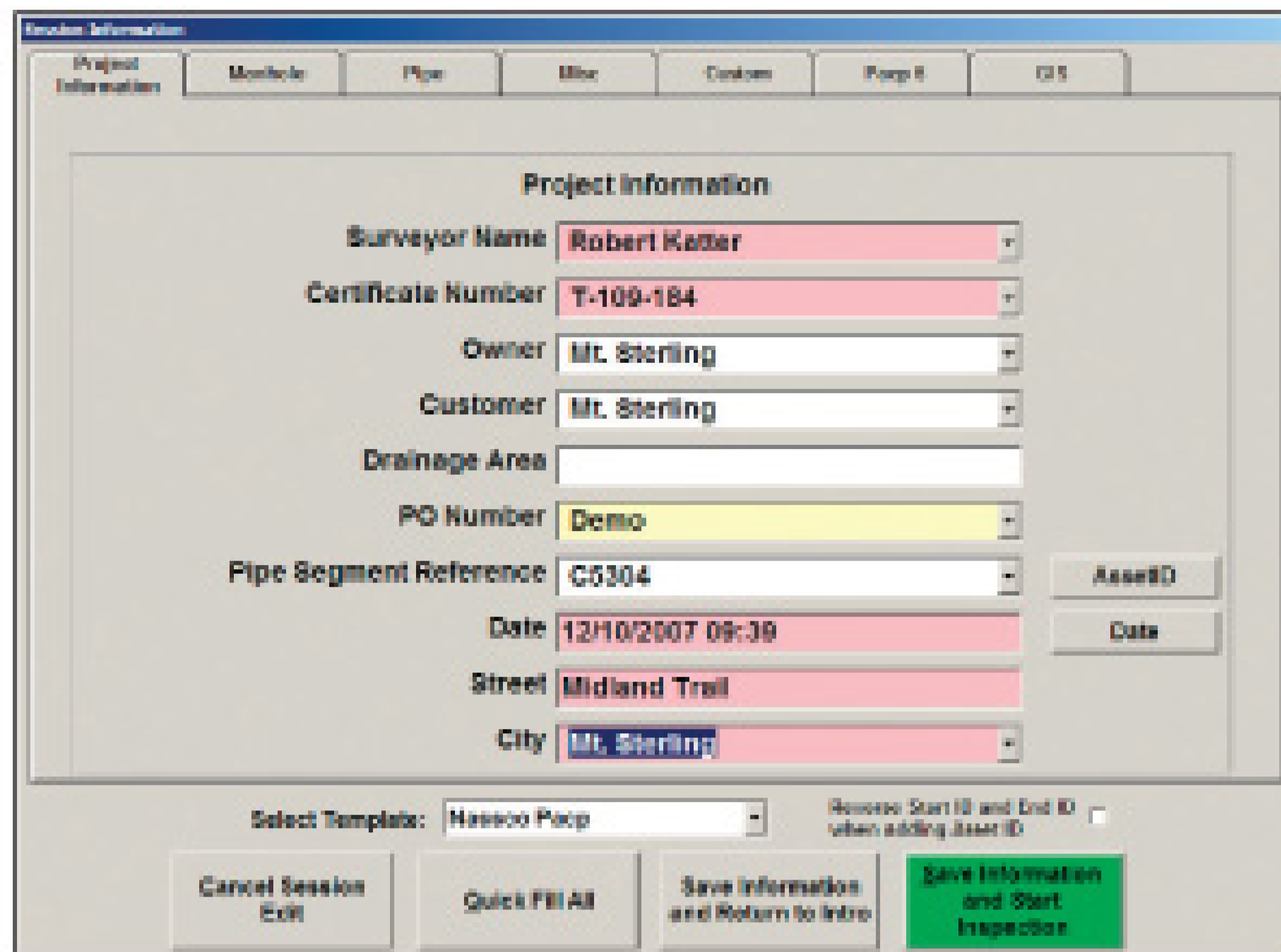


Figure 3: In the Header Page, users can choose a template and enter the information about the line segment they are starting. All 150 fields are determined based on the template designed in the Database Template Editor. A template can be very simple or can have up to 15 tabs filled with 10 fields per page.

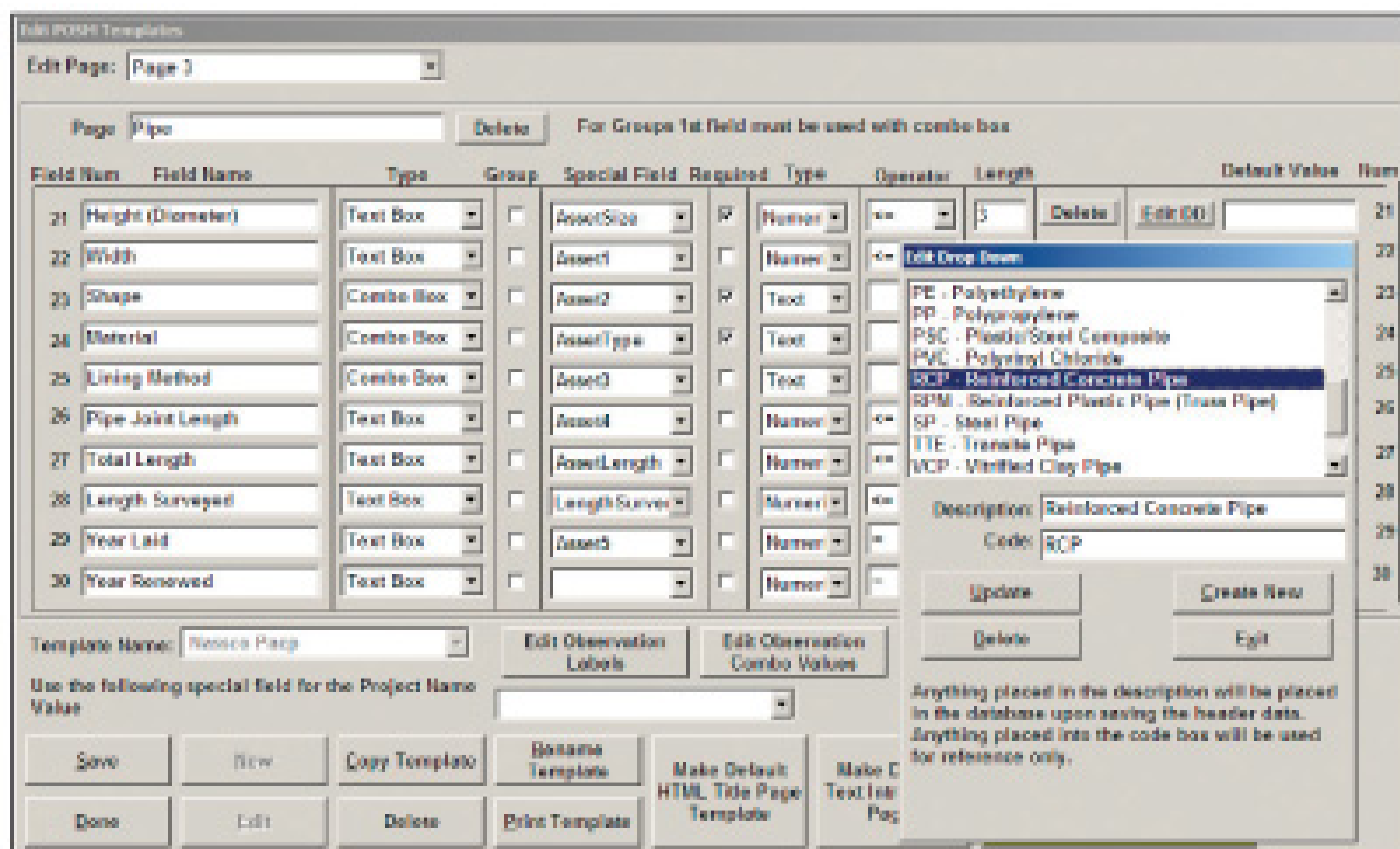


Figure 4: A database template editor allows users to create and modify POSM header templates. In this screen shot, the user is editing a drop-down combo box for one of the possible 150 header fields. In the database template editor, the user can modify field names, define field types: text box, combo (drop-down) box, or checkbox; field properties, drop-down values, and default values.

usage. On-screen buttons and labels are color-coded (for example, green typically signifies the button that starts an operation; red buttons stop operations). Pink database fields denote required information. Font sizes are maximized for readability.

Users can create their own observation codes, use standard PACP codes, or customize the PACP coding requirements using an Observation Code Editor function (Figure 1). For example, users can change the weightings of defect type and severity that are used to determine overall pipe condition scores. The software walks users through the coding process and will not allow improper

data to be entered.

CD/DVD burning is fully integrated. POSM generates inspection reports as html files, which means staff members who receive disks with inspection data can view the files by way of a web browser without having to install the POSM software. Files can be viewed regardless of computer platform (Mac or PC).

The system supports inspection devices configured for laser joint and crack measurement, and for inclination profiling. It easily imports data from and exports data to geographic information systems (GIS).

Operation

Katter began the online demon-

POSM software works with virtually any manufacturer's CCTV cameras. The software gives users complete flexibility to customize databases. Users can tailor some 150 data fields and so support not just pipe and manhole inspections but wet-well inspections, valve testing, smoke testing, and a many other functions.

stration by opening the main (Intro) screen (Figure 2). The upper left of this screen displays a list of older inspection sessions, any of which can be mouse-clicked to pull up reports.

Katter then clicked a green Start New Session button, revealing a Header Page (Figure 3) with fields for entering pipe data. He selected the PACP database from a drop-down menu, then pointed out the pink-colored fields for required data and the pull-down menus for entering various pipe attributes. He demonstrated the customization of data fields using a Database Template Editor (Figure 4), then showed how fields can be quick-filled by linking to pipe data from a GIS.

He started the inspection session by clicking a Save Inspection

button. At this point, if any header data were entered improperly, the system would highlight the error and direct the user to go back and enter the correct information.

At the start of the inspection a Main Observation Data Page (Figure 5) appeared. (The startup automatically turns on an mpeg encoder if the data is being saved to a disk, or starts the VCR if the session is being taped.) The upper left of the screen displays the camera image along with whatever text information the user has chosen.

"Some users only want to display only minimal information, such as distance and defects," says Katter. "Others list that plus project name, pipe data, manhole numbers, and complete observation codes. It's all up to the user's preferences."

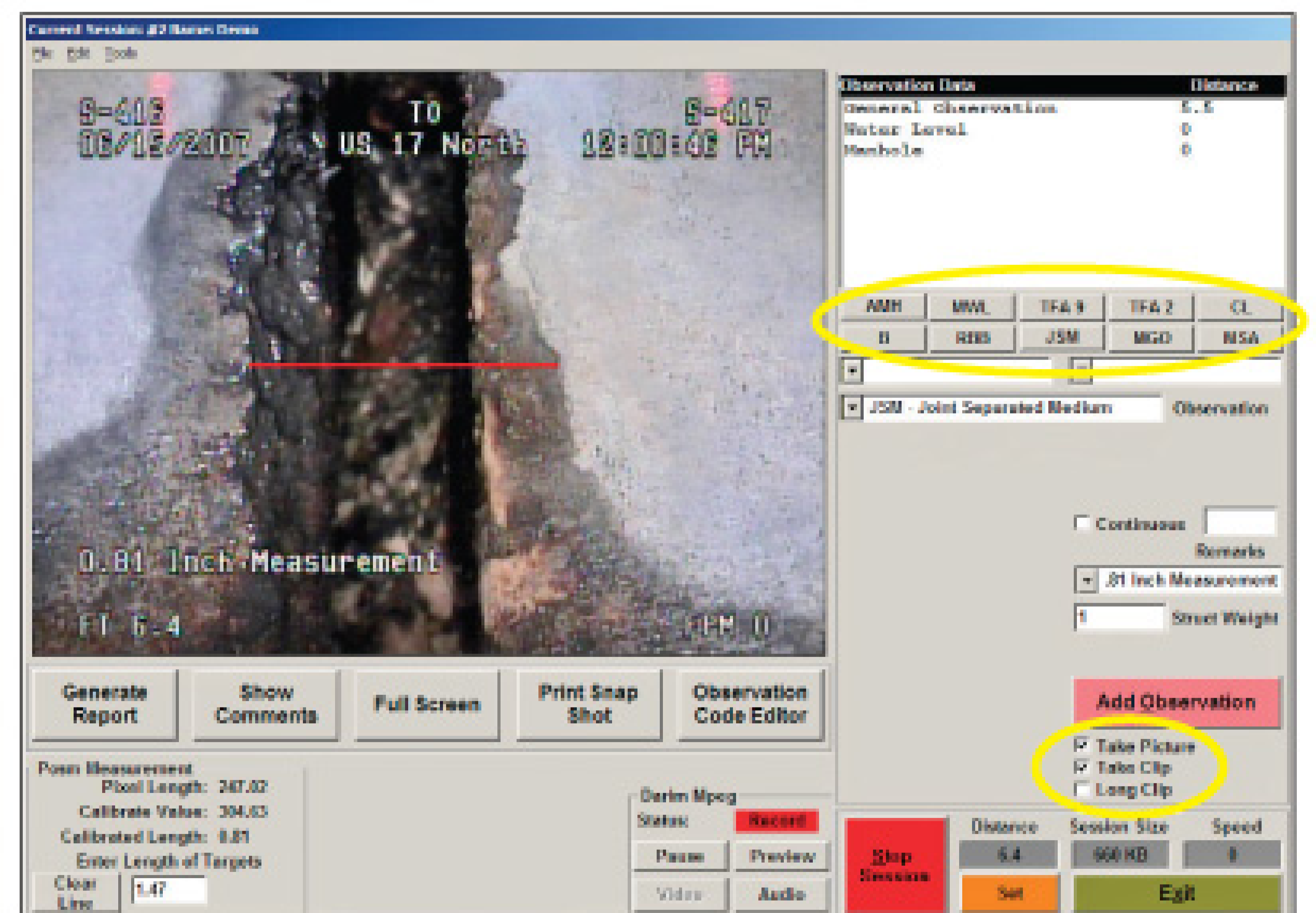


Figure 5: The POSM main data entry page is shown with POSM Measurement Utility and Darim mpeg controls enabled. The red horizontal line in the image shows a user setting up for a joint measurement observation with a laser device. "Hot buttons" (upper right of screen) are used to locate observation codes quickly. Checkboxes (lower right) instruct the software to take pictures or video clips of observations to include in the report.

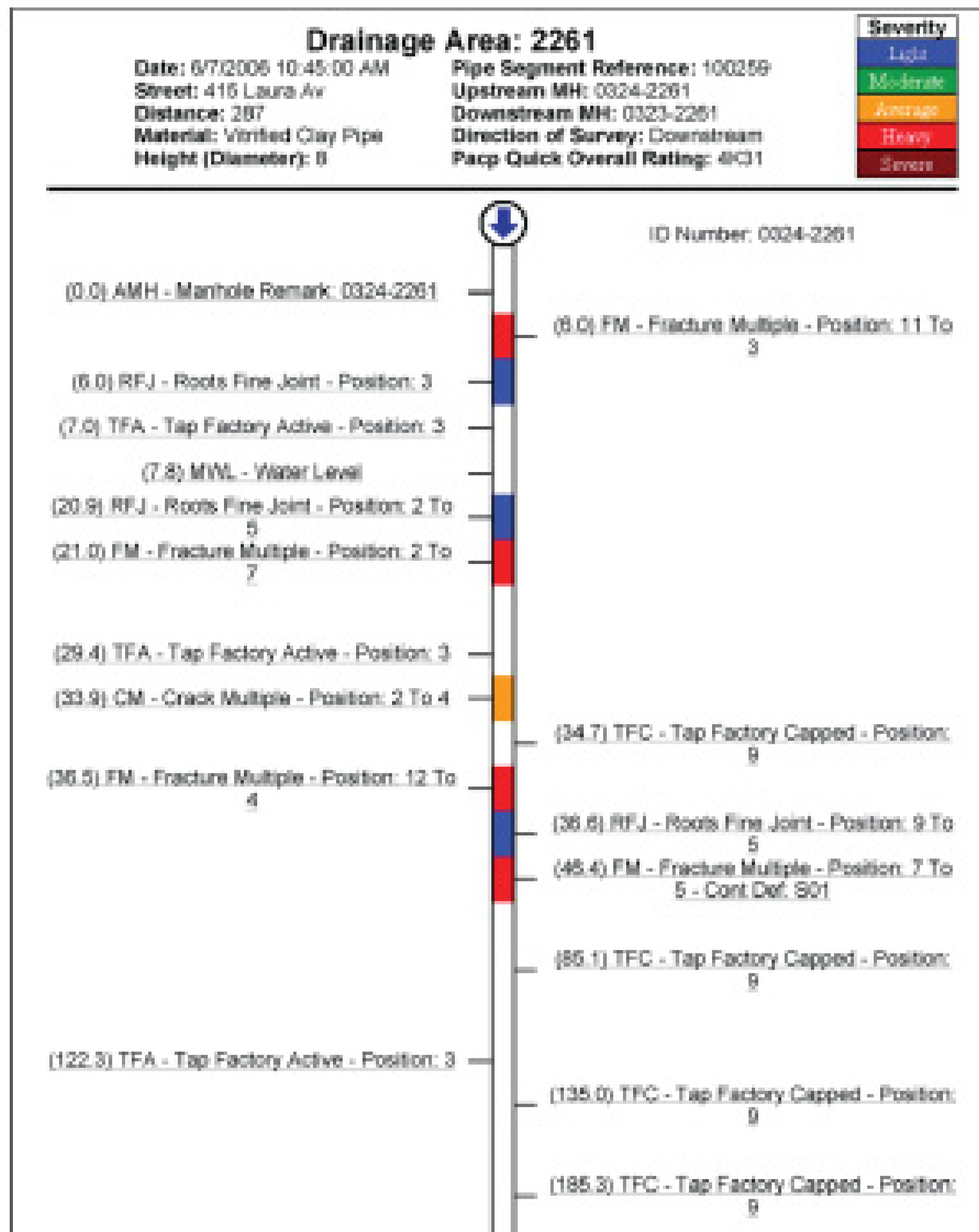


Figure 6: A POSM plot report shows a NASSCO PACP run with severities color-coded for easy viewing of defects. A custom header has been set up, adding the overall PACP score to the header.

The observation screen includes a set of 10 "hot buttons" that help users locate observation codes from more than 190 in the PACP system. Katter showed how the buttons are assigned to frequently used codes or groups of codes to simplify the process of locating codes in the drop-down list.

For entering observations, Katter showed how users can click checkboxes to instruct the system to take a picture, mini-video clip or long video clip to accompany the report.

Among presentations of survey data in the software is a Plot Report (Figure 6) — a graphical view of the pipe as if seen from directly above. Defects are listed in their proper locations and are color-coded according to severity. A click on any defect brings up the pictures and video clips recorded by the camera operator.

After finishing the session, Katter moved to a Session Management screen to demonstrate integrated CD/DVD burning. From a

list of pipe inspection runs, he clicked to select specific runs to be burned. He then clicked a Record CD/DVD button, inserted a disk, and clicked Write Disk. Another feature lets the user print a jewel case cover that lists the inspections recorded on the disk.

Finished reports include pages (Figure 7) that show pictures of pipe defects along with descriptive data. Report data can be exported to a Microsoft Excel spreadsheet for sorting according to a variety of criteria. For example, pipes in a report can be sorted by PACP score so that technicians can easily identify those that have the most serious defects and need priority attention.

In the office, engineers and technicians can play back the recording or scan through the inspection at up to four times actual speed. An observer who notices a defect that the camera technician failed to mark can pause the video, add the observation, and add a picture or video clip to the report.

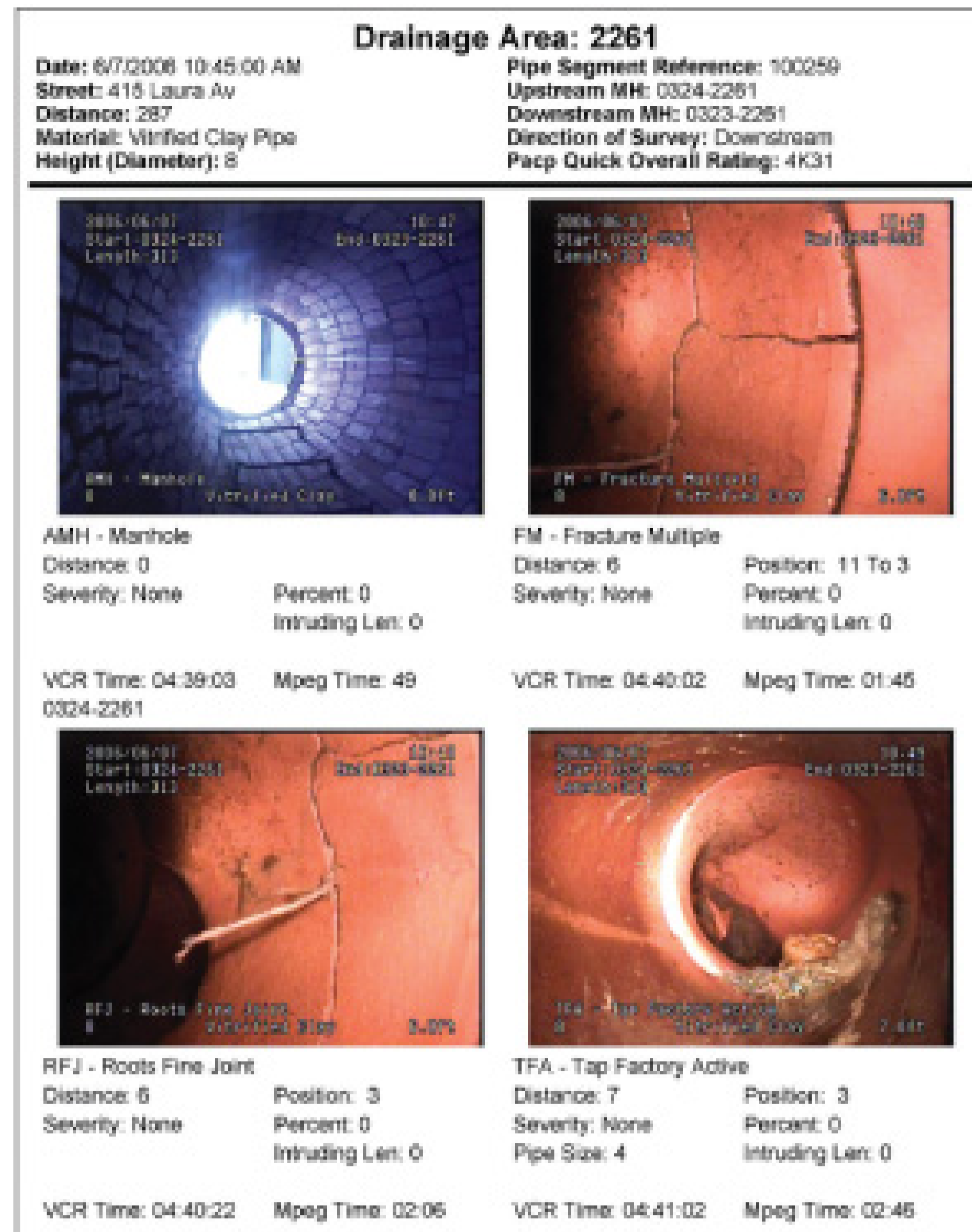


Figure 7: An observation report shows a page with side-by-side images and observation data.

Observer comments

POSM software appears to offer high flexibility for recording the results of numerous types of infrastructure inspection. It gives users a wide range of options not only for gathering and configuring data but for accessing and viewing inspection reports.

The html report format facilitates the sharing of information among staff members. So does an RS Technical Services policy of granting unlimited software licenses for viewing and editing reports in the office. The company charges only for licenses used for data recording in the field.

The color-coded plot view of pipes, while not entirely unique in the industry, gives staff members an easy way to assess the condition of a pipe and to identify the most serious defects for quick examination.

While database and defect code customization options are extensive and would appear to require time and training to master, the tailoring functions

demonstrated seemed simple and largely intuitive.

Manufacturer comments

Katter observes that POSM software has been on the market for seven years and has evolved based on the observations of customers in the field. "We spend a lot of time with customers, getting their input and watching how they use the program," he says.

The program is typically sold in a hardware/software package with a three-year support program. This approach ensures that customers run the system on robust hardware that has been thoroughly tested and proven. "We provide high-end computer systems designed for in-the-field environments," Katter says. "We now use laptop hard drives that take more shock than a standard desktop hard drive. Two of these drives are used in a RAID 1 mirroring configuration for greater data protection."

The support package includes onsite replacement of major components such as hard drives, motherboard and video card. Customers have the option to send hardware to RS Technical Services offices in California or Kentucky for repair.

The company also offers online remote support, in which a technician can log onto the user's system in the camera truck via an Internet connection, observe operations, answer questions, diagnose issues, check out hardware, and often make immediate fixes, such as template repairs and modifications. "It enables us in many cases to get customers back up and running in 30 minutes, rather than the day or two it takes to send a technician or ship computer components out and back," Katter says. ♦

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- 12:00 - 1:00 Lunch Break
- 1:00 - 1:30 Starting Up and Running a Portable Sanitation Business Successfully
- 1:30 - 2:30 How to Read, Understand and Use Financial Statements to Help You Build Your Business
- 3:00 - 4:00 Leadership and People Focus
- 4:30 - 5:00 Building Your Business Wrap Up

ROOM B101 & B102

NAWT National Association of Wastewater Transporters

- 8:00 - 9:00 Responsible Management Entities
- 9:30 - 10:30 Experts Review of ATU Operation & Maintenance
- 11:00 - 12:00 A Visionary Review of the Agricultural Utilization of Septage
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Why a Municipality Opens a Septic Treatment Facility
- 2:30 - 3:30 When is Septage Really Septage?
- 4:00 - 5:00 How to Survive and EPA Audit

ROOM C105 - 108

NEHA National Environmental Health Association

- 8:00 - 9:00 Point of Sale Inspection
- 9:30 - 10:30 Becoming a Certified Installer
- 11:00 - 12:00 Working With Performance Based Codes
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Using Onsite Technology to Build Cost Effective Community Sewage Systems in Subdivisions
- 2:30 - 3:30 Management Guidelines, Model Codes, National Credential and You
- 4:00 - 5:00 Inches of Mercury and Feet of Bury

ROOM C203

SSGSC Southern Section Collection Systems Committee

- 8:00 - 9:00 Line Cleaning & Nozzle Selection
- 9:30 - 10:30 CCTV Nuts & Bolts
- 11:00 - 12:00 Building A Strong CCTV Inspection Program
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Pipeline Relining and Rehabilitation
- 2:30 - 3:30 Finding Your Way With As - Built Drawings
- 4:00 - 5:00 Confined Space "The Real World"

ROOM B103 & B104

NOWRA National Onsite Wastewater Recycling Association

- 8:00 - 9:00 Introduction Site Evaluation
- 9:30 - 10:30 Introduction to Soils
- 11:00 - 12:00 Water Movement & Treatment in Soils
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 System Design Related to Soil & Site Conditions
- 2:30 - 3:30 Systems Design Process Related to Soils and Site
- 4:00 - 5:00 Post Construction Site Evaluation

Continuing Education Credits

You may be able to earn continuing education credits by attending specified seminars at the Pumper & Cleaner Expo

Upon completion of a specific education session, you will receive a certificate of attendance. Many of these seminars count as educational credits toward your required continuing education. Check with your county or state officials for details.

For detailed information about all the educational seminars visit www.pumpershow.com

ROOM C204 C205

WJTA - PSAI - CBSA WaterJet Technology Association Portable Sanitation Association, Int. Cross Bore Safety Association

- 8:00 - 9:00 Intro to High Pressure Waterblasting (WJTA)
- 9:30 - 10:30 Safety - High Pressure Waterblasting (WJTA)
- 11:00 - 12:00 Information on Industrial Vacuum Process (WJTA)
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Procedural Breakdown for Special Events (PSAI)
- 2:30 - 3:30 Procedural Breakdown for Special Events Cont.
- 4:00 - 5:00 Cross Bores - CBSA (Cross Bore Safety Assoc.)

ROOM B105

NASSCO National Association of Sewer Service Companies

- 8:00 - 9:00 PACP / MACP / LACP
- 9:30 - 10:30 Laser Profiling, Joint & Crack Measurement in Sewers and Stormwater Drains
- 11:00 - 12:00 Sewer Main Cleaning - Best Practices
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Temporary Diversion Systems - Reliability
- 2:30 - 3:30 Replacing Aging Infrastructure - Pipe Bursting
- 4:00 - 5:00 Water Main Renewal Overview - Using Trenchless Technology

Visit www.pumpershow.com for more info.



Louisville

2008

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Thursday

February 28th, 2008

ROOM C201 & C202 GENERAL BUSINESS TRACK

- 8:00 - 9:00 LENZYME - There is a Secret, Discover It
- 9:30 - 10:30 CLEAR COMPUTING - Increasing Profits
- 11:00 - 12:00 ACORP/ROOTERMAN - How To Develop an Employee Training Program

ROOM C203 INDUSTRIAL TRACK

- 8:00 - 9:00 PATS PUMP & BLOWER - Blower Trouble Shooting & Repair
- 9:30 - 10:30 STONEAGE - Waterblasting Applications and Solutions
- 11:00 - 12:00 GAPVAX - Job Based Selection of Vacuum Truck Options for Industrial Applications

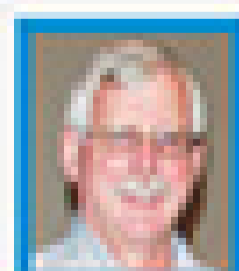
ROOM C204 & C205 INSTALLER TRACK

- 8:00 - 9:00 SAFETY CORP. OF AMERICA - Safety in Excavation
- 9:30 - 10:30 ORENCO SYSTEMS, INC. - Water Softener Effects on Onsite Wastewater Systems
- 11:00 - 12:00 SOIL SURGEON - Hydro-Excavation Safety and Procedures

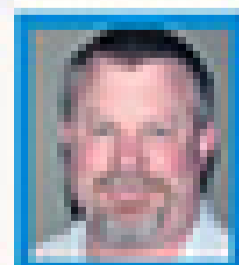
ROOM B101 & B102 Certified Onsite Installer Course



Thursday - 8 a.m. - 5 p.m.
All Day Course



Jim Anderson & Dave Gustafson
University of Minnesota



Friday

February 29th, 2008

ROOM C201 & C202 MUNICIPAL TRACK

- 8:00 - 9:00 PIPE GENIE - Pipe Bursting & Pipe Splitting
- 9:30 - 10:30 HURCO TECH - Smoke Testing Sewer Mains and Plumbing Systems
- 11:00 - 12:00 GODWIN PUMPS - Temporary Diversion Systems - Reliability is Everything

ROOM C203 PORTABLE RESTROOM TRACK

- 8:00 - 9:00 HAMPEL - Building a Portable Restroom Business
- 9:30 - 10:30 AMERI-CAN ENGINEERING - Building Profits with Restroom & Shower Trailers
- 11:00 - 12:00 SATELLITE - Maintaining the Modern Pump Truck

ROOM C204 & C205 LIQUID WASTE TRACK

- 8:00 - 9:00 AMTHOR - How to Choose Vacuum Tank, Chasis and Pump Configurations
- 9:30 - 10:30 RABCO SALES - Gas Detection in Confined Spaces
- 11:00 - 12:00 ONE BIOTECHNOLOGY - Profitable Grease Trap Service

ROOM B101 & B102 SEWER & DRAIN CLEANING TRACK

- 8:00 - 9:00 MR. ROOTER - Taking Your Business From Good to Great
- 9:30 - 10:30 SEWER EQUIPMENT CO. OF AMERICA - Equipment Needs to Grow Your Business
- 11:00 - 12:00 ALLAN J. COLEMAN - An Overview of Sewer & Drain Cleaning Equipment

ROOM C203 MISCELLANEOUS TRACK

- 8:00 - 9:00 NSF INTERNATIONAL - Septic Tank & Grease Trap Solid & Liquid Separating Devices
- 9:30 - 10:30 ENVIROSIGHT - Visual Sidewall Scanning: Streamlining Collection & Analysis of Inspection Data
- 11:00 - 12:00 PHILADELPHIA FRO-O-DIESEL - Trap Grease



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Restaurant Row — A Diner's Delight On Bardstown Road

Just minutes from downtown Louisville, Bardstown Road has been known as "restaurant row." Since the 1980s, the street has been home to an unusual number of eclectic eateries, from four-star fine dining with locally grown ingredients to casual cafes offering world cuisine.

Bardstown Road includes several of the unique, locally owned restaurants called the Louisville Originals. Among the popular stops on "restaurant row" are Tumbleweed Southwest Grille for great steaks, ribs and award-winning Mexican

fare; and Cumberland Brews, the city's only true brew pub.

Empress of China features Mandarin, Szechuan, and Hunan dishes. Diners can enjoy live jazz with dinner at Jack Fry's, an upscale American bistro. For sushi, visitors favor Sapporo Japanese Grill & Sushi.

For more world cuisine, there is Seviche, a Latin restaurant; and Asiatique, with delicacies from the Pacific Rim. Many bistros serve fresh American cuisine, and bar-and-grill stops offer regional food. Dining isn't the only attraction on Bardstown: There are galleries, antique stores and boutiques, as well as night life, with a comedy club, foreign films and nightclubs with live music and dancing.

DELICACY: Mint Julep

The mint julep is as familiar to Louisville as the Kentucky Derby. This popular bourbon drink is a local tradition, especially at the Derby. It is made

with smooth, velvety bourbon, fresh mint leaves, sugar, a dash of water, and crushed ice. In true Southern style, mint juleps are often served ready to sip in frosted silver goblets.

DINING: Lilly's

A culinary star on Bardstown Road is Lilly's Restaurant, which a reviewer called "the most influential and celebrated Louisville restaurant of the past decade." Lilly's celebrates regional produce — the menu states, "God Bless Our Local Farmers."

Entrees include French-inspired items that use traditional Kentucky ingredients. The menu

changes seasonally with offerings such as Kentucky rib pork chop and sweet potato prosciutto hash on fall greens with apple brandy sauce; seared sea scallops and hazelnut acorn squash gratin with sautéed spinach, and duck two ways — seared duck breast with homemade duck sausage on persimmon sage bread pudding. Lilly's has a large wine and bourbon collection and decadent desserts. Visit www.lillyslapeche.com.

SHOPPING: Frankfort Avenue and F.A.T. Trolley

This historic Frankfort Avenue neighborhood offers upscale consignment shops, vintage clothing, outdoor gear, imported crafts, home furnishings, boutiques, books and antiques, along with art

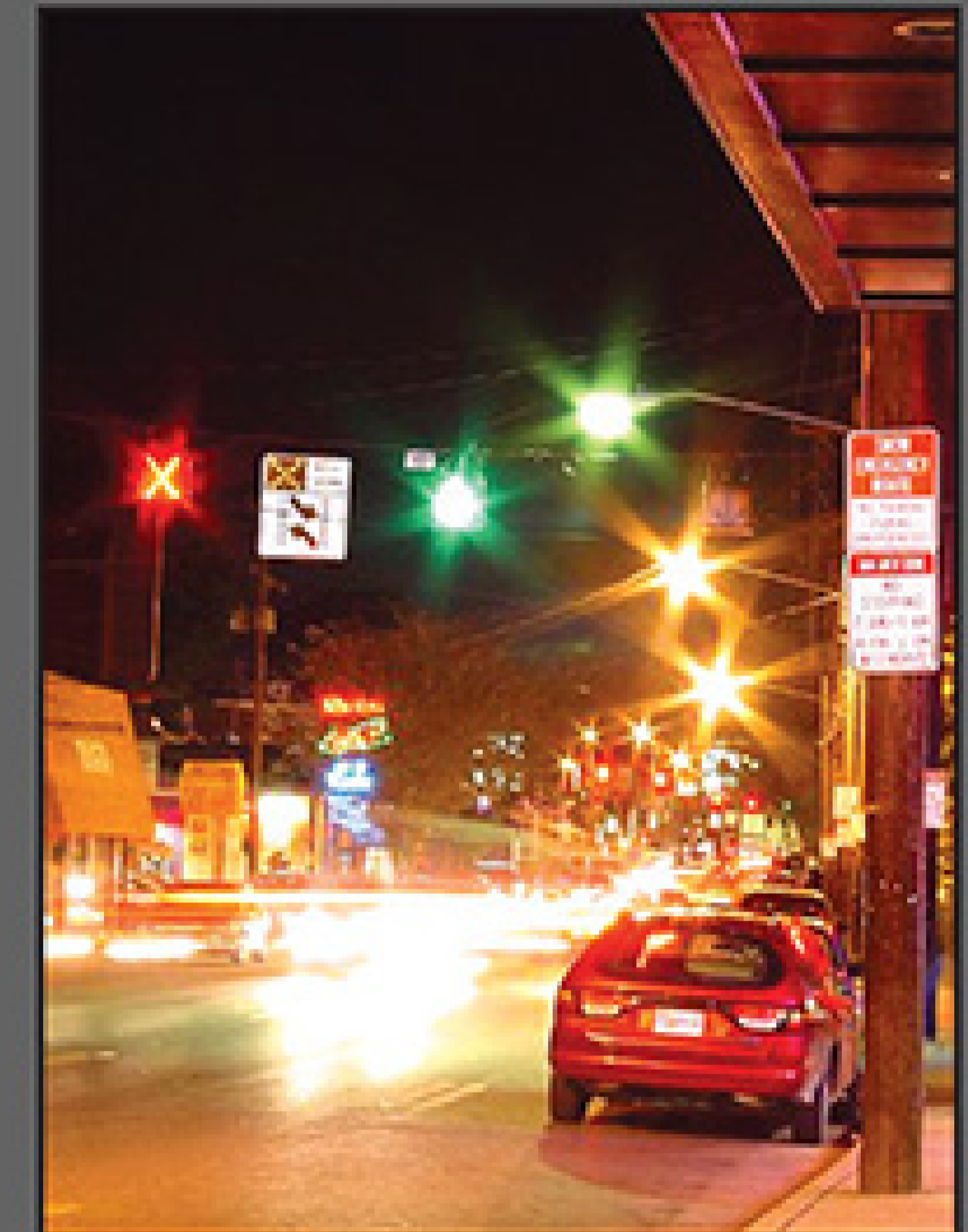
studios and galleries. Coffee shops and wine and bourbon bars provide refreshments. The street also includes more Louisville Originals restaurants.

The F.A.T. Friday Trolley takes visitors to the avenue on the last Friday of each month, running from designated stops. Expo visitors can ride the trolley on Friday, Feb. 29. Visit www.frankfortave.com and www.fatfridayhop.org

ARTS & ENTERTAINMENT: Fourth Street Live

A top Louisville attraction, the Fourth Street Live entertainment district waits a short walk from downtown hotels. It includes national and regional restaurants, stores, nightclubs and live music in an

open-air pavilion. Attractions include Lucky Strikes Lanes (an upscale bowling alley), Howl At the Moon (a sing-a-long dueling piano bar), Sully's Restaurant & Saloon (a cozy Irish-inspired pub), Saddle Ridge (rock-n-roll and country music), J. Gumbo's (Cajun food and brews) and Maker's Mark Bourbon House & Lounge (Kentucky bourbon and fine cuisine. Visit www.4thstlive.com.



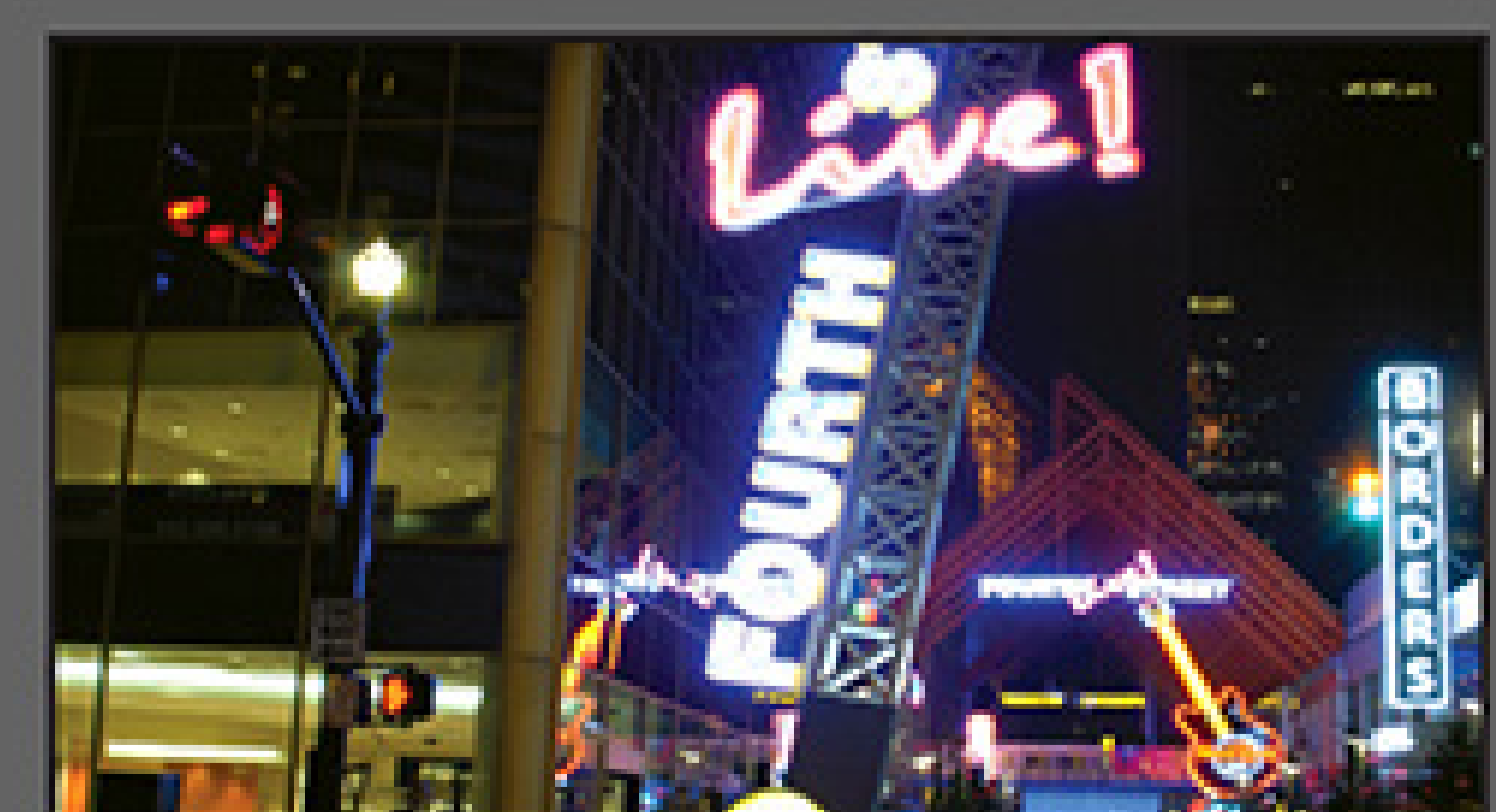
Bardstown Road



Mint Julep



Lilly's Restaurant



4th Street Live

Product Spotlight

Laser Beam Marks the Spot of Non-Metallic Pipes

By Ken Wysocky

Even with the advent of sophisticated technology, locating PVC pipes and other non-metallic objects remains a vexing problem. The Innspector 07 from SubSurface Instruments Inc. takes aim with a lightweight, hand-held locator that detects buried lines and objects made of virtually anything — clay, metal, plastic or concrete.

“The Innspector 07 can detect all the things that you currently can’t find underground with other instruments, up to a depth of 10 to 12 feet,” explains Ron Davenport, company president. “Before this, only lines with a metal jacket or installed with tracer lines were detectable.”

Designed for portability, the one-piece, self-contained instrument weighs 2.8 pounds and uses four alkaline C batteries that fit in the handle. The unit is 15 inches wide and tapers to 8 inches, and is 1 1/2 inches thick, tapering to a half inch.

“Locators usually require at least two pieces of equipment, a heavy transmitter and a handheld receiver, plus cables,” Davenport says. “With the Innspector 07, you just pull it out of the case, turn it on and go locate. There is no setup or calibration.”

The device indicates the locations of buried items with a green laser beam pointer. “It’s similar to ground penetrating radar or a stud finder, in that it sends out multiple signals and processes them in real-time, but it isn’t GPR,” Davenport explains. To use it, the operator approaches the general area where the pipe or line is buried.

“Most times, they know about where it is, but they can’t pinpoint it to save their lives,” Davenport notes. The operator points the locator toward the far side of the pipe’s general location, then brings it forward, “like you’re slicing the pipe,” Davenport says. When the instrument discerns the edges of the pipe, two LEDs on the operator’s panel come on, indicating a target lock.

“When it locks onto the target, the locator shines a laser light on the exact location, which can then be marked,” Davenport says. “The operator can confirm it by stepping to the right or left and repeating the process. All the operator has to do is be careful and use common sense, because the unit detects everything that’s buried there.”

For information: 920/347-1788; www.ssilocators.com; Expo booth 160. **75**



Innspector 07 from SubSurface Instruments Inc.

Mr. Manhole Releases Water, Gas Valve Removal Tool

Mounted on a skid-steer, the Mr. Valve tool system from Mr. Manhole is designed to quickly remove and replace water and gas valves.

For more information: 419/229-3015; www.mrmanhole.com; Expo booth 15007.



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Water Cannon Introduces Wet Sand Blasting System

The Wet Sand Blasting System from Water Cannon is designed to remove surface contamination, including rust, scale, loose paint, barnacles and debris. Available with pressures up to 6,000 psi and flow rates up to 8 gpm, the system connects to a commercial pressure washer wand, drawing sand through a 25-foot reinforced feed hose at a rate of 12 pounds per minute. The unit also works with



15

dry media, such as glass beads, walnut shells, baking soda, black beauty and a full array of synthetic or natural products from 16 to 60 grit. For more information: 800/333-9274; www.watercannon.com.

QuickView Camera Offers Wireless Recording Option

The QuickView pipeline zoom camera from Envirosight LLC can now wirelessly transmit real-time inspection footage to any truck-mounted video monitor or recorder. The option provides remote viewing during inspection, multiple viewers, and the collection of easement inspection video directly into data collection software. Equipment consists of a compact transmitter that is part of the QuickView operator vest, and a receiver that connects to a remote viewing or recording device. Video can be transmitted up to 1,000 feet line-of-sight (300 feet otherwise), using one of eight user-selectable channels in the 5.725-5.875 GHz range. For more information: 973/252-6700; www.envirosight.com; Expo booth 1130.



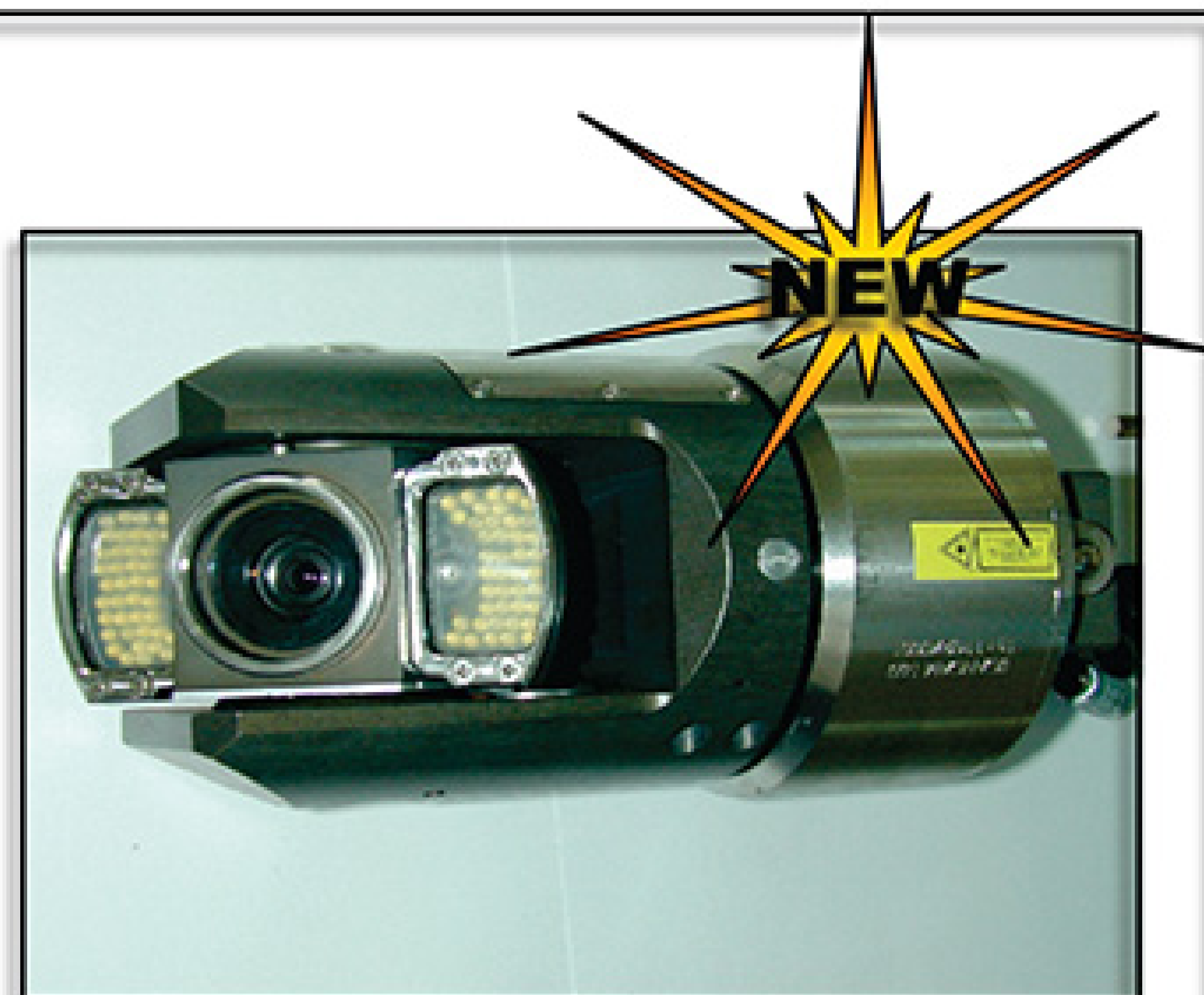
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Adjustable steel manhole rings simplify the process of bringing manholes back to grade after street re-paving.

UP TO GRADE

Adjustable manhole risers enable a Missouri utility to streamline its paving operation

By Angus W. Stocking, L.S.

Art Reel, street superintendent St. Louis, Mo., is responsible for more than a million square yards of pavement. His division used to pave over manholes, leaving the water and sewer departments to dig them up if they wanted them back in service.

Their crews, however, sometimes cut in around the lid, leaving a pothole. The labor-intensive alternative for the Asphalt Paving and Maintenance Division was to jackhammer, then raise the frame using three-section risers.

"We had to seat all three segments just right and adjust them individually or they wouldn't seal," says Reel. "It was a real pain." In 2001, he saw a demonstration of a manhole protector ring and riser

that saved his division time and the city money.

Quick and powerful

Made by American Highway Products in Bolivar, Ohio, the steel manhole ring and riser eliminate jackhammers, excavation, bricklaying, and new cement when bringing manhole covers to grade after paving. The cover fits snugly into the new riser, preventing inflow and infiltration.

The custom-made risers come in five sizes, but even that doesn't guarantee a snug fit, as existing frames can wear unevenly or be out of round. Installers therefore use an expanding and contracting turnbuckle that pivots at both ends to ensure freedom of motion throughout the 1 3/8-inch adjustment. The

BETTER MOUSETRAPS

PRODUCT:
Manhole riser ring

APPLICATION:
Brings manhole covers to grade or returns paved-over manholes to service

BENEFITS:
Cost effective, installs in 10 minutes

USER:
City of St. Louis (Mo.)
Street Division

MANUFACTURER:
American Highway Products

CONTACT:
888/272-2397; www.ahp1.com

"Installation is pretty self-explanatory. The risers are real sturdy, too. We haven't had a single problem since we began using them seven years ago, and we install 2,000 annually."

Art Reel

pivoting motion provides a plus or minus 1/2-inch diameter variation.

Using a Phillips head screwdriver — the only tool needed — as a lever, installers rotate the turnbuckle until the riser engages the full circumference of the hole.

New game plan

After testing some risers, Reel

instituted a policy to install them as paving is done to keep manholes in service. "The commissioner and I worked out a deal with the sewer and water divisions to do this work on their behalf, and they reimburse us," says Reel.

Manhole diameters are fairly constant, enabling Reel to stock several hundred 1- to 4-inch risers (2 inches is the most common). One city employee does nothing but install them, usually one in

about 10 minutes. "Installation is pretty self-explanatory," says Reel. "The risers are real sturdy, too. We haven't had a single problem since we began using them seven years ago, and we install 2,000 annually."

The Street Division is using the risers to systematically return paved-over manholes to service and bring low manholes to grade. "Citizens call in about potholes, but not everything is a pothole," Reel explains. "Our patch guy carries risers now, and sometimes that's all it takes." ■



The rings are easily adjustable to fit each specific manhole's circumference.

MORE INFO:

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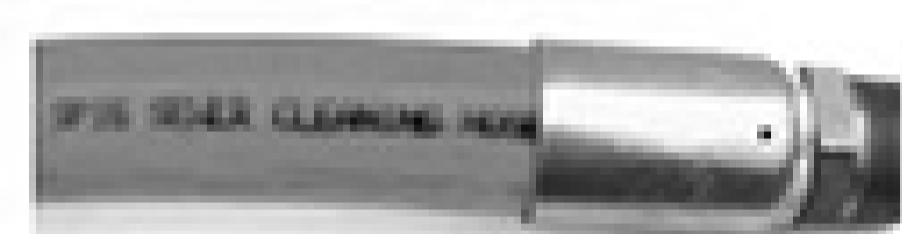
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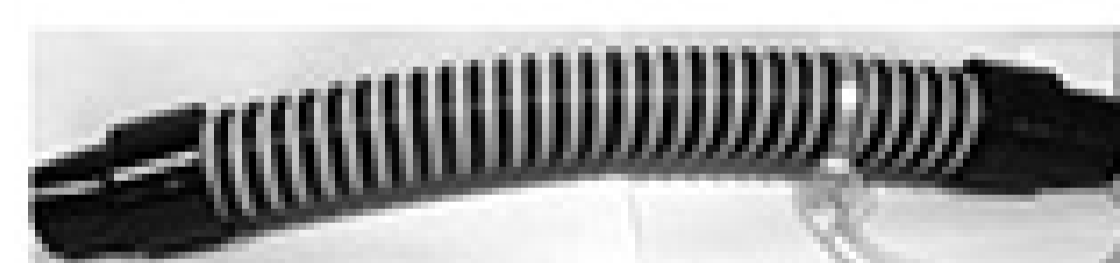
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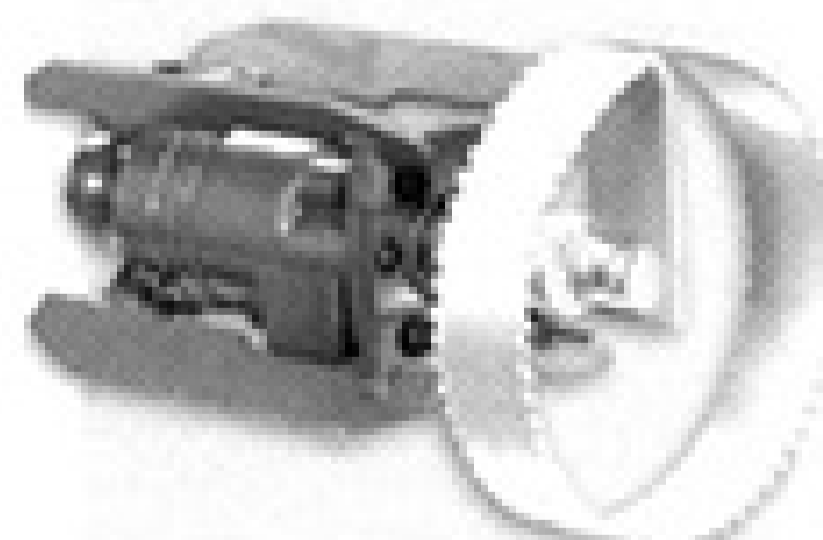
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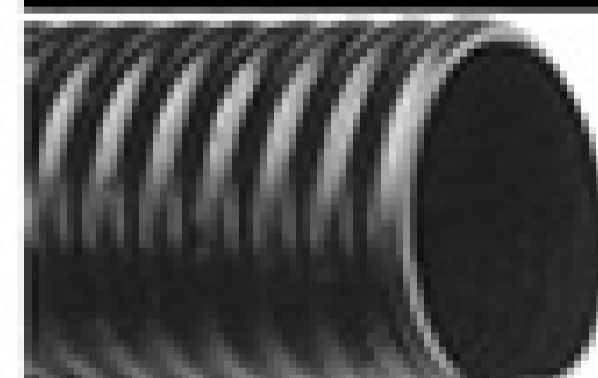
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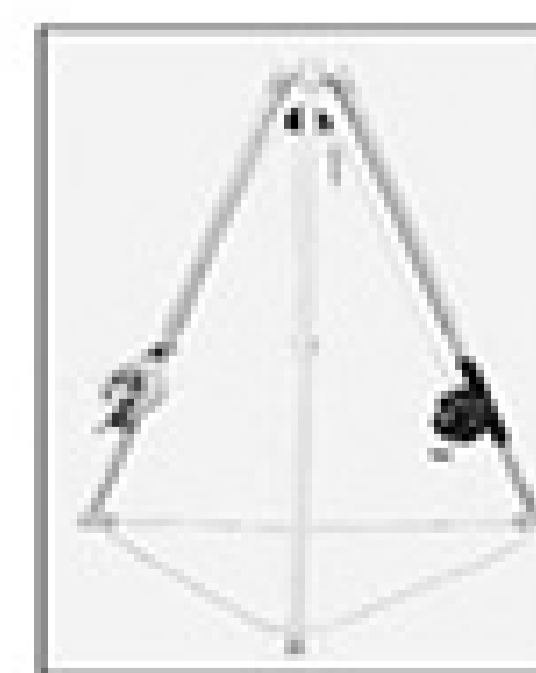
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We invite readers to offer ideas for this regular column, designed to help municipal and utility managers deal with day-to-day people issues like motivation, team building, recognition and interpersonal relationships. Feel free to share your secrets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

LOOKING YOUNGER

The City of Tempe finds success in recruiting younger workers to help fill the void being left by a stream of early retirements

By Ken Wysocky

Jessica Williams considers herself a typical college student. A senior at Arizona State University who hails from nearby Glendale, she enjoys attending Sun Devils football and basketball games, taking part in student government and listening to music.

In one respect, however, she's relatively unusual: She's firmly committed to working in the public sector. "I always pictured myself becoming an attorney and working at a private law firm," explains Williams, who has been an intern for two years in the Public Works department in Tempe. "But after I started working here, I realized I still wanted to be an attorney — not at a private firm, but for the City of Tempe.

"The benefits are great, and the city does a lot of things to recognize employees and make them feel at home. They recruit internally to fill job openings before they look outside, which is a big plus. And training programs are available that can prepare you for a lot of different jobs. It's an environment I definitely want to remain a part of."

Attracting the young

Williams' about-face represents a success story for a Public Works department initiative aimed at attracting and retaining younger employees. It also offers a valuable lesson to municipal governments nationwide that, like Tempe, are challenged to fill the void being



Left photo: Jessica Williams (left) and Nici Baca, interns with the Public Works department in the City of Tempe, Ariz. Right photo: Jennifer Adams, deputy Public Works manager.

left by long-time employees taking enticing early-retirement packages.

An estimated 40 percent of the more than 12 million state and local government employees nationwide will be eligible for retirement through 2015, according to the Nationwide Retirement Education Institute. Tempe is a microcosm, notes Jennifer Adams, deputy Public Works manager and an 18-year city employee.

"We're facing an enormous amount of retirements," says Adams, who helped spearhead a recruitment outreach committee that developed Tempe's program, a joint effort with the police and fire departments.

"About 30 percent of our roughly 1,750 city employees are eligible to retire in the next five

"The benefits are great, and the city does a lot of things to recognize employees and make them feel at home. They recruit internally to fill job openings before they look outside, which is a big plus."

Jessica Williams

years," she points out. "We decided to be proactive and plan for the situation."

One of the biggest challenges is attracting today's younger workers, who don't necessarily view the public sector as an attractive career opportunity.

Moreover, the U.S. Bureau of Labor predicts that on average, a 22-year-old employee will likely hold 10 different jobs during their career, with an average tenure of only four years per job. "If the job isn't something they like, they

leave," Adams observes. A shrinking labor pool and plentiful jobs make younger people an even more valuable commodity, and that encourages more job-hopping.

Personal touch

So what does Tempe's Public Works department do to woo the younger generation? It all starts with a drastic shift in recruiting methods. "It used to be we didn't recruit at all," Adams says. "We'd run a newspaper ad and get more than enough applications to

fill a position.”

About three years ago, city officials noticed that fewer and fewer people were applying. Agreeing that a newspaper ad was no longer sufficient, the outreach committee decided the Internet was a way to reach out to the younger set.

“Now we advertise jobs on more than 50 Web sites — everything from craigslist to the Maricopa County Community College District, to the American Society of Civil Engineers, to www.jobing.com,” Adams says.

“I know it’s working because we recently had an opening for a fleet director. Typically, we’d get about 10 or 12 applications, but we got 70 this time. The big difference was that the applicants live all over the country and were a very diverse group. It was very rewarding to see.”

Increased visibility

The committee also decided the city needed a higher profile among young people. So the Public Works department hired two ASU students — including Williams — and made job recruiting one of their primary responsibilities. “They know what’s important to that age group,” Adams says. “They go out to the universities and community colleges and talk about their experience and how much they love it.”

The interns staff a booth at job fairs and attend a wide variety of local events, from ASU homecoming festivities to local bike races and fun runs. “We try to think out of the box,” Adams says. “Tempe holds more events than any other city in the valley, so we try to partner with as many of them as possible.”

When someone stops at the department’s booth for information, the interns take down basic contact information and follow up right away. “Immediate follow-up is important,” says explains. “If you don’t, they’ll just move along to another opportunity. This generation is used to an immediate

response, so the first thing we do is send them an e-mail — use their language, if you will.”

The outreach program even extends to elementary schools. The department sponsors field trips with a municipal bent, such as showing students a new light-rail system under construction in nearby Phoenix. “We want to get them interested in public works at a young age,” Adams says. “We also plan to partner with junior high schools and high schools. We’ll do things like bring in heavy equipment, which they love to see.”

“We create a family atmosphere in Public Works. I have young engineers who get job offers and stay because they have such good friends at work, and Public Works just becomes a part of who they are.”

Jennifer Adams

Emphasis on benefits

During job interviews, officials stress the city’s generous employee benefits, as well as intangibles such as a family atmosphere and the rewards of public service. “If someone is just looking at money, the private sector definitely pays more,” Adams observes. “We have to get them to look past the money — look at the benefits, the job security, and the workplace environment. We point out that it’s not as cutthroat as private-sector jobs. Everyone works together.”

“We also emphasize that we’re public servants. Members of this younger generation feel it’s important to make a difference, and make their community a better place to live.”

The city’s benefits include 14 to 24 vacation days (depending on length of service); 12 paid sick days; 12 paid holidays; health, dental, vision and life insurance; a pension plan; employee training and development programs, and tuition reimbursement.

The department also works to make employees feel welcome. It holds an annual Public Works breakfast where employees can

mingle with co-workers as well as the mayor and city council members. “We have seven divisions, so we’re pretty spread out,” Adams says. “The breakfast gives employees a chance to meet in person people they might normally only talk to over a radio.”

In addition, each division meets monthly to discuss whatever is on employees’ minds. “We like to see how things are going,” Adams explains. “We don’t talk much. We let them do the talking. It’s not us versus them; it’s all part of a team. We want people to

feel they can approach us, and they do.”

The department also sponsors fun events, such as a pumpkin-carving contest at Halloween. “We create a family atmosphere in Public Works,” Adams says. “I have young engineers who get job offers and stay because they have such good friends at work, and Public Works just becomes a part of who they are. It’s really important to us that people like their jobs.”

Continuing education

The city also helps employees advance their educations through a tuition reimbursement program, which offers \$5,000 a year for anyone who takes classes at ASU. Better yet, the professors teach the courses onsite during work hours.

Another perk is a certified public management course. “After you complete the course, you should be able to manage any department in the city,” Adams says. The course includes mock city council meetings to give attendees a taste of local politics.

Employees do not have to use vacation days to attend school — they get paid while they get edu-

cated. “That tells employees that our organization cares about you and your career development,” Adams notes. “It says we’re willing to put time and money into making it happen. If an employee wants to get ahead, there are lots of opportunities. There’s no guarantee that anyone will get promoted, but the opportunities to learn are there.”

“I know it’s successful because out of the nearly 160 employees who have graduated from either the public management course or ASU, only one has left a city job after getting a degree. People feel loyal to the city.”

The department also offers cross-training, which exposes employees to different career opportunities and teaches them new skills. In addition, a mentoring program lets employees benefit from a veteran manager’s knowledge and expertise, Adams adds.

Getting the word out

Williams says many students don’t know about the careers available in the public sector. “It was a real eye-opener for me,” she recalls. “I didn’t realize how many opportunities existed.”

Moreover, misconceptions about municipal jobs abound. “I have friends who are engineers who didn’t know that the Public Works department has an engineering division,” Williams observes. “They thought the city contracted out that work to private-sector companies. Other people think you can only get into a city job if you know someone. But I tell everyone I know about the opportunities that are available.”

Meanwhile, the Public Works recruitment outreach initiative has expanded to include all city departments. Solid support from the mayor and the city council have been critical. “I think we’re staying ahead of the curve,” Adams says.

In turn, that is giving younger people plenty to consider when eyeing careers in the Valley of the Sun. ♦

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1998 Cues TV grout unit, 34,880 miles, color camera, diesel, generator. 972-938-1905. www.empireequip.com. (CPBM)

WATERBLASTING

40K, 20K, 10K, 300 HP CAT, HD trailer mounted, guns, hoses, many other access. **Low hours. 720-379-5840.** (CBM)

MUNICIPAL SEWER & WATER Cleaner Pumper CLASSIFIED AD FORM PRO Onsite installer

Please print ad legibly below with *correct punctuation and phone number*. Circle each word to be bolded, if any. (\$1.00 extra per word)

CHOOSE THE CATEGORY:

- | | | | | | |
|--|---|---|--|---|---|
| <input type="checkbox"/> Aerators | <input type="checkbox"/> Dredges | <input type="checkbox"/> Levels & Transits | <input type="checkbox"/> Positions Wanted | <input type="checkbox"/> Root Control | <input type="checkbox"/> Trailers- Vacuum/Tanker |
| <input type="checkbox"/> Blowers | <input type="checkbox"/> Excavating Attachments | <input type="checkbox"/> Locators | <input type="checkbox"/> Pressure Washers | <input type="checkbox"/> Safety Equipment | <input type="checkbox"/> Trucks (dump/septic/misc.) |
| <input type="checkbox"/> Bucket Machines | <input type="checkbox"/> Excavating Equipment | <input type="checkbox"/> Miscellaneous | <input type="checkbox"/> Pumps-Dredge | <input type="checkbox"/> Septic System Components | <input type="checkbox"/> TV Inspection |
| <input type="checkbox"/> Businesses | <input type="checkbox"/> Hand Tools | <input type="checkbox"/> Parts & Components | <input type="checkbox"/> Pumps-High Pressure | <input type="checkbox"/> Septic Tanks | <input type="checkbox"/> Vacuum Loaders |
| <input type="checkbox"/> Business Opportunities | <input type="checkbox"/> Hazardous Waste Units | <input type="checkbox"/> Pipeline Rehabilitation | <input type="checkbox"/> Pumps-Submersible | <input type="checkbox"/> Septic Trucks | <input type="checkbox"/> Vanes |
| <input type="checkbox"/> Cable Machines | <input type="checkbox"/> Hydroexcavation | <input type="checkbox"/> Portable Toilets | <input type="checkbox"/> Pumps-Vacuum | <input type="checkbox"/> Service/Repair | <input type="checkbox"/> Vehicle Tracking |
| <input type="checkbox"/> Computer Software | <input type="checkbox"/> Jetters-Trailer | <input type="checkbox"/> Portable Toilet Tanks | <input type="checkbox"/> Pumps - Washdown | <input type="checkbox"/> Slide-In Units | <input type="checkbox"/> Wanted |
| <input type="checkbox"/> Dewatering | <input type="checkbox"/> Jetters-Truck | <input type="checkbox"/> Portable Toilet Trailers | <input type="checkbox"/> Pumps-Water | <input type="checkbox"/> Sludge Applicators | <input type="checkbox"/> Wastewater Transfer |
| <input type="checkbox"/> Drainfield Restoration | <input type="checkbox"/> Jet Vacs | <input type="checkbox"/> Portable Toilet Trucks | <input type="checkbox"/> Rodding Machines | <input type="checkbox"/> Tanks | <input type="checkbox"/> Waterblasting |
| <input type="checkbox"/> Drain/Sewer Cleaning Equip. | <input type="checkbox"/> Lease Financing | <input type="checkbox"/> Positions Available | <input type="checkbox"/> Roll-Off Containers | <input type="checkbox"/> Tools | |

CHOOSE THE PUBLICATION(S): (Deadlines are for the month preceding issue)

- | | | |
|---|---|--|
| <input type="checkbox"/> CLEANER
Deadline: 1st of the Month | <input type="checkbox"/> PUMPER
Deadline: 10th of the Month | <input type="checkbox"/> PRO
Deadline: 17th of the Month |
| <input type="checkbox"/> MUNICIPAL SEWER & WATER
Deadline: 1st of the Month | <input type="checkbox"/> ONSITE INSTALLER
Deadline: 17th of the Month | |

CLASSIFIED AD RATE:

\$1.00 per word, per month, with a 20-word minimum or \$20.
[\$1.00 extra per bold word (key words only)]

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No billing for classified ads. Payment must be received in advance before publishing.

CALCULATE THE AMOUNT DUE:

_____ words X \$1.00 = _____ X _____ Publications X _____ Months = \$ _____
 (\$20 minimum) # of publications checked above # of months to run the ad Total Amount Due

(Example: 25-wd. ad x \$1.00 per word = \$25.00;
\$25.00 x 2 publications [Pumper & Pro] = \$50.00;
\$50.00 x 2 months to run the ad = \$100.00 Total)

FILL IN COMPANY AND PAYMENT INFO:

COMPANY NAME: _____
 ADDRESS: _____ PHONE: _____
 CITY: _____ STATE: _____ ZIP: _____

MAIL this completed form with payment to:
 COLE Publishing Inc., PO Box 220, Three Lakes, WI 54562

FAX this completed form to: **715-546-3786**

ONLINE forms at: www.cleaner.com
www.pumper.com
www.promonthly.com
www.onsiteinstaller.com
www.mswmag.com

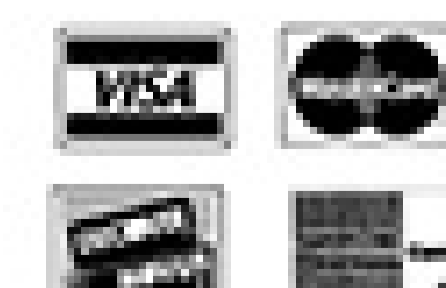
QUESTIONS: CALL 1-800-257-7222

PLEASE FILL OUT CREDIT CARD INFORMATION COMPLETELY INCLUDING V-CODE (3-DIGIT NUMBER FOUND BY YOUR SIGNATURE)

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CARDHOLDER NAME: _____ PHONE: _____

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1976 Chevy C65: 427 ci engine, 5+2 spd., 3000 psi commercial jetter, 60 gpm, 6 cyl. Ford engine, 1,000 gal. water tank, 20" tires.\$2,500 OBO
920-361-1935 M1



Two 1990/91 VacCon V390 Combo Units: Rated @ 80 gpm, 2000 psi; and 35 gpm, 3000 psi. Very low miles and hours. Municipal owned.....\$75,000
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1994 Vactor 2110C Series on Ford LM 8000: 1129 hrs. on Vactor, 24,814 miles, 80 gpm @ 2000 psi, articulating hose reel, 4' extendible boom, hydraulic rear locks, 600' hose, 10 cu. yd. debris tank, 1,000 gal. water tank.....\$37,500
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1994 Vactor 2110C Series on Ford LN 8000: 2264 hrs. on Vactor, 43,880 miles, 80 gpm @ 2000 psi, articulating hose reel, 4' extendible boom, hydraulic rear door locks, 575' hose, 10 cu. yd. debris tank, 1,000 gal. water tank.....\$45,000
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1993 Freightliner VacCon V312THE: Auto., 3-stage fan, 12-yd. debris, 2000 psi, 80 gpm, 3911 hrs., 72,000 miles, ex-municipality, many extras.\$55,900
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2005 VacCon Sterling LT501: C7 Cat engine, Allison trans., 1" hose, 80 gpm, 2000 psi, hyd. pump-off, 3-stage fan, 25,000 miles, located in Maryland.\$170,000
Contact Desi 301-699-6018 CBM



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2006 Super Products Mud Dog Hydro Excavator: Low miles, low hours.\$240,000
Contact Mitch 219-306-2761 or Email: hydrx03@aol.com C1

PLACE YOUR AD ONLINE AT www.mswmag.com or fill out this form

Cleaner
Pumper/Pumper Trader

TRUCK STOP Advertising

BE ONLINE & IN CLEANER, PUMPER/Pumper Trader or MUNICIPAL SEWER & WATER FOR ONLY \$125!

Please print ad legibly with correct punctuation and PHONE NUMBER. Don't forget to send photo!

RATE \$125 PER AD, PER MONTH, PER PUBLICATION WITH A 30 WORD MAXIMUM - PLEASE NOTE: You can only advertise ONE TRUCK for sale per ad.

DEADLINES MSW: 1ST OF THE MONTH • CLEANER: 1ST OF THE MONTH • PUMPER: 10TH OF THE MONTH - For example: July 1st would be the deadline for August MSW.

ADVANCE PAYMENT NO BILLING FOR TRUCK STOP ADS. Payment must be received in ADVANCE before publishing in Cleaner, Pumper or MSW.

Enclosed is \$ _____ for _____ ad(s) to run _____ month(s) in

CLEANER MSW PUMPER/Pumper Trader ALL 3 PUBLICATIONS (Triple dollar amount)

Company Name _____

Address _____ Phone _____

City _____ State _____ Zip _____

• **MAIL** this completed form with payment and photo to:
COLE Publishing Inc., P.O. Box 220, Three Lakes, WI 54562
(Make check/money order payable to: COLE Publishing Inc.)

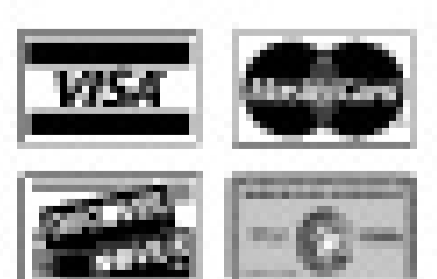
• **ONLINE** ad form at: www.pumper.com, www.pumpertrader.com,
www.mswmag.com, www.cleaner.com

• **FAX** this completed form to: 715.546.3786 and **E-MAIL** photo to:
truckstop@pumper.com, truckstop@cleaner.com, truckstop@mswmag.com

PLEASE FILL OUT CREDIT CARD INFORMATION COMPLETELY:

CREDIT CARD NO. _____ V-CODE _____ EXP DATE _____

CARDHOLDER NAME _____ PHONE _____



A SOUND RESOLUTION

Membership in NASSCO can help you live up to your business pledges, increase awareness, reduce expense, and grow your company

By Irv Gemora, Executive Director

From where I sit, it's easy to see the great value a NASSCO membership has to offer, but I wanted to know if my perceptions were close to reality. In September, I commissioned a survey of NASSCO members to find out what they thought.

The results confirmed my perceptions: NASSCO members truly value their membership for a variety of reasons. Networking, training and education topped the list. Many told us their membership helped them grow their business, build awareness, and position them as leaders. That's when I started thinking about how NASSCO not only helps the industry as a whole, but helps individual mem-

bers achieve success.

As this new year begins, we are often reminded to reflect on the previous year and think ahead to all we hope to accomplish. Many of us make New Year's resolutions for personal reasons, such as losing weight, saving money or exercising more often. But how many of us make resolutions for business?

January is the perfect time to think about your business and what resolutions or goals you would like to accomplish. I believe there are two reasons for this. First, you might find that business resolutions are easier to keep than the personal ones (and the success you encounter may help motivate you to stick with the personal ones as well).

Second, I have an easy solution to help you complete the majority of your business resolutions. Good examples of business resolutions include increasing awareness, reducing expenses, and growing the business. The solution I propose to help you commit to your resolutions is simple: Join NASSCO.

If you're already a member, become an active member. If you're already an active member, thank you and keep up the great work. I can't think of a greater time to be a NASSCO member than right now. We remain the leading voice for the industry through our mission of setting industry standards for the rehabilitation of underground utilities.



We have many great educational programs and networking opportunities in the year ahead. We've invested in a strategic marketing communications company to help us increase our awareness and grow our membership. This year we will offer the industry's first-ever inspector training, additional PACP training and even more networking.

The expanded NASSCO headquarters in Owings Mills, Md., offers members a place to showcase products and processes to customers and potential customers. You'll also discover opportunities to promote your business via *NASSCO Times*, the NASSCO directory and web site, and exposure at trade shows and other events.

A membership in NASSCO will do more than help you with your business resolutions. You'll also meet a lot of interesting people, some who will become lifetime friends. I've been in this industry for decades, and I've seen it happen. If you're already a NASSCO member, your renewal fee was due Jan. 1. Please send in your payment to continue appreciating all the great benefits NASSCO offers.

January is a great time to think about your business and think about the year ahead; 2008 will be an exciting year for NASSCO members. I personally invite you to join us. To learn more about NASSCO membership, visit www.nassco.org or call Heather Myers at 410/486-3500. ♦

Irv Gemora is executive director of NASSCO. He can be reached at director@nassco.org.

THE NASSCO ADVANTAGE

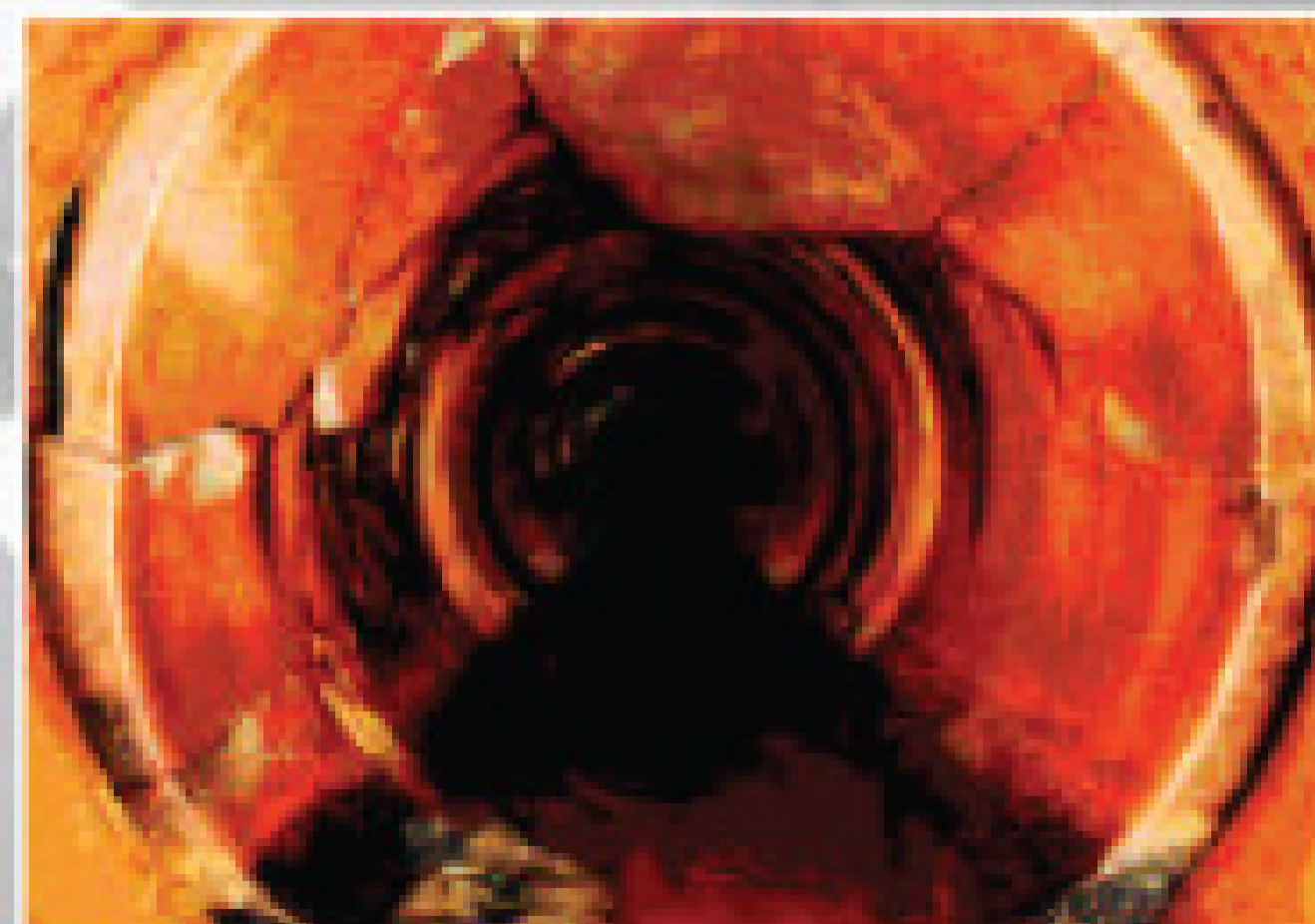
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Contact NASSCO for currently scheduled classes or schedule one for your facility!

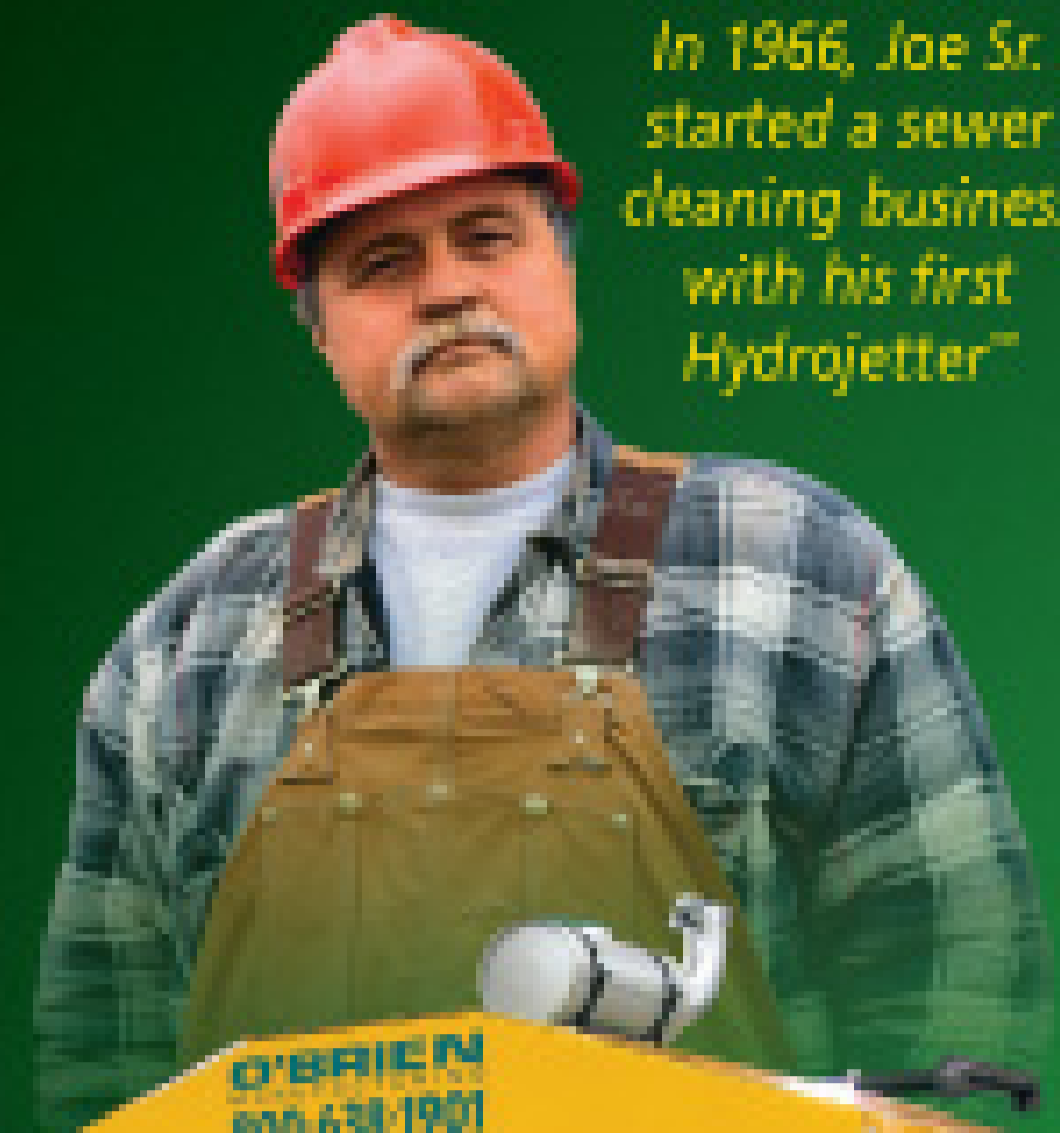
www.NASSCO.org
410-486-3500



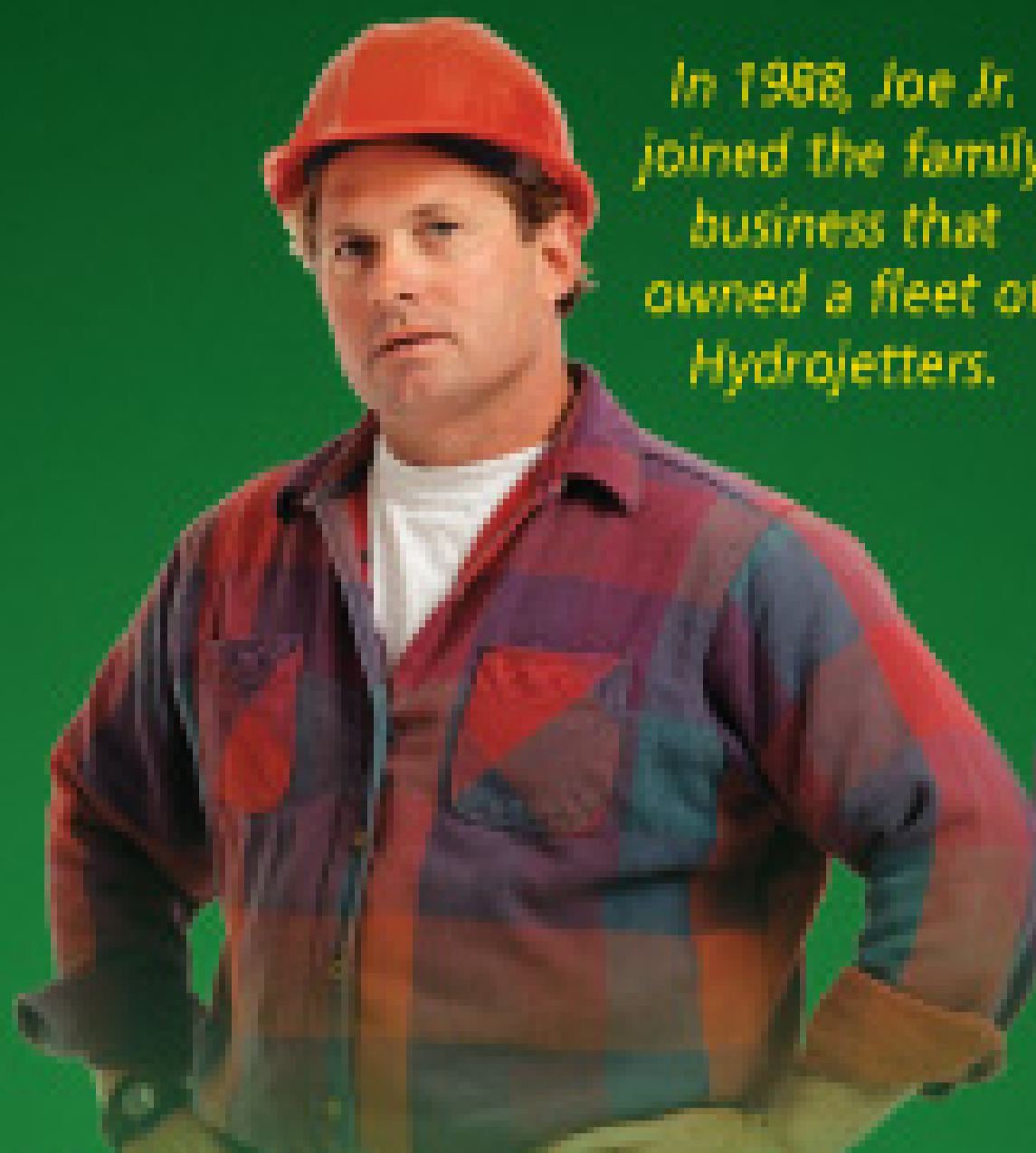
Distance (Feet)	Video Ref.	Code		Continuous Defect	Value			Joint	Circumferential Location		
		Group/Descriptor	Modifier/Severity		SM/L	Inches			%	At/From	To
						1st	2nd				
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Booth 4115



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HydroJetter

A SMART BUSINESS DECISION

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Made in the USA

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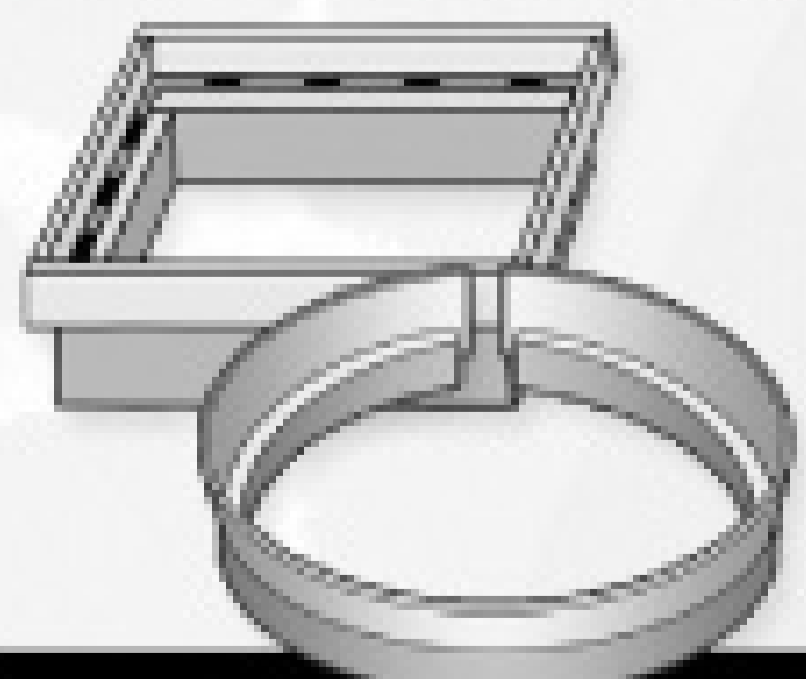
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Protects substructure. Stops noise and vibration. Provides a watertight seal. Quick and easy installation. Three year warranty.

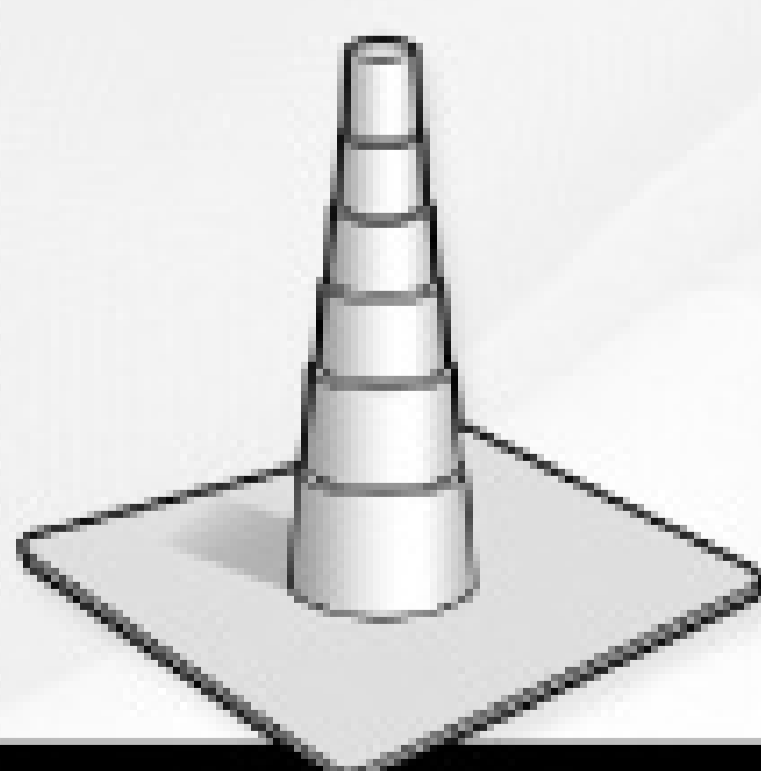


69

Catch Basin and Monument Box Risers



I.D. Utility Locator



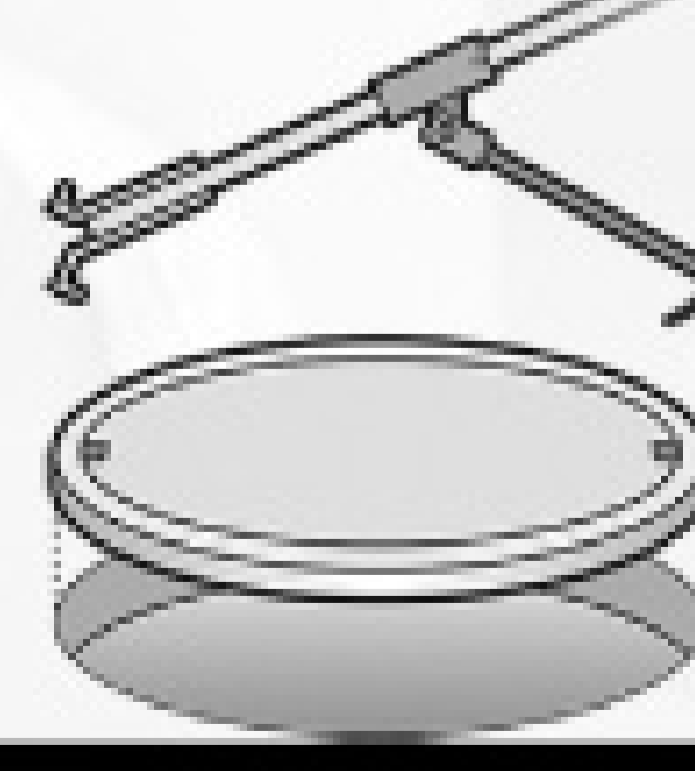
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Sustainable Water Sources Conference

The Sustainable Water Sources: Conservation and Resources Planning Conference and Exposition on Feb. 10-13 at the Grand Sierra Resort and Casino in Reno, Nev., is sponsored by the American Water Works Association. Four workshops and 22 tracks comprising 122 presentations specialize in how atmospheric changes affect sustainable water sources.

Newly appointed conservation professionals will learn the concepts necessary and resources available to successfully manage a conservation-water efficiency program. Industry professionals will enhance their abilities to make cost-effective and environmentally sound decisions.

The latest in conservation and resource management products and services will be showcased. Full-conference registrants earn one Professional Development Hour for each hour attended, and receive a free proceedings on CD-ROM. For more information, call 800/926-7337 or visit www.awwa.org.

Urban Water Management

An Integrated Water Quality Conference and Exhibition on March 31-April 2 at the Marriott in Louisville, Ky., focuses on the integration of stormwater best management practices, Phase II regulations, and green infrastructure.

Twelve tracks cover design, construction, maintenance, and emerging technology for urban water quality. A panel discussion addresses funding municipal stormwater management programs. For more information, call Joanie Harrington at 918/832-9305 or visit <http://uwm08.events.pennnet.com>.

CALENDAR

Jan. 29-31 Underground Construction Technology International Conference and Exhibition, Cobb Galleria Centre, Atlanta, Ga. Call Karen Francis at 281/558-6930, ext: 222 or visit www.uctonline.com.

Feb. 5-8 National Association of Clean Water Agencies Winter Conference, Pointe Hilton Tapatio Cliffs, Phoenix, Ariz. Call 202/833-2672 or visit www.nacwa.org.

Feb. 10-13 Sustainable Water Sources: Conservation and Resources Planning Conference and Exposition, sponsored by the American Water Works Association, Grand Sierra Resort and Casino, Reno, Nev. Call 800/926-7337 or visit www.awwa.org.

Feb. 13-16 National Association of Sewer Service Companies Annual Meeting, Sanibel Harbour Resort and Spa, Fort Myers, Fla. Call 410/486-3500 or visit www.nassco.org.

Feb. 24-27 Utility Management Conference, sponsored by the American Water Works Association and Water Environment Federation, Marriott Tampa Waterside Hotel & Marina, Tampa, Fla. Call Nancy Bauer at 703/684-2400, ext: 7010 or visit www.awwa.org.

Feb. 27-March 1 Pumper & Cleaner Environmental Expo International, Kentucky Exposition Center, Louisville. Education Day Feb. 27; exhibits open Feb. 28-March 1. Call 800/257-7222 or visit www.pumpershow.com.

March 30-April 2 Customer Service Conference and Exposition, sponsored by the American Water Works Association, Detroit, Mich. Call 800/926-7337 or visit www.awwa.org.

March 30-April 2 Information Management & Technology Conference and Exposition, sponsored by the American Water Works Association and Water Environment Federation, Detroit, Mich. Call Paul Olson at 800/926-7337 or visit www.awwa.org.

March 31-April 2 Urban Water Management Water Quality Conference & Exhibition, Louisville Marriott, Ky. Call Joanie Harrington at 918/832-9305 or visit <http://uwm08.events.pennnet.com>.

April 6-8 Water Security Congress, sponsored by the American Water Works Association, Cincinnati, Ohio. Call Dana Trujillo at 303/347-6240 or visit www.awwa.org.

April 27-May 2 North American Society for Trenchless Technology No-Dig Show, Gaylord Texan Resort and Convention Center, Grapevine, Texas. Visit www.nastt.org.

May 4-7 National Clean Water Policy Forum, Renaissance Mayflower Hotel, Washington, D. C. Call 202/833-2672 or visit www.nacwa.org.

May 18-22 National Monitoring Conference, sponsored by the National Water Quality Monitoring Council, Atlantic City Convention Center, N.J. E-mail Monitoring2008@wef.org or visit www.wef.org.

May 20-23 Customer Service Week Conference, Grand Hyatt, San Antonio, Texas. Call 903/893-3214 or visit www.cisconference.org.

June 1-3 International Water Association-Water Environment Federation Wastewater Treatment Modelling Seminar, Château Mont-Sainte-Anne, Québec. Call Bruce Johnson at 720/286-5373 or visit www.modeleau.org/WWTmod2008.

July 15-18 National Association of Clean Water Agencies Summer Conference and Meeting, Hilton Hotel, Anchorage, Alaska. Call 202/833-2672 or visit www.nacwa.org.

Aug. 17-20 American Public Works Association Congress: The Best Show in Public Works, Morial Convention Center, New Orleans, La. Call 800/848-2792 or visit www.apwa.net.

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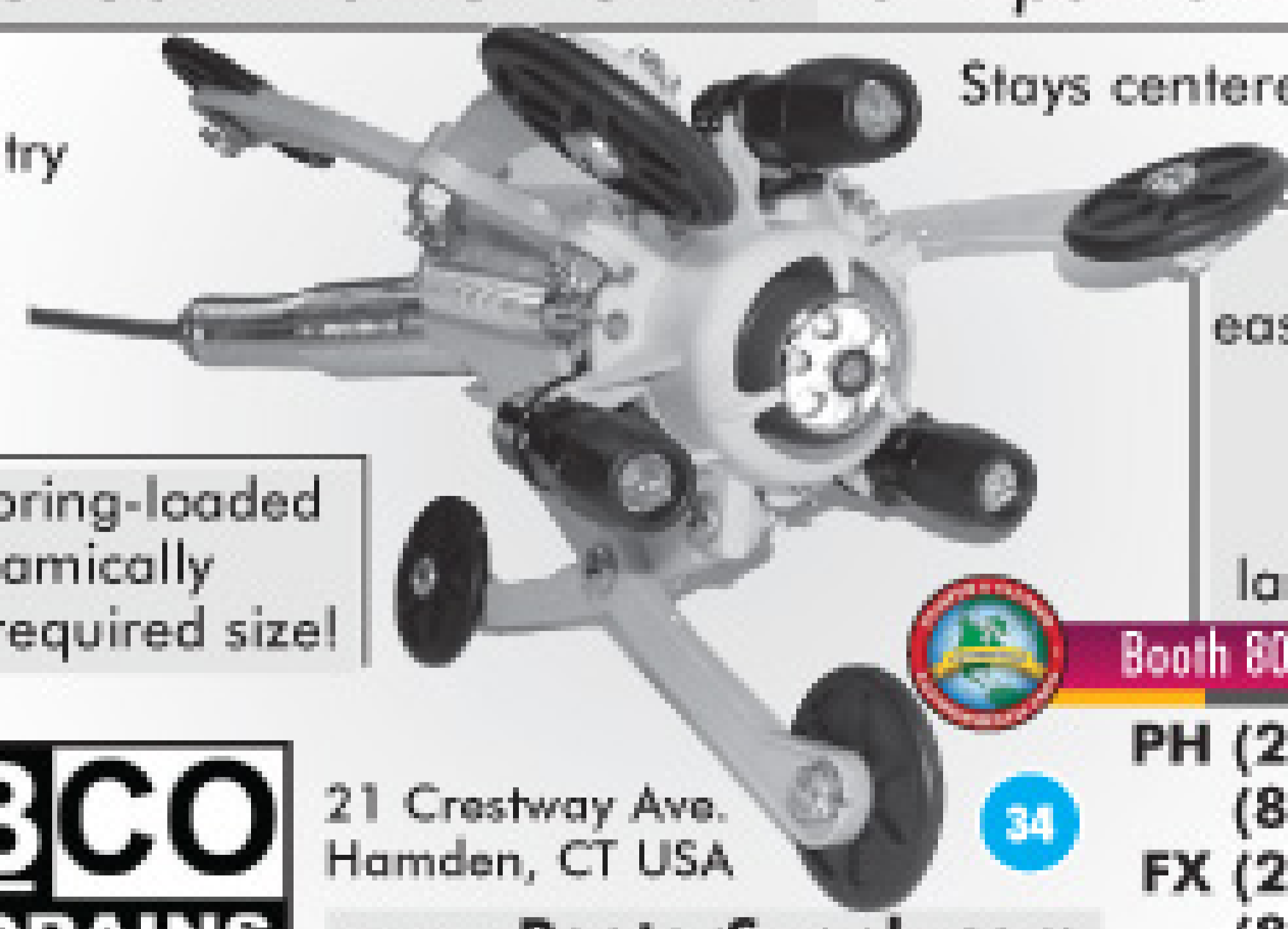
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NDWC Publications

The National Drinking Water Clearinghouse published the following information:

- Tech Brief: Valve Exercising
 - Tech Brief: Line Pigging
 - Tech Brief: Development of Low-Cost Treatment Options for Arsenic Removal in Water Treatment Facilities
 - Tech Brief: Simultaneous Compliance with Drinking Water Regulations
 - *How to Begin a Fire Hydrant Operation and Maintenance Program*
 - *How to Operate and Maintain Manganese Greensand Treatment Units*
- Call 800/624-8301 or e-mail info@mail.nesc.wvu.edu.

Author Presents Short Course

Gary Minton, Ph.D., P.E., is offering a short course based on his book *Stormwater Treatment: Biological Chemical and Engineering Principles*. CEU credits apply. The course will be offered:

- Jan. 23-24 – Offices of Contech Stormwater Solution, Portland, Ore.
- Feb. 6-7 – Country Inn and Suites, Bothell, Wash.
- Feb. 12-13 – Olympia, Wash.
- April 8-9 – Alden Labs (Holden), Worcester, Mass.

Visit www.stormwaterbook.com.

UW-Madison Engineering Course

The University of Wisconsin-Madison Department of Engineering Professional Development is offering the following CEU, LU, PDH classes. They are at the Madison campus unless indicated otherwise:

- Jan. 7-8 – Improving Public Works Construction Inspection Skills (J223)
- Jan. 7-11 – Cross-Connection Control and Backflow Prevention (J916)
- Jan. 23-24 – Soil Engineering for Non-Soils Engineers and Technicians (J603), Sunnyvale, Calif.
- Feb. 4-5 – Improving Public Works Construction Inspection Skills (J371), Orlando, Fla.
- March 11-April 4 – Cross-Connection Control and Backflow Prevention (J117)
- March 25-26 – Mastering the Fundamentals of Culvert Hydraulic Design (J758), Las Vegas, Nev.
- March 27-28 – Drainage Engineering Fundamentals for Non-Engineers (J761), Las Vegas, Nev.
- March 31-April 4 – Cross-Connection Control and Backflow Prevention (J117)
- April 7-8 – Municipal Engineering Fundamentals for Non-Engineers (J491)
- April 14-15 – Mastering the Fundamentals of Culvert Hydraulic Design (J759)
- April 17-18 – Drainage Engineering Fundamentals for Non-Engineers (J762)
- April 24-25 – Soil Engineering for Non-Soils Engineers and Technicians (J718), Philadelphia, Pa.
- April 28-29 – Pumping Equipment and Systems: Selecting, Operating, Maintaining, and Troubleshooting (J660)
- April 30-May 2 – Preventing Deficiencies in Design and Construction of Water and Wastewater Projects (J797)

Call 608/262-2061 or visit http://epdweb.engr.wisc.edu/course_categories.lasso.

American Public Works Association

The organization has the following courses. They are offered as web-

based broadcasts unless indicated otherwise.

- Jan. 10 – Trenchless Technology
 - Jan. 16-17 – Advanced Construction Inspection Workshop, San Rafael, Calif.
 - Jan. 31 – Target Emergency Preparedness #2: During the Disaster – Resource Management
 - Feb. 20-22 – Public Fleet Management Workshop, San Jose, Calif.
 - Feb. 21 – Water – A Precious Resource in Diminished Supply
 - March 6 – Mastering the Media: Telling the Public Works Story Your Way!
 - March 10-12 – Construction Inspection: A Review, Atlanta, Ga.
 - March 20 – Target Emergency Preparedness #3: After the Disaster – Reimbursement
 - April 17 – Innovative Funding – Getting to the End of the Rainbow
- Call Carrie Merker at (816) 472-6100, ext: 5213 or visit www.apwa.net.

American Water Works Association

The organization is offering the following CEU/PDH seminars:

- Jan. 27-29 – Inorganic Contaminants Workshop, Albuquerque, N.M.
- Feb. 7-8 – Time to Renew Your Aging System: What's in Your Tool Box?, Philadelphia, Pa.
- March 6-7 – Compensation Strategies to Strengthen Workforce Recruitment, Retention, and Motivation, Las Vegas, Nev.
- April 16-18 – Financial Management: Cost of Service Rate-Making, Boston, Mass.

Call 800/926-7337 or visit www.awwa.org.

New England

The New England Interstate Water Pollution Control Commission (NEIWPCC) Training has the following courses.

- Jan. 4-8 – Preparing for Your Grade I and II Operator Certification Exam (with math), Hartford, Conn.
- Jan. 8-10 – O&M of Wastewater Collection Systems, Old Lyme, Conn.
- Jan. 16 – O&M of Wastewater Pump Stations, Middletown, N.Y.
- Jan. 17 – Sampling Procedures for WWTP Operators, Cobleskill, N.Y.

For more information, call 866/824-9656 or visit www.neiwpcc.org/training/schedule.asp.

Wright-Pierce Training Services is offering these classes in Maine.

- Jan. 8-10 – Collection System: Operation and Maintenance & NEWEA Collection System Voluntary Certification Grades I-IV Exam, Portland
- Jan. 17 – Developing Written Safety Programs, Vassalboro
- Jan. 24 – Developing Written Safety Programs, Mexico

Visit www.wright-pierce.com.

North Carolina

The North Carolina State University Soil Science Department has a Sediment & Erosion Control: Latest Information with Hands-On Demonstrations seminar on April 2 at the Lake Wheeler Road Field Laboratory in Raleigh. Call Joni at 919/513-1678 or visit www.soil.ncsu.edu/training. ♦

Municipal Sewer & Water invites your national, state or local association to post news items in this column. Send contributions to editor@mswmag.com.

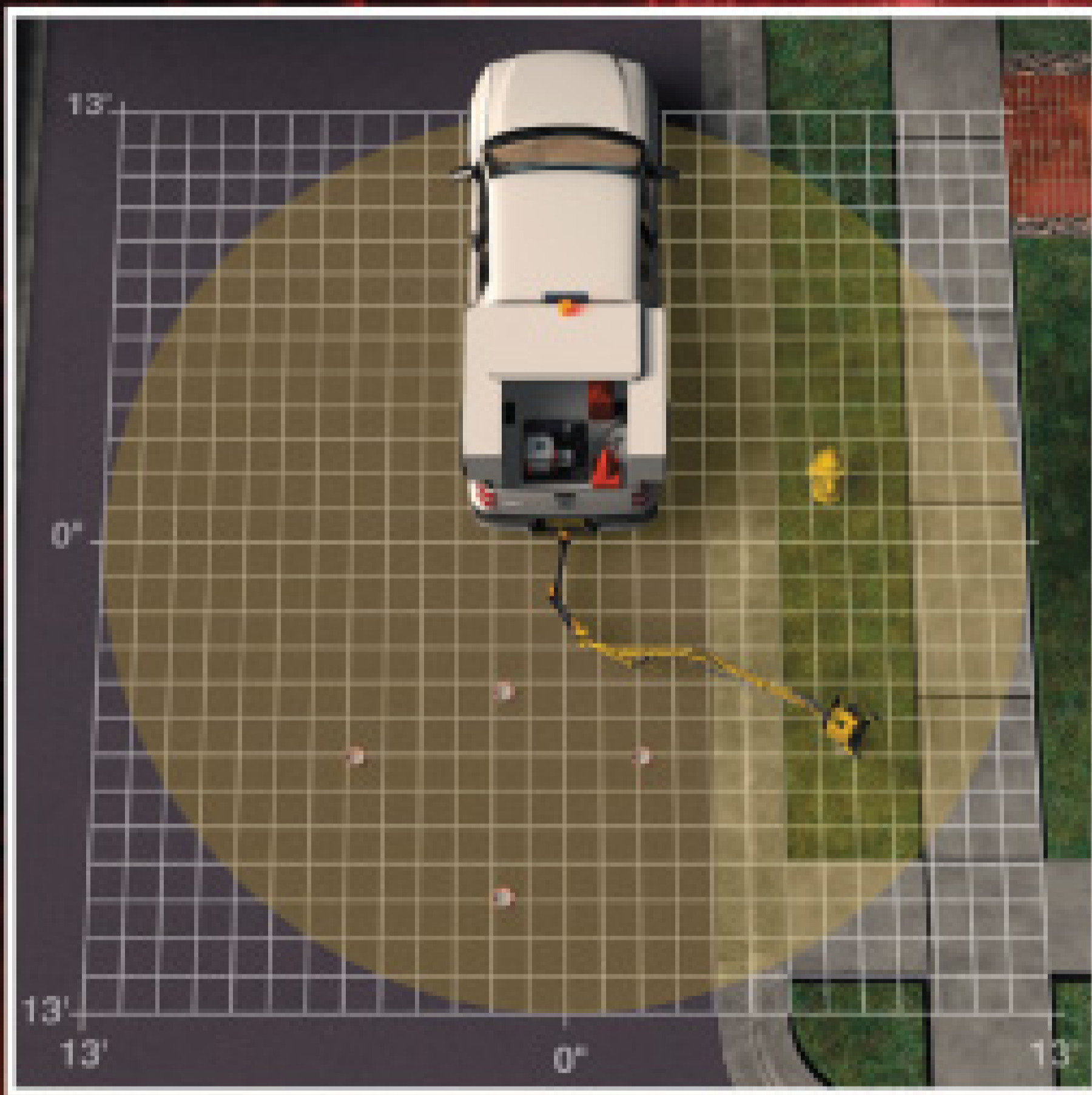
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