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February 2008

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IN WILMINGTON, DEL.

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Feb. 27-29, March 1 MAKE YOUR MOVE

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GOING FOR THE GREEN

Los Angeles pilot tests technologies to reduce runoff pollutant loadings

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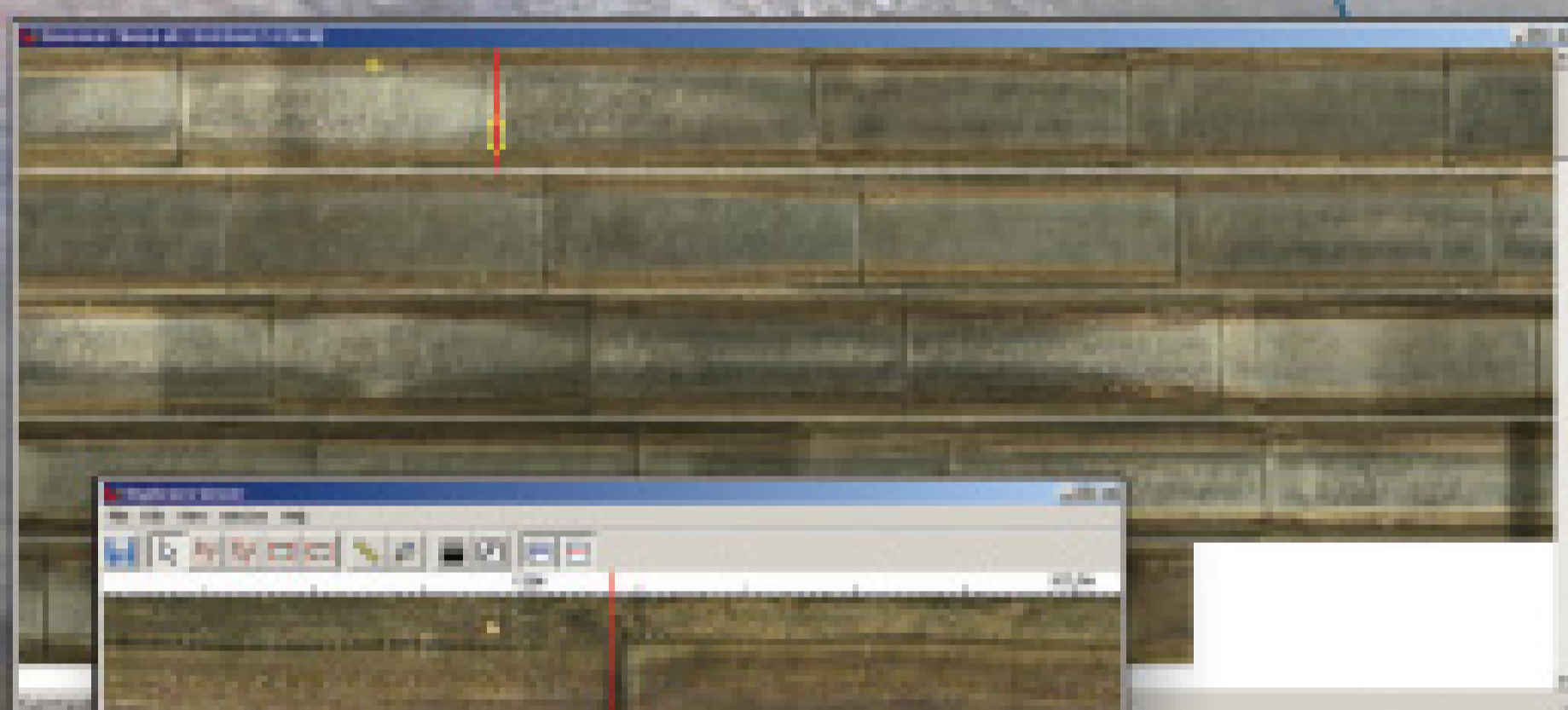
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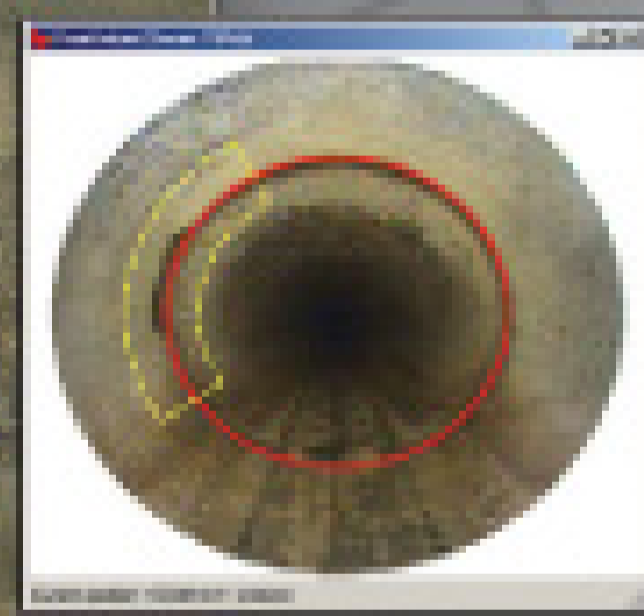
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3

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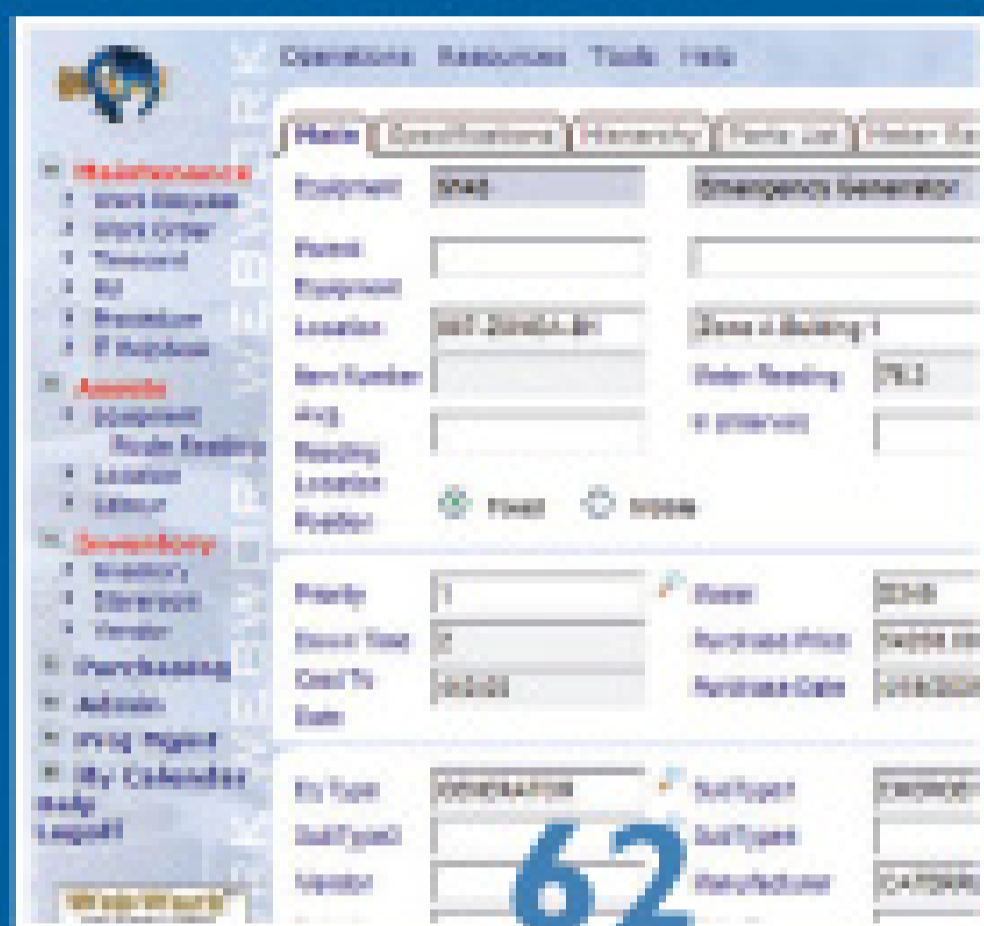
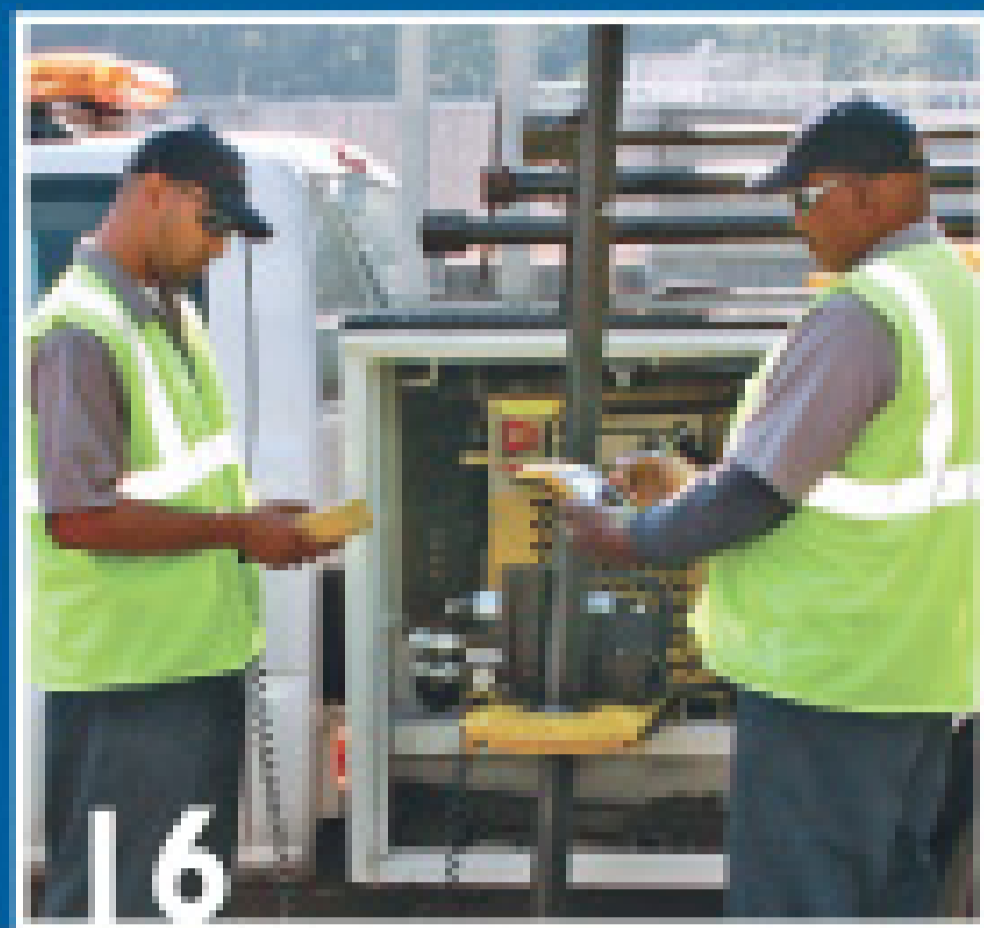
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INSIDE:

2008 PUMPER & CLEANER EXPO
PRE-SHOW ISSUE



COVER:

Innovative green technology is part of the answer to help the City of Los Angeles meet stormwater pollution reduction mandates and achieve its long-range goals for restoring one of its vital waterways. Here, crew members set a 24-inch HDPE perforated pipe. (Photos courtesy City of Los Angeles, Department of Public Works, Bureau of Street Services, Special Projects Division)



COMING IN MARCH 2008

Pumper & Cleaner Environmental Expo Show Issue

- ◆ Sewer: Pump station replacement in North Carolina
- ◆ Water: Leak detection in Iowa City, Iowa
- ◆ Storm: Advances in non-impervious surfaces
- ◆ Human Side: The challenge of employee discipline

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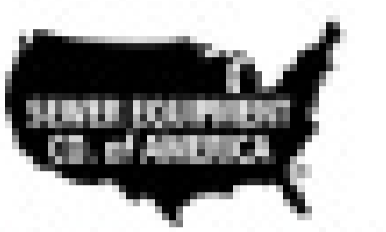







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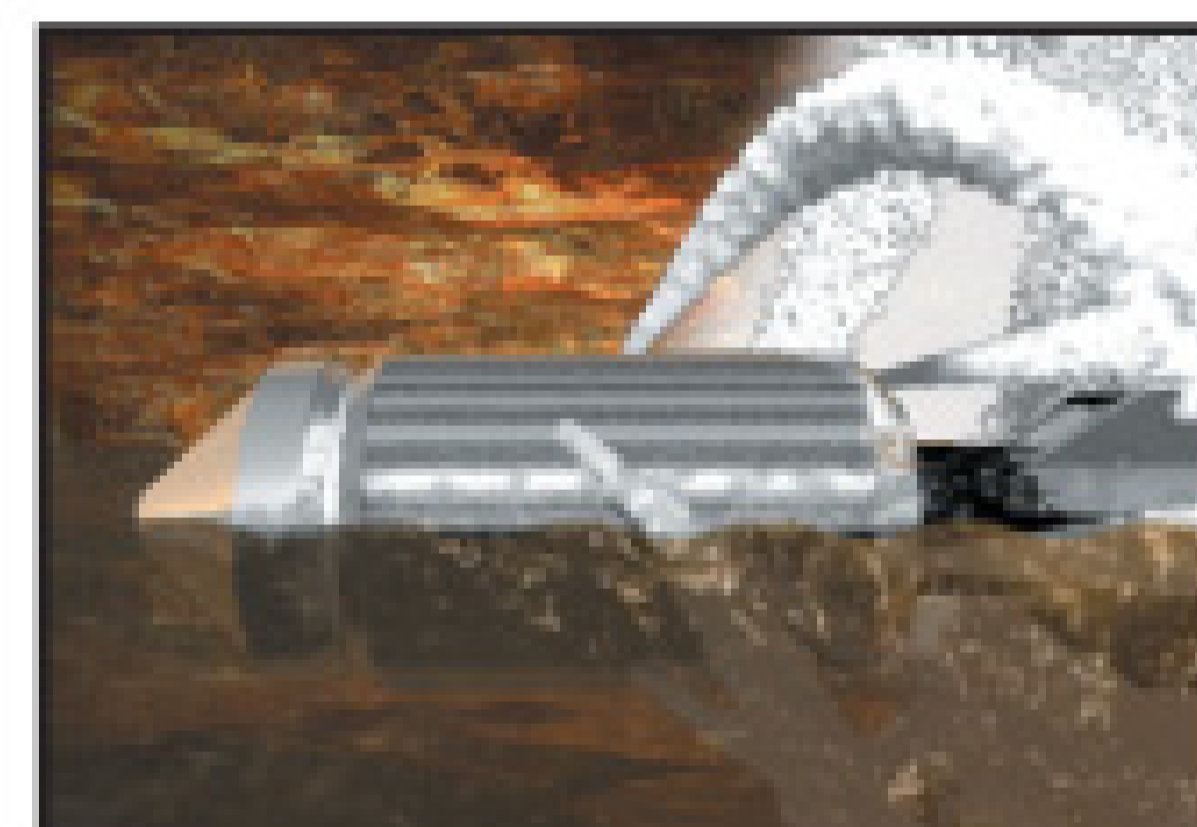
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GETTING IT DONE

While infrastructure projects are often expensive, their necessity is seldom in question. There comes a time to stop discussing and start doing.

Henry Ford, the father of Ford Motor Co., was meeting with his top lieutenants, who were arguing about a major repair project involving a manufacturing plant.

After listening for a while, Ford interrupted, saying, "Look, is this going to be expensive?" To which the others replied, "Yes." Ford continued, "And does it seem as though it's got to be done?" Again the answer was, "Yes."

"Well, then," said Ford, "Let's stop wasting my time and do it."

Isn't that the way of things when it comes to investing in facilities? We waste a lot of time, and money, arguing about things that simply have to be done and only become more costly when we put them off.

Why not now?

We see examples on scales large and small. I recently took my car in for scheduled maintenance. The mechanic took care of the routine items, but when I picked up the car at day's end, he told me I had a small coolant leak and that I should come back another time and have it fixed at a cost of \$80.

"Why didn't you just fix it today?" I asked.

He said it was because he wasn't able to reach me during the day to tell me about it and get my authorization. So now I had to drive around with a coolant leak until I could get in for another appointment — with all the inconvenience that entails. And in the meantime the leak could get worse or lead to a costly failure. So in the name of being frugal on my behalf, he actually cost me money and put me at risk.

I was nice to him about it, though, because I have been guilty of the same kind of thinking

where my vehicles and home are concerned. The washing machine is making noise? Oh, that's probably nothing. The skylight in the sunroom leaked overnight? Well, that's probably just because it was such a heavy rain.

Thinking bigger

That kind of attitude is human nature, and it carries over to our government decision makers and to our individual behaviors as taxpayers. It's an attitude we need to resist. In a recent survey, members of the National Association of

It's not that the mere fact of spending money is good — wasteful pork-barrel projects remain a concern. But at least Congress considered water resources important enough to use that bill to draw its line in the sand with the administration. That would seem to bode well for public infrastructure long-term.

Sewer Service Contractors (NASSCO) said that funding for sewer rehabilitation projects is the biggest challenge to the industry.

The U.S. EPA estimates that America's wastewater infrastructure faces \$200 billion in existing undocumented needs. If funding to invest in our underground infrastructure doesn't increase, we will need \$534 billion for water and sewer systems by 2019. Meanwhile, as much as 860 billion gallons of sewage is dumped every year into rivers and lakes nationwide.

So, yes, this is going to be expensive. And yes, it seems as though it's got to be done. And therefore perhaps we should stop wasting time and do it. There have been encouraging signs, not the least being the congressional override



FROM THE EDITOR

Ted J. Rulseh

of President Bush's veto of a \$23 billion water projects bill last November.

It's not that the mere fact of spending money is good — wasteful pork-barrel projects remain a concern. But at least Congress considered water resources important enough to use that bill to draw its line in the sand with the administration. That would seem to bode well for public infrastructure long-term.

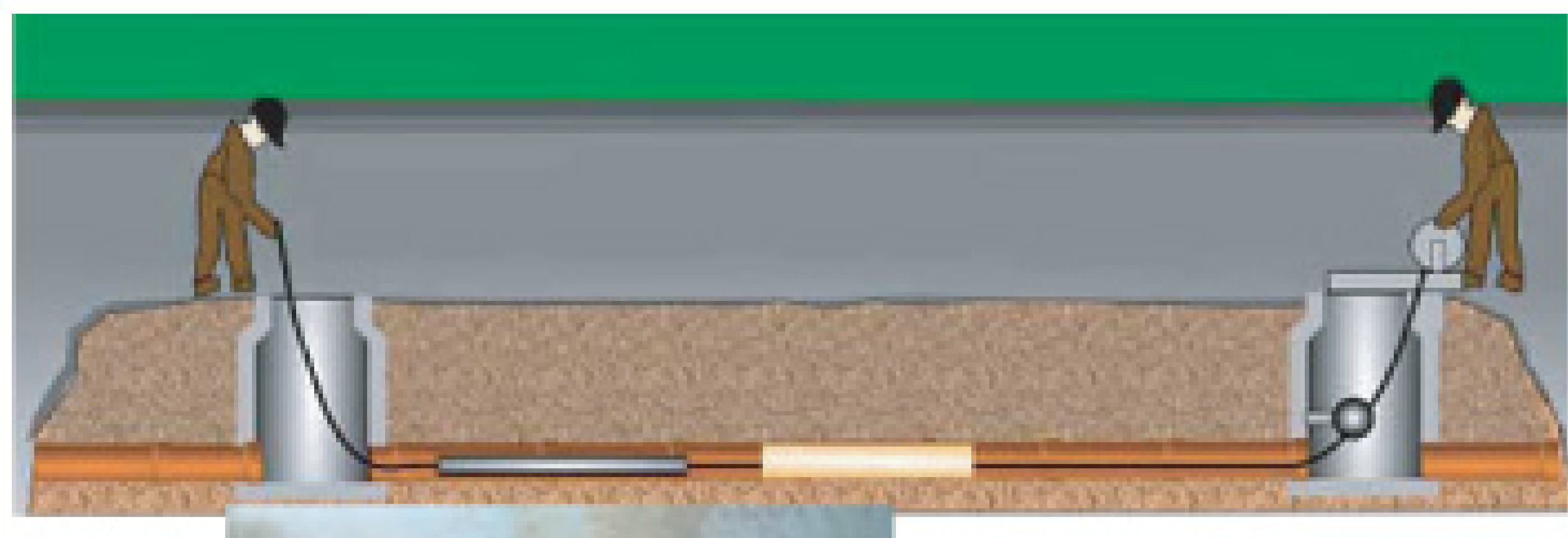
Beyond the Band-Aid

And the long term is what we all need to consider. Some years ago I served on a small-community school board. The district's facilities deserved an A-plus for their condition, and it was largely because the superintendent of buildings and grounds had a knack for showing board members the importance of investing in the buildings.

Folks like school board members, aldermen and village trustees are always thinking about how to keep tax bills down. This building and grounds fellow knew how to show us the long-term consequences of our actions. When he came to us with a building issue, he always explained the real solution and the Band-Aid — and the pros and cons of both. The long-term pros were always with the real solution, and we took his recommendations almost every time.

We need to think the way he did, always, when considering the welfare of sanitary, storm and water infrastructure. ♦

Comments on this column or about any article in this publication may be directed to editor Ted J. Rulseh, 800/257-7222; editor@mswmag.com.



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Response to Column on Taxes

In regard to your column about taxation ("A Doctrine Comes Crumbling Down," *Municipal Sewer & Water*, December 2007), I guess I am an anti-taxer in your opinion. My question to you: Do you want higher tax revenues or higher tax rates? It has been proven time and time again that they are not the same.

Tax receipts have grown dramatically since the tax rate cuts of the early 2000s. The Reagan tax rate cuts doubled revenues in the 1980s. When the anti-taxers "stole" Congress in the 1990s and rolled back some of the earlier increases, we flourished. States with high taxes are seeing residents flee, and revenues are going down. Does anyone remember the misery index in the high-tax-rate 1970s?

The bottom 50 percent of taxpayers account for only 3 percent of total revenues. How much more do the working people have to pay? You would have a lot more credibility if you would have talked

more about the out-of-control spending. But instead you lament opponents blasting "universal health-care" for tax-increase reasons.

The bottom line is big government (high level of intervention), be it federal, state or local, is not good. We could make major cuts to many government programs and still provide needed services, but the pro-taxers scream if any government program funding is reduced from the projected next fiscal year's budgeted amount.

Only in government is a 4 percent increase in a program considered a cut, if that program had arbitrarily been given a 10-percent increase in the budget proposal. This is called baseline budgeting — look it up. Everyone needs to pay taxes of some amount obviously, but government must do a much better job with its fiscal responsibilities.

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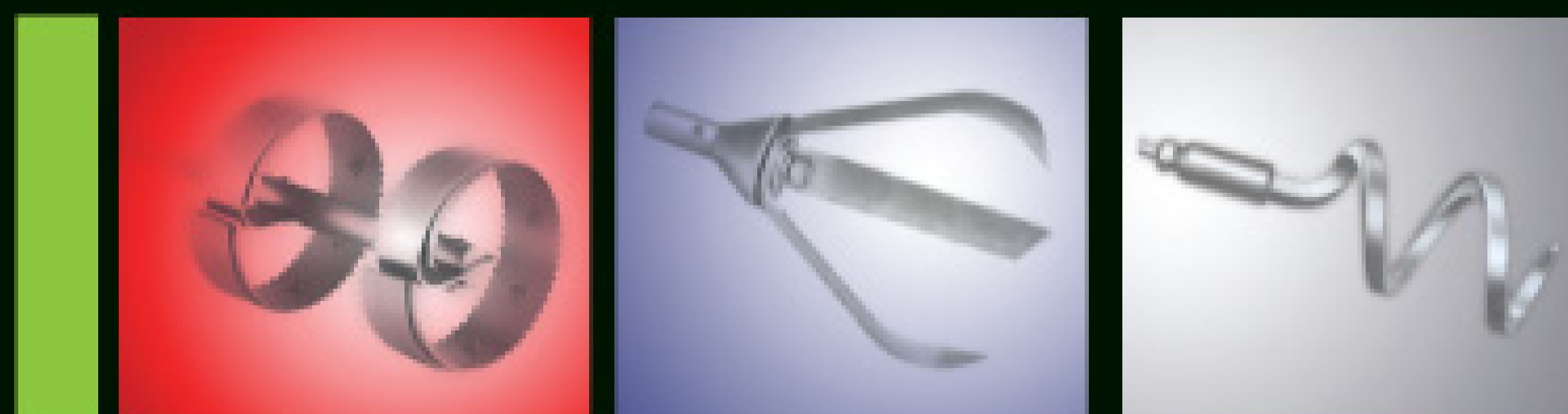
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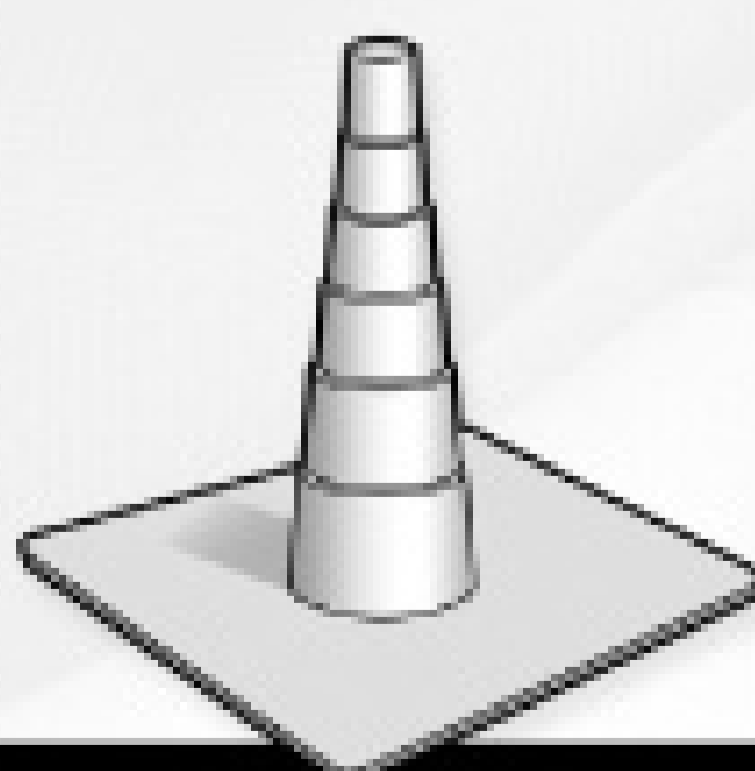
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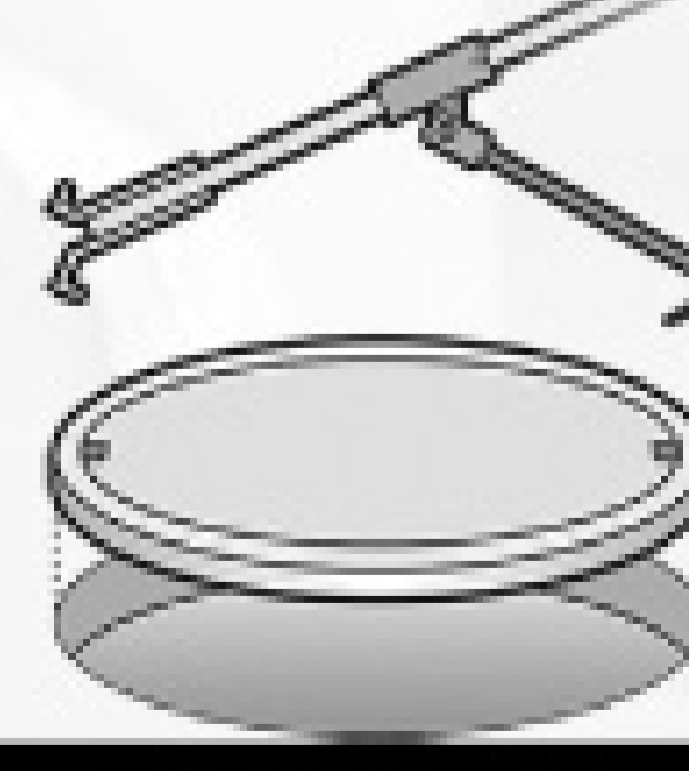
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CHALLENGE OF CHANGE

The City of Wilmington uses innovations like GIS technology and maintenance outsourcing to improve its distribution system and enhance service quality

By Suzan Marie Chin

It isn't always easy to manage and maintain an older water distribution system in a historic city like Wilmington, Del. Lately, the one constant has been change.

"Change is our biggest challenge," admits Lawrence Carson, city engineer. Changes Carson has championed, in the forms of new data collection technology, rehabilitation techniques and GIS mapping, are helping this bustling city improve water quality and maintain its vital water distribution

system in a highly efficient and cost-effective manner.

Priority One: Quality

Situated in the northernmost part of Delaware, Wilmington (population 72,000) is one of the original colonial cities of America. Its water distribution network has some sections that date back to the early 1800s. The average size of the city's water mains is 8 inches, and the median age is 75 years.

To deal with its aging infrastructure, Wilmington works diligently to set priorities for capital

improvement programs as well as day-to-day operations. Recent regulatory changes have caused the city to focus on water distribution network integrity, even to the point where water leaves the city system and enters homes and businesses. Several initiatives and projects aim at improving water quality, complying with federal standards, and improving customer service.

Wilmington is in the final year of a four-year contract with Wachs Utility Services to locate, exercise, assess and document every valve within the system's 400 miles of

water mains. At the start of the project, the city believed there were 10,000 valves in the system. That number is now pegged at about 9,700, including fire hydrant guard valves.

Comprehensive data

Wachs Utility Services crews are charged with fully exercising the valves, gathering GPS coordinate data, and returning detailed reports of almost 60 parameters. All of this data is then uploaded and integrated into the city's ESRI-based geographic information system (GIS).

Wachs Utility Services crews working under a contract with the City of Wilmington use a truck-mounted, microprocessor-controlled valve exerciser (TM7-DT) to operate valves and a Trimble GeoExplorer GPS/data recorder to capture information. The city signed Wachs to a four-year contract for valve exercising as part of its ongoing effort to improve the distribution system. (Photos courtesy Hatch Mott McDonald and Wachs Utility Services)



PROFILE:
City of
Wilmington, Del.

POPULATION:
72,000

CUSTOMERS:
140,000

INFRASTRUCTURE:
400 miles of water
distribution main

AREA SERVED:
20 square miles

EMPLOYEES:
30 (water department)

WEB SITE:
www.ci.wilmington.de.us

A Wachs Utility Services crew flow tests a fire hydrant in Wilmington.



Key value parameters include:

- Valve size
- Size of the water main served by the valve
- Opening direction (right or left)
- Age of the main
- Location (X and Y coordinates)
- Number of turns expected and number actually observed

- Depth of the valve nut
- Condition of the valve box and valve box cover

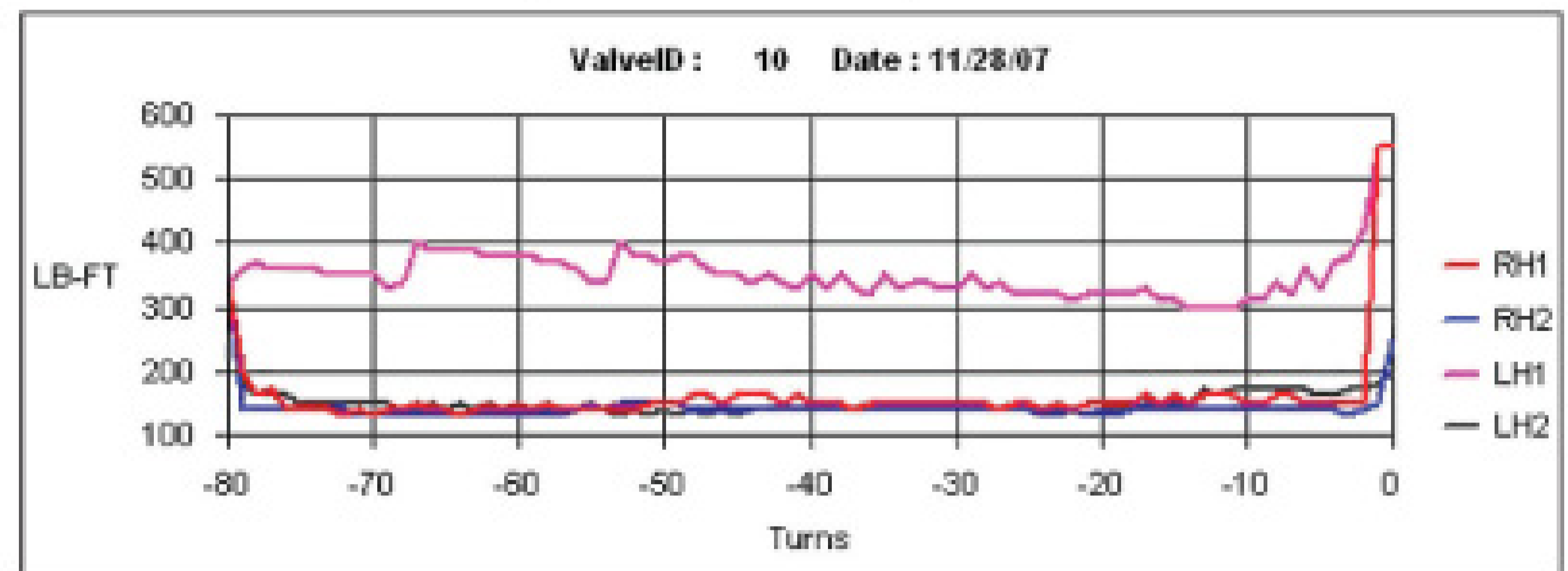
Technicians perform exercising and data collection on a flexible schedule. "We did have some rough spots where every valve we turned seemed to have a problem," Carson says. "So we would move the Wachs team to another location, send our valve maintenance crew in to address the valves that were problematic, and then bring the Wachs team back at a later date. It served us well, because you never know what you're going to find when you start a project like this."

The city also entered into a valve replacement contract to address valves found to be broken, deficient, or impossible to exercise. Carson and his team are seeing the benefits already. Besides helping the department stay ahead of the curve and prevent valve fail-

"I think there may always be a place for a contract like this, simply because we never seem to have as many people as we need to do the job that we are pressed with doing. If we can get someone in who can focus on doing this work, that's a plus."

Lawrence Carson

The microprocessor-controlled valve exerciser produced extensive data on Wilmington's water valves, including operations charts like these. Analogous to electrocardiograms (EKGs) on which hospitals record patients' heart activity, these graphs indicate the health of valves. This characteristic graph shows the torque required to turn a valve versus the number of turns. The valve was put through two complete open/close cycles, and the required torque decreased, showing that the valve had been loosened and will operate more freely in the future.



ures, the program is valuable in dealing with emergencies.

Quick resolution

Case in point: During street improvements on one major thoroughfare, workers struck a 20-inch valve. Water from the leak shot 30 to 40 feet into the air. "For those of us who work in distribution systems, that's the beginning of a very,

very bad day," Carson says. "It takes a lot to get a shutdown to isolate the leak so you can get it fixed."

Before the city had extensive data on its valves, the water department often struggled with shut-

Lawrence R. Carson, city engineer, displays a closeup of the geographic information system (GIS) version of the Wilmington water distribution system map. (Photo by Charity Joy)



MARKING IT OUT

Before work can begin on installation of a new utility, property owners must call a national 811 hotline to request a mark out of surrounding underground utilities. For residents of Wilmington, Del., these calls become request orders that flow into the City of Wilmington daily on a dedicated fax machine.

Lawrence Carson, city engineer, admits that mark-out requests weren't always handled as well as they could be. To address the problem of processing and scheduling the requests, Carson decided to enlist the help of the city's ESRI-based GIS.

Technicians customized the system slightly to accept input of all of the call requests, geo-code each call's input information, and create an electronic accounting (database) of all the calls the city was receiving. That

information could then be deployed to handheld devices that field inspectors used to capture what they were doing in response to mark-out requests.

After a year of managing the calls through the GIS and tracking the data, Carson was able to show that Wilmington did not have enough personnel to mark out all the requests on a timely basis. That information helped him justify the budget to add field staff to handle the requests and to add someone to manage the mark-out call system on a daily basis and distribute requests to the field on a timely basis.

"This is just one of many improvements in customer service and department efficiency made possible by embracing technology and marching toward a more electronic environment," says Carson.

downs. For every valve that didn't work, the crew had to fall back two or three more valves. Each fallback means more customers were shut down and inconvenienced. After the repair, crews had to return all the valves to their correct positions — which can be difficult. A typical 8-inch valve takes 27 turns to shut down — a tiring, labor intensive task.

The data collected by Wachs crews helped city personnel execute the shutdown easily. "We actually got a perfect shutdown on this 20-inch main," says Carson, "During the shutdown, we only knocked two people out of water. In one case, only the fire service was cut off. Only one business was inconvenienced in a zone that was a half a mile long by three city blocks wide."

Once the initial Wachs Utility Services contract is completed, Wilmington plans to purchase a Trailer Mount Exerciser/Swivel Vac unit from E. H. Wachs Co. so that in-house staff can perform some of the ongoing valve exercising.

"I think there may always be a place for a contract like this, simply because we never seem to have as many people as we need to do the job that we are pressed with

"I can see the ability to leverage our data in ways that were probably unthinkable as little as a decade ago. There are things we have on the drawing board that are going to really help us look like the professional organization that we truly are."

Lawrence Carson

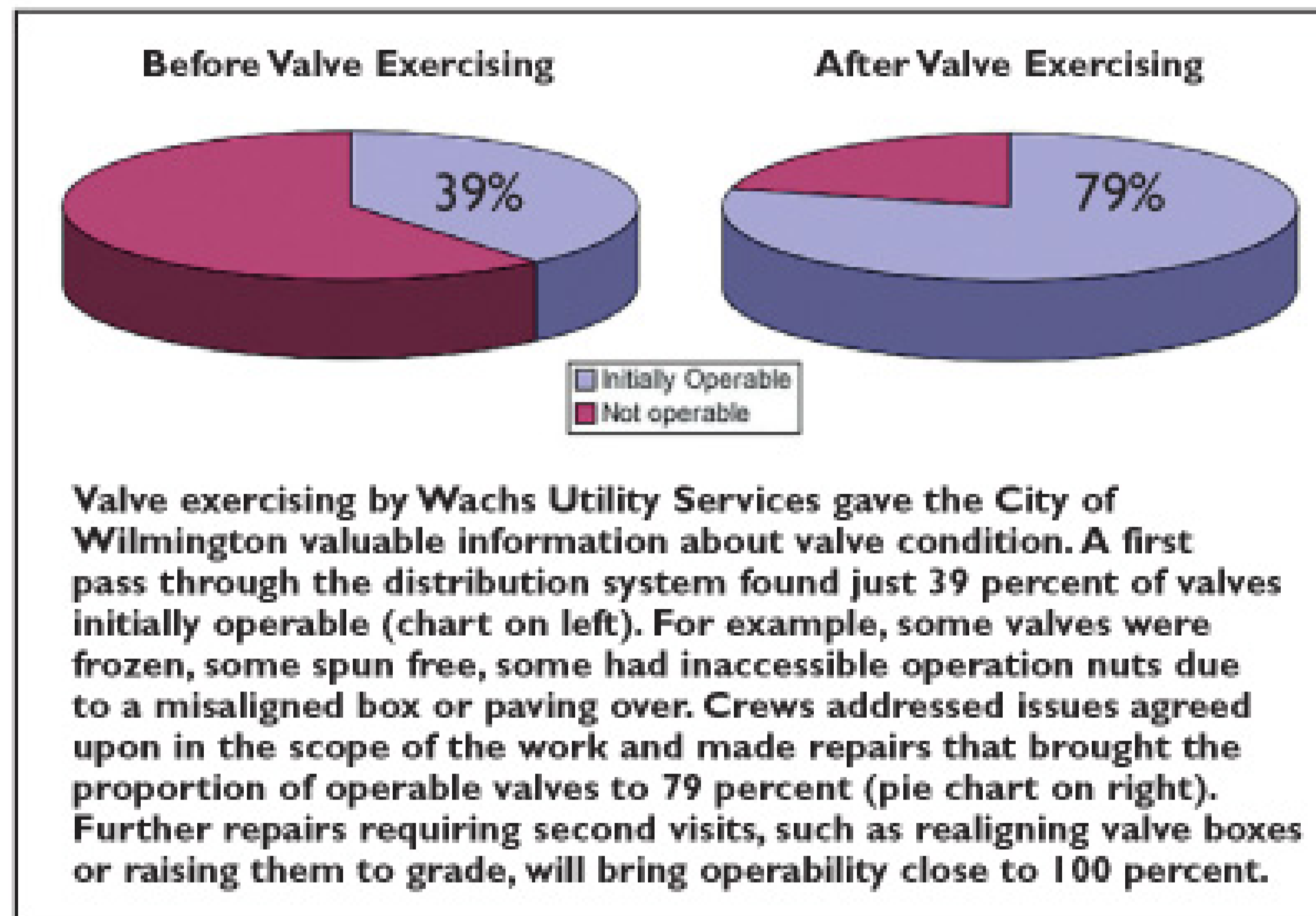
doing," says Carson. "If we can get someone in who can focus on doing this work, that's a plus."

Trenchless rehabilitation

Improvements to the distribution system also include rehabilitation. Some areas in the network generate complaints about poor water quality, low pressure, low flow or low fire flow capacity. To address this, the city works with Hatch Mott McDonald, a local engineering firm, to track all issues over time.



A Wachs Utility Services crew operates a valve with a hand-held electric turner after accessing and cleaning debris out of the valve box with the Wachs Travl-Vac 300.



A very old and atypical valve found in the oldest section of Wilmington's system.

The firm will help the city improve its approach to capital improvements, set repair priorities, and get the most value for improvement dollars. The intent is to develop projects that address as many complaints as possible with the budget available.

Cleaning and relining is one program that delivers strong return on investment. "If the mains are structurally sound, we believe we can do a mortar lining that's going to rehabilitate the line for 50 cents on the dollar, versus what it would take to replace the line," Carson says.

Although the city still replaces lines when required, cleaning and relining is the preferred choice by a 3-to-1 ratio for work planned in the near future. During the process, a cleaning pig first removes tuberculation from the cast-iron mains. A viscous cement mortar is then applied while a second pig smooths

the material, creating a clean, like-new surface.

Along with main rehabilitation, Wilmington often goes a step further, adding replacement service laterals, eliminating lead or galvanized service connections. This supports the city's efforts to improve water quality and stay ahead of the regulatory curve. "We're doing this as a service to our customers, and to limit our exposure with lead piping issues," Carson says.

When water main projects are planned, the city sometimes resurfaces the roadway at the same time, creating efficiencies, saving costs, and pleasing residents.

Going paperless

Perhaps the biggest change in the city is migration into the electronic world. Carson and his team are on an aggressive program to convert what was once a paper-and-

pencil office into a state-of-the-art electronic information center. Although it took time and effort to win over the staff, the department now sees the benefits of having up-to-date information available at the click of a mouse.

The city is creating an Intranet using an IMS server that enables staff to access aerial photographs, topography lines, street centerlines, traffic signals, valves, manholes, the sewer collection system, the water distribution system, and all roadways, and search by street names.

"Just about any infrastructure that you can think of, you can get to via the IMS," Carson says. "Beyond that, we can superimpose the water distribution mylars that have been scanned, so we can actually go and find the detail of what's in any given street. We're moving toward a situation where we can do the same with the sewer mylars and any of the other scanned documents that we have in our possession."

Another benefit of the GIS is how it will provide the city with "institutional memory," he adds. Over the past several years, the city has downsized its staff and experi-

enced attrition. When that happened, some programs were abandoned and knowledge about the city's infrastructure and systems was lost.

"My hope as manager of the GIS program is that instead of having programs fall apart at troubling times like that, maybe the GIS can provide the institutional memory and those programs can continue," says Carson.

In addition to its GIS, the city recently rolled out the Service Request component of the CityWorks Asset Management system from Azteca Systems. Plans call for activation of the Work Order component by the end of the current fiscal year, and the addition of the Asset Management module by the end of the following year.

Change is good

The City of Wilmington is committed to changing its thinking, methods and technology when necessary to make its water distribution system what it needs to be. Carson encourages other municipi-

palities and water agencies to embrace technology, especially data collection about their assets and deployment of GIS.

"I can see the ability to leverage our data in ways that were probably unthinkable as little as a decade ago," he says. "There are things we have on the drawing board that are going to really help us look like the professional organization that we truly are." ♦

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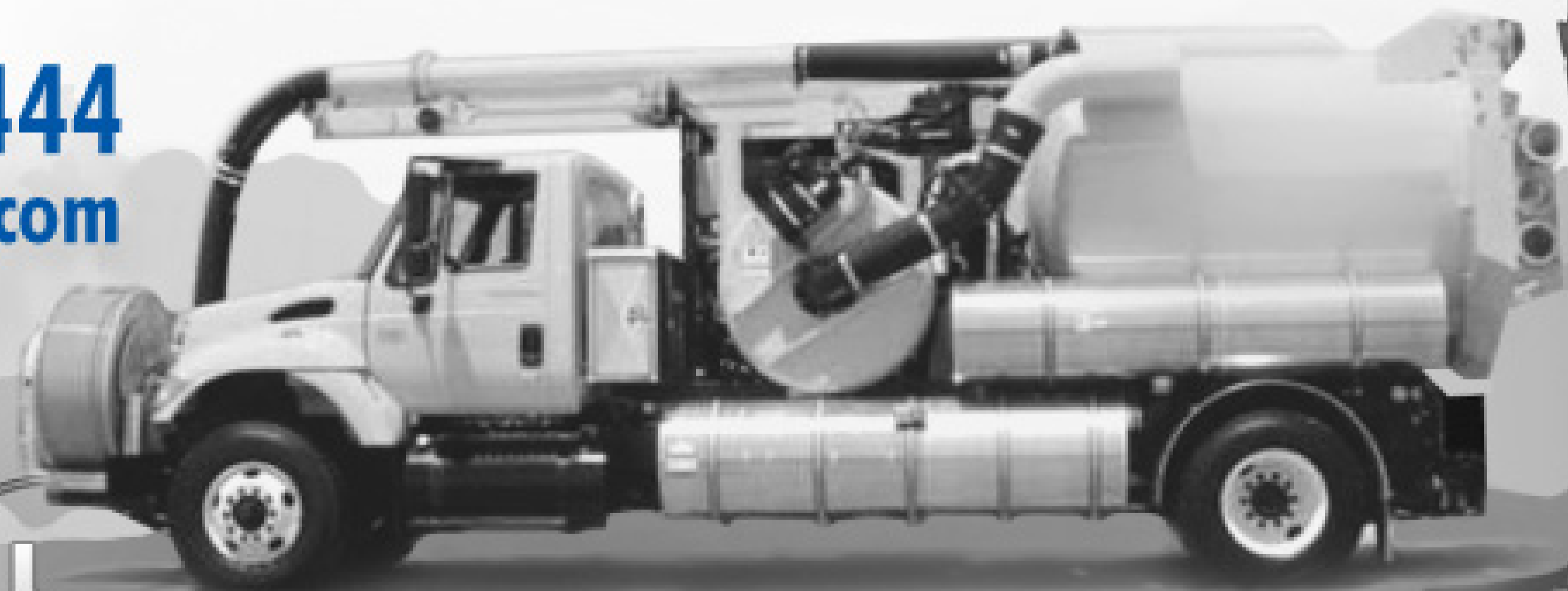
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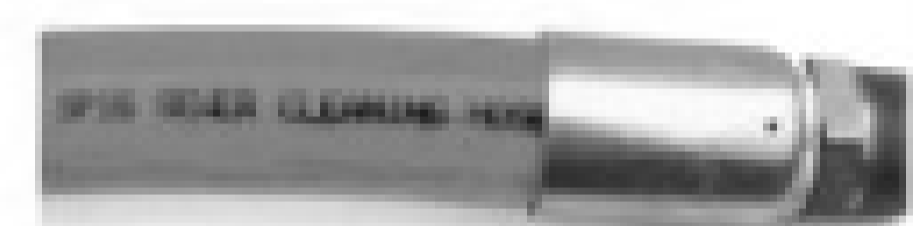
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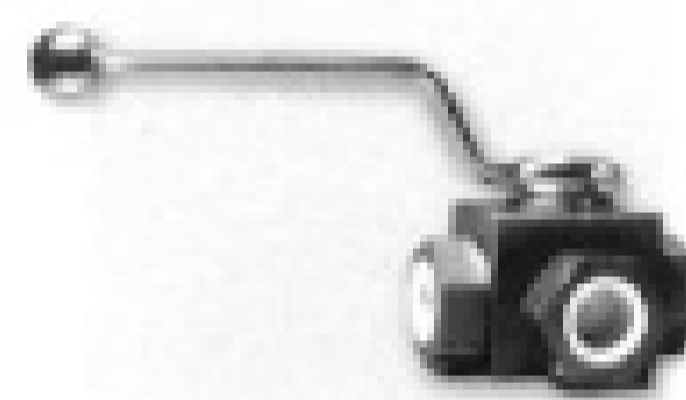
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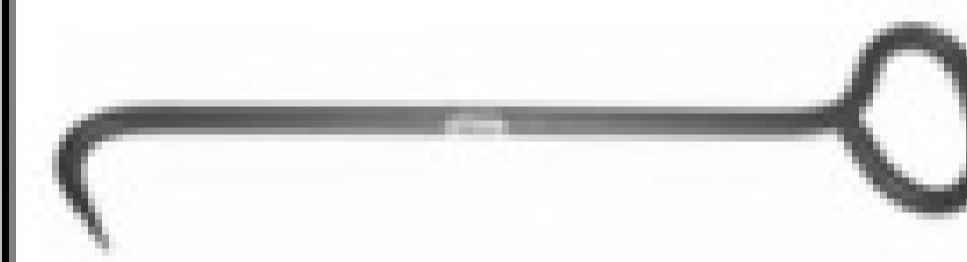


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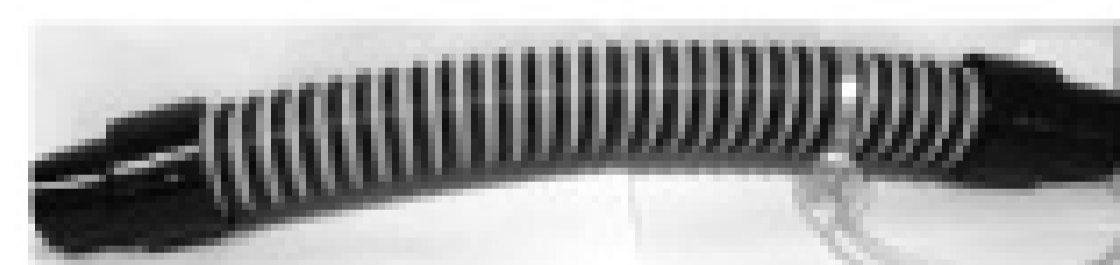
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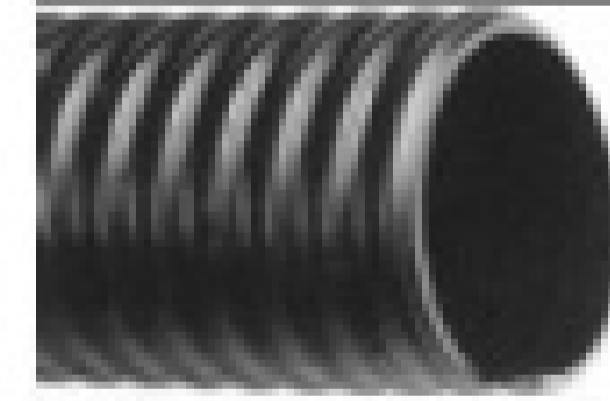
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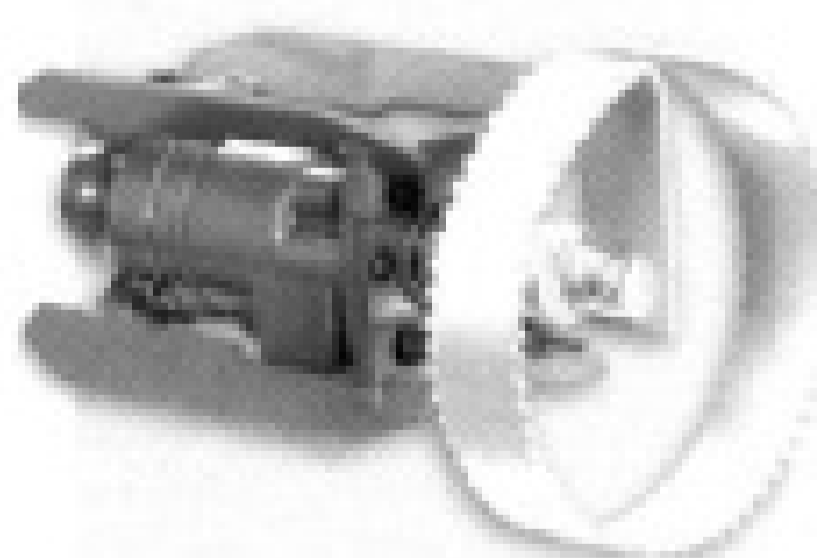
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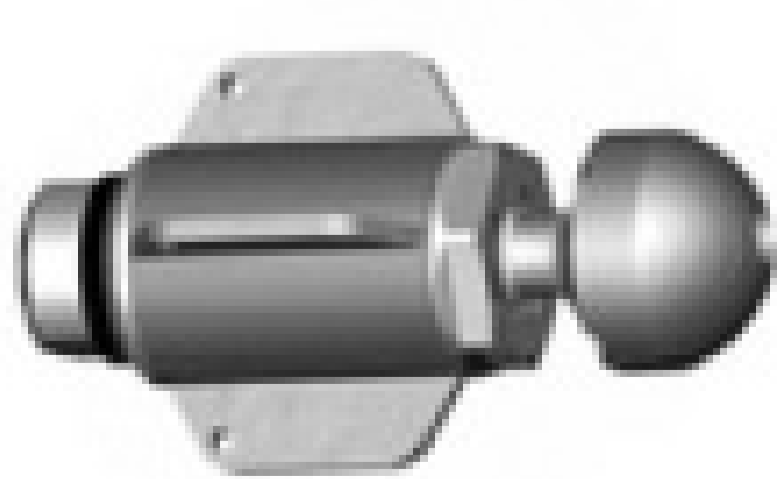


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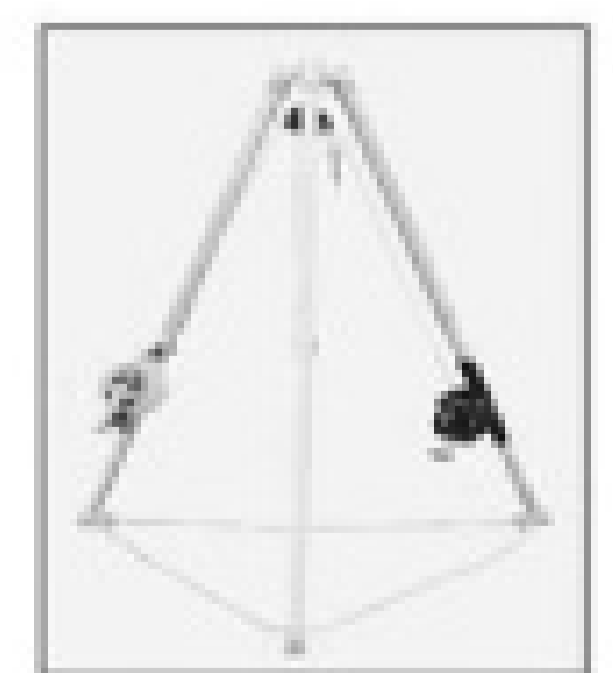
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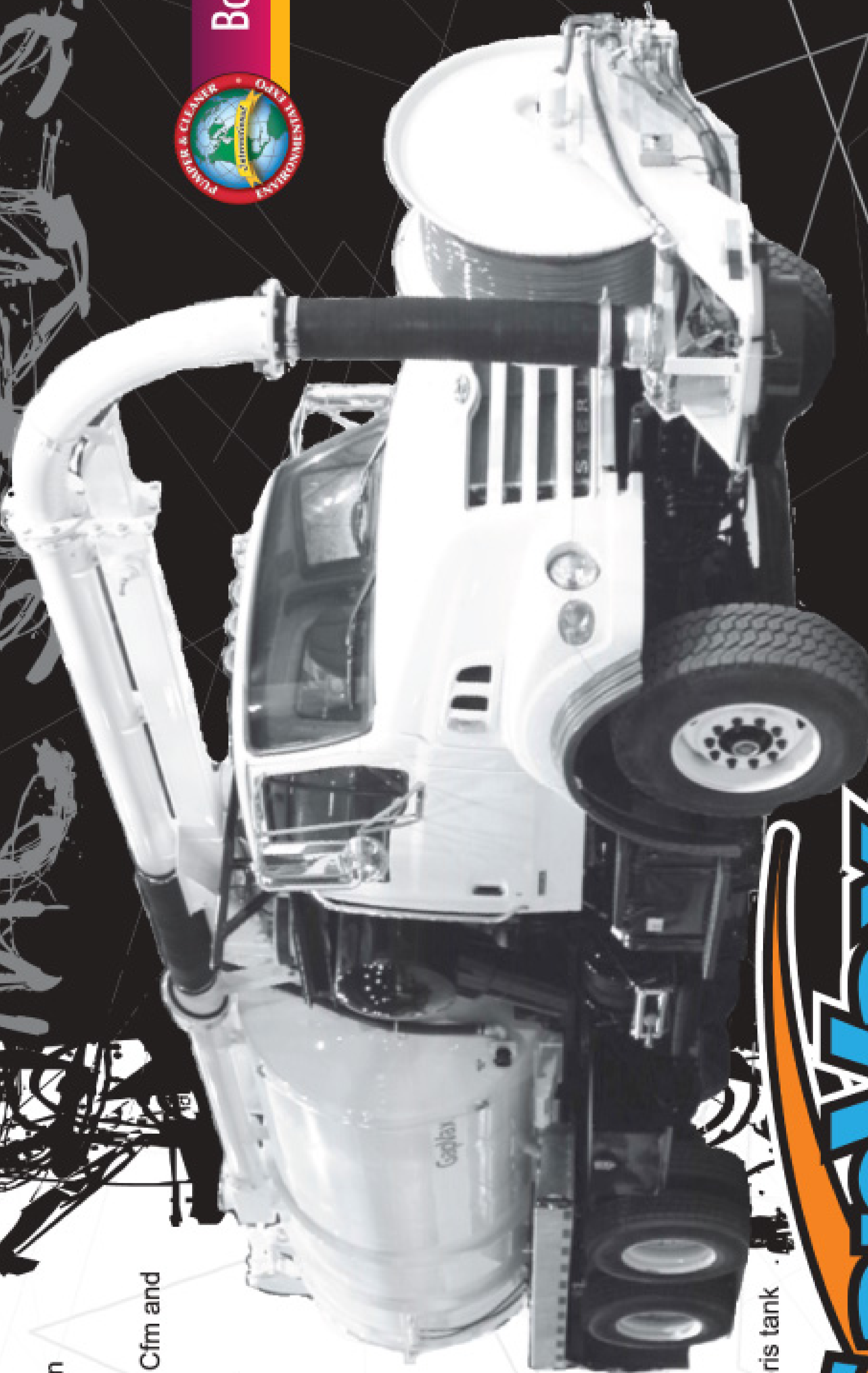


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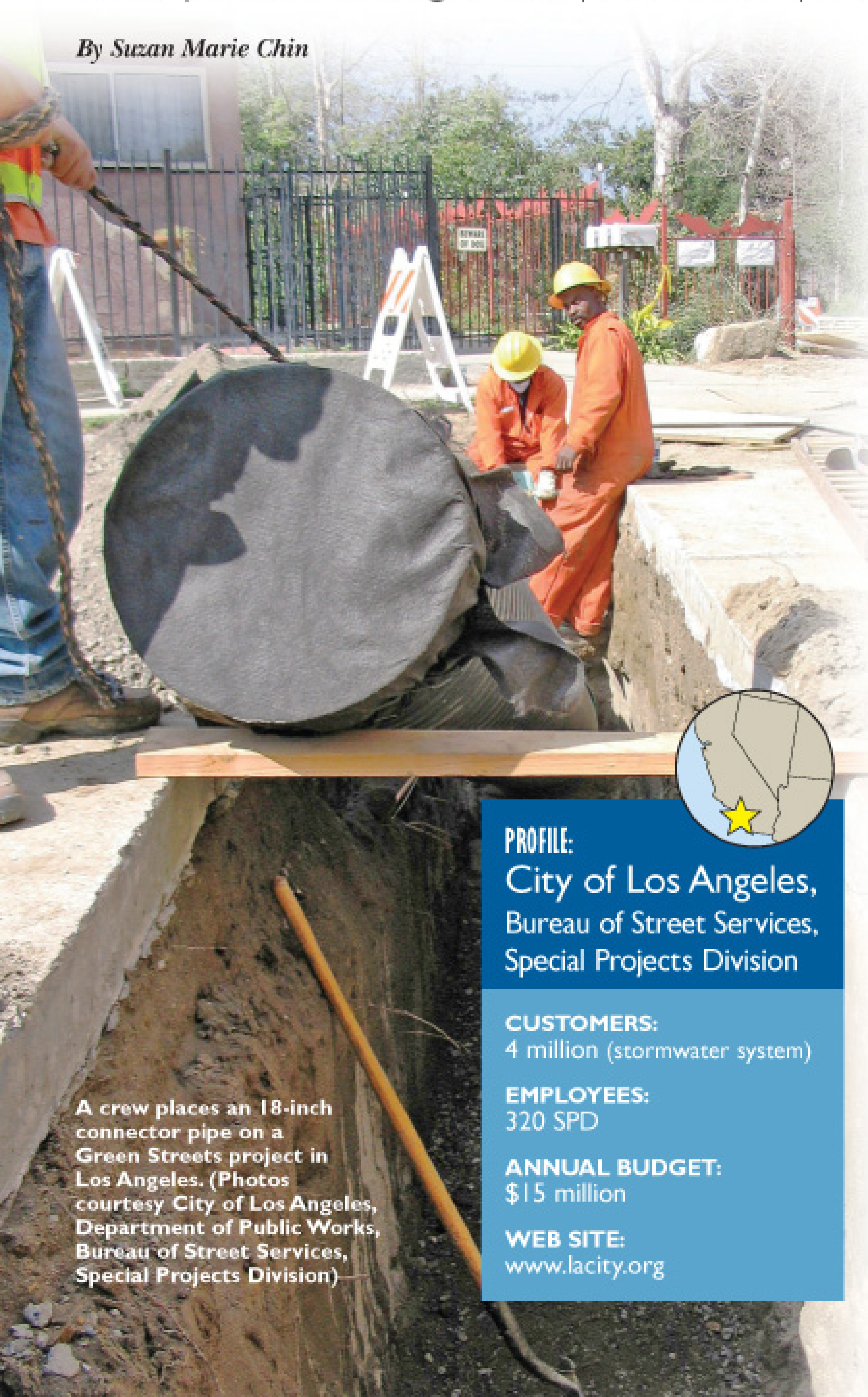
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GOING FOR THE GREEN

The City of Los Angeles pilot tests innovative technologies that help reduce runoff pollutant loadings and improve water quality in the Los Angeles River

By Suzan Marie Chin



A crew places an 18-inch connector pipe on a Green Streets project in Los Angeles. (Photos courtesy City of Los Angeles, Department of Public Works, Bureau of Street Services, Special Projects Division)



PROFILE:
City of Los Angeles,
Bureau of Street Services,
Special Projects Division

CUSTOMERS:
4 million (stormwater system)

EMPLOYEES:
320 SPD

ANNUAL BUDGET:
\$15 million

WEB SITE:
www.lacity.org

Innovative green technology is part of the answer to help the City of Los Angeles meet stormwater pollution reduction mandates and achieve its long-range goals for restoring one of its vital waterways.

The years have not been kind to the Los Angeles River, a vital component of the city's stormwater and flood-control system. Always proactive, the city had been searching for financially feasible ways to improve its stormwater system and enhance water quality in the river before it reaches the Pacific Ocean.

With help from an innovative non-profit organization and through cooperation across numerous agencies, the city embarked on a pilot program that is showing great potential for reducing non-point-source pollution, meeting federal and state environmental Total Maximum Daily Loading (TMDL) mandates and restoring the river from its concrete channel back to a natural waterway.

The program involves the installation of natural drainage areas and biofiltration systems on open spaces at the ends of streets along the river. The installations filter pollutants from runoff and reduce its volume and impact on the river.

A rich history

The Los Angeles River is an intermittent stream that flows through Los Angeles County from

its western end in the San Fernando Valley, about 51 miles to its mouth in Long Beach Harbor. For most of its length, the river flows through a constructed concrete channel. It was once the city's primary source of freshwater. Over the years, urban runoff and other pollution has hurt the river and the region's water quality.

Environmental groups and state and federal regulatory agencies, in an effort to control pollution and clean up the water entering local bays and wetlands are putting strict TMDLs in place. Preferring to devise its own way to meet the regulations and improve the river, the city was open to suggestions and to trying emerging technologies.

North East Trees, a non-profit environmental development organization, approached the city with a potential answer. "The city was interested in looking at how they should respond to the looming TMDL mandate," says Larry Smith, executive director of North East Trees.

"They were looking at large-scale, capture-and-release solutions, which deep down they knew were not going to be feasible for a number of reasons. They were looking for other solutions that could be applied on very small sub-watersheds to much larger sub-watershed situations."

Smith's group had recently completed a private project, the Bresee Ecology Park, that entailed the opening of a street's culvert and replacing it with an open swale

about one block long. Although developed as a stormwater quality improvement primarily for reducing trash loadings, it improved water quality more than anticipated.

The success of that project spawned the idea that open space at the ends of streets along the river could be used to treat and detain the city's stormwater. Thus was born the Street Ends Biofiltration Project, now called Green Streets.

Securing funding

North East Trees first presented the technology to the city at a stakeholders meeting that included Los Angeles County Flood Control, Los Angeles County Public Works, the U.S. Army Corps of Engineers, the Los Angeles Bureau of Engineering, Bureau of Sanitation and Bureau of Streets Services, and local elected officials.

As a non-profit, North East Trees had secured several grants to design and construct a low-impact biofiltration solution for the city. Timing was critical, as the grants included deadlines.

At the initial meeting, Smith and his team met some resistance from the Bureau of Engineering, as the project would be a non-standard plan, requiring a B-Permit from

“Intuitively we knew certain streets might be more suitable than others, but we didn’t want to rely on intuition. We wanted to make sure we were creating a foundation for the future selection of streets.”

Larry Smith

the city. The concern was that the city's permitting process would take too long.

The Bureau of Sanitation, which was responsible for meeting the TMDL mandates, went in search of ways to make it happen. Within the Bureau of Street Services is a Special Projects Division, set up to handle non-standard projects in public rights-of-way. That division stepped up to the plate. The city and North East Trees signed a memorandum of understanding



The first section of 24-inch HDPE perforated pipe is shown in place. The next section, not perforated, is ready for placement.

so that the grants could be dispersed, and work began.

Selecting sites

Site selection for the pilot project was critical. North East Trees and the Special Projects Division worked closely to develop selection criteria. “We needed harder data on water quality before implementation, and we wanted to demonstrate significant water quality improvement with a natural, low-impact development treatment of stormwater that could be potentially replicated on other streets,” Smith explains.

“Intuitively we knew certain streets might be more suitable than others, but we didn’t want to rely on intuition. We wanted to make sure we were creating a foundation for the future selection of streets.” The team created a matrix and used it to score sites based on specific criteria, such as street size, sub-watershed size, land use, street configuration and physical location.

For example, smaller sub-watersheds received higher rankings. Low-density, small-lot residential land uses got higher scores than mixed-use or industrial areas. The number one criterion was street configuration and location.

Ideal streets were in sub-watersheds that emptied directly into the river and had end-of-street open space. Such sites facilitated the pre- and post-project water-quality

Retention and detention pipes for a Green Streets project are shown after placement.

A NEW BREED OF CATCH BASIN

When the City of Los Angeles, Bureau of Street Services, Special Projects Division, agreed to help with the design and construction of the city's first Green Street, the staff knew they were entering unknown territory. The project was being constructed well below street level. Drainage systems within the public right of way are normally the responsibility of the Bureau of Street Services.



Nyloplast catch basin in place.

“We normally don’t do something like this,” says Dean Harding, project manager. “We occasionally install catch basins and pipelines and maintain them, but we knew we’d have a learning curve with this.”

A key to the project design was installation of two new catch basins with screening capabilities. A new pre-fabricated catch basin structure, complete with a bio-filtration unit had been presented to the Bureau of Street Services.

Harding’s team was accustomed to constructing catch basins from the ground up with masonry or concrete, but the Nyloplast catch basin from Advanced Drainage Systems Inc. had some intriguing features. The basin is made of engineered plastic, more corrosion and abrasion resistant than concrete or metal.

The unit also could be fitted with ADS Storm-PURE catch basin inserts with MYCELX Permakleen media to provide hydrocarbon and other pollutant filtration, a benefit to the design team at North East Trees, the non-profit organization working with the city.

The design and construction team tried the product based on its strength, filtration capability, and fast installation. The team conducted a successful installation and agreed that although the learning curve was steep at first, a pre-fabricated basin was beneficial.

“The dropping in of the pre-cast unit turned out much better than having to do two or three pours on a concrete structure,” Harding says. “They were the right fit for this project. “We’ll be looking at this type of product for other structural projects.”



monitoring and ongoing quality-assurance inspections that the grants required.

The team narrowed the pilot project sites down to the Elysian Valley and Atwater Village areas — two communities with the most streets that dead-end at the river and were in small sub-watersheds. The team's final selection was at the intersection of Blake and Oros streets.

Making the site ready

The site turned out to have some complications. The team thought the area had a 2.3-acre sub-watershed, but the drainage pattern of the streets had changed, and in reality the sub-watershed covered 20 acres. Property owners in the area had been complaining about the drainage for years. Rain events led to large areas of standing water that remained for long periods, posing an increased risk of West Nile Virus.

The team decided to rebuild the intersection as part of the project. This entailed repaving the intersection and part of Oros Street, changing the elevation of Blake Street (the crown) and replacing all access ramps, curbs and gutters. Although it caused some inconvenience, the reconstruction project created a spirit of cooperation for the Green Streets biofiltration technology within the neighborhood.

At the end of Oros Street lies Steelhead Park, designed and built by North East Trees several years



before. "Up until this time, we had been building street-end parks along the river, but without infiltration capacity," says Smith. "These were habitat restoration and passive recreation areas. They weren't originally built for stormwater treatment. But we realized that we could tie the two purposes together by adding a treatment facility to the park."

Working with the Special Projects Division, North East Trees sought to identify the type of biofiltration most likely to achieve the desired results. Pre-project monitoring produced a profile of the pollutants coming off the streets. The first 3/4-inch of rainfall contained most of the pollutants, after which the level dropped dramatically.

Designing the system

The design team chose a system using two catch basins equipped

with filters and a pit that would act as a drywell or leachfield to contain and filter runoff. Runoff would be caught and initially filtered through two Nyloplast catch basins from Advanced Drainage Systems Inc., equipped with Storm-PURE inserts and MYCELX Permakleen media by MYCELX Technologies Corp., to remove suspended solids, hydrocarbons and other pollutants before the water was conveyed to a pit constructed in the park.

The 8-foot-deep pit was excavated and graded to create proper drainage into the park substrate. In the pit, crews laid 60 feet of 24-inch perforated HDPE pipe and tied it to the catch basins' conveyance pipe. On top of the HDPE pipe, they laid five feet (500 tons) of 1-inch gravel containing no fines. The uniform size of the non-compacted gravel enables water to percolate effectively. This gravel was covered with soil and planted

with native vegetation.

Before installation of the biofiltration treatment, Oros Street had a typical capture system, according to Dean Harding, project manager with the Special Projects Division. "It was just standard surface drainage," he says. "Curb and gutter transported runoff to the dead end, where there was one very large catch basin, which transported the water directly into the river. Whatever came down the street ended up in the river.

"Now, the water goes through the natural soil and recharges the aquifer. That's nature's way of filtering things out. By the time it does get to the river, which is another 20 to 30 feet down, the water is about as clean as it is going to get. It is a natural process that works really well."

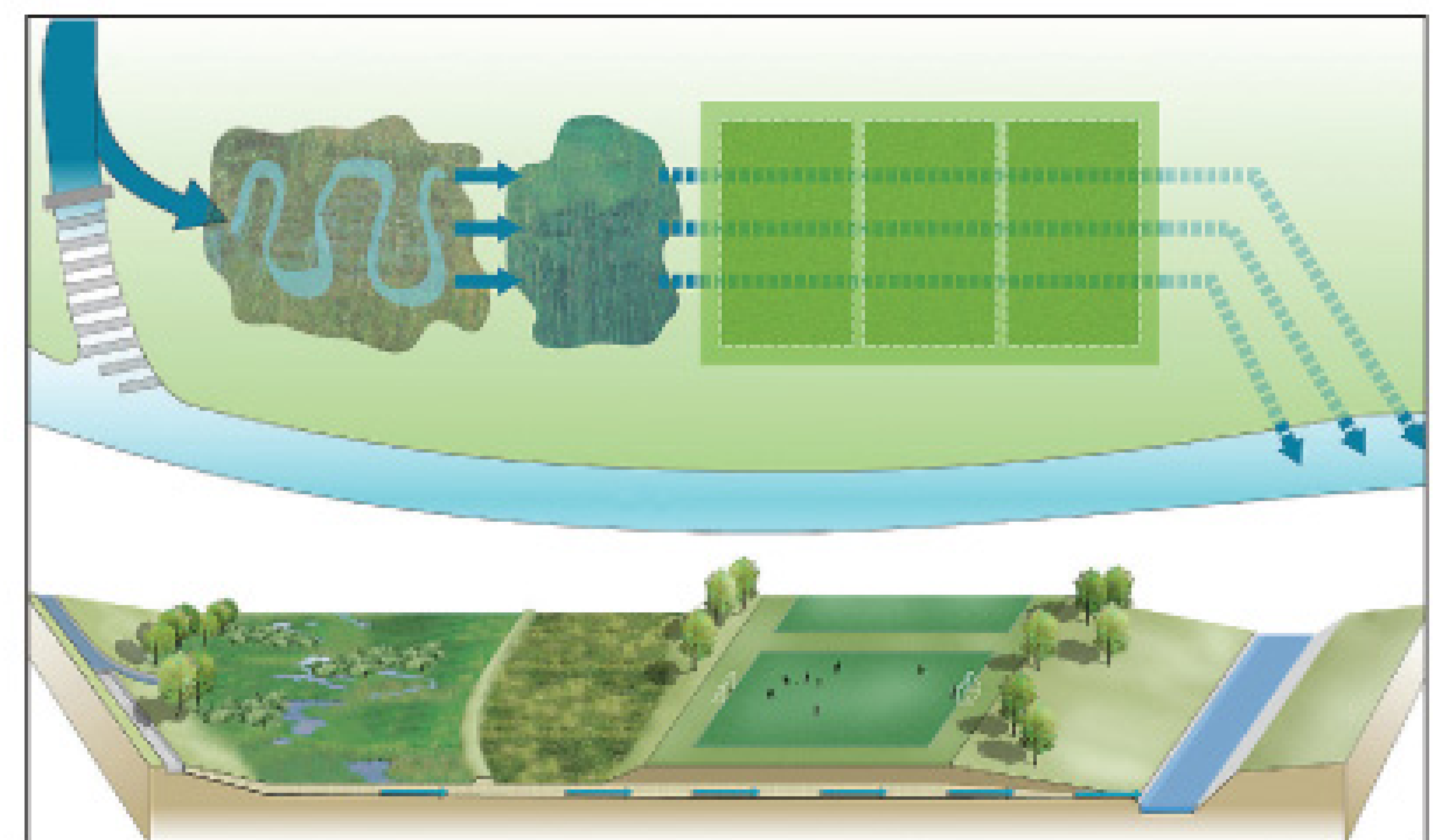
Oros Street Gardens

The second set of treatments was built directly on Oros Street. "The Oros Street treatment was a source reduction strategy," observes Glenn Hoke, who works in design review, purchasing and construction oversight for the Bureau of Street Services. "There is a lot of paving on these properties, such as driveways and patios. The idea was to capture runoff from those areas, retain it and treat it. The best design ended up being parkway biofilter systems."

The parkway system consists of trench drains, perforated plastic pipe, settlement and infiltration galleries, and vegetation. Most ele-



A conceptual diagram shows plans for combining recreation fields with water quality BMPs that convey dry-weather flow from a culvert or tributary through a natural treatment system before the water enters the Los Angeles River.



ments of design and construction of these treatments were new to the Special Projects Division: bio-filtration and green technology presented a learning curve.

Planning and research helped the crews keep the project on budget and on schedule. "Working and coordinating our efforts with the neighborhood was important," says Bob Garcia, supervisor II for the Special Projects crew. "Advance planning was challenging, but coming up with if/then scenarios, knowing what we could handle in one day to minimize disruption, and researching the products to be used really helped."

"Now, the water goes through the natural soil and recharges the aquifer. That's nature's way of filtering things out. By the time it does get to the river, which is another 20 to 30 feet down, the water is about as clean as it is going to get. It is a natural process that works really well."

Dean Harding

A special project construction crew built five biofiltration planter gardens along the street, each about 25-feet long by 6- to 8-feet wide, situated between sidewalk and curb. Each property along the street has a 6-inch-wide trench drain grate across the driveway to convey runoff through a conduit line into the planters. The conduit is a 4-inch perforated PVC pipe connected to a 12-inch riser that is filled with gravel.

This riser becomes a vertical waterway for the collected runoff to enter two 24-inch retention/detention pipes that run the length of the planters. The pipes are laid side by side on top of a layer of gravel about 6 1/2 feet down. The pipes are then covered with gravel, geofabric, and soil, which is planted with native vegetation.

The planter garden creates a natural infiltration gallery, holding water until the surrounding soil and plants can absorb it, keeping runoff from the lot on the lot.

More can be done

The Green Streets pilot project was so successful that it earned an award from the city. The Bureau of Sanitation would like to build more projects like Oros Street in other locations along the river to

help meet the TMDLs.

To make these improvements easier, the Special Projects Division will monitor the project and document its effectiveness. Findings will support standardized design plans for Green Streets projects.

The technology has become an important element in the L.A. River Revitalization Master Plan, which aims to create an infrastructure and environment that offers flood protection, improves water quality and the environment, and allows for the eventual removal of the river's concrete channels. A significant element in the plan's recommendations is incorporation

of river-adjacent green streets to provide safe connections to the river for bicyclists and pedestrians, water quality features, and functioning habitat where appropriate.

Collaboration among city agencies, non-profit organizations and community members was key to the pilot program's success. After the first successful Green Streets project, the crews from North East Trees and the city are excited. "This is the future," Garcia says. "I would recommend others to look at this solution seriously."

Local elected officials have offered their support as well. "We need Green Streets to have a clean river," says city council president Eric Garcetti. "We're demonstrating that a major goal of the L.A. River Revitalization Master Plan is within our reach, thanks to the collaboration between our city and North East Trees." ♦

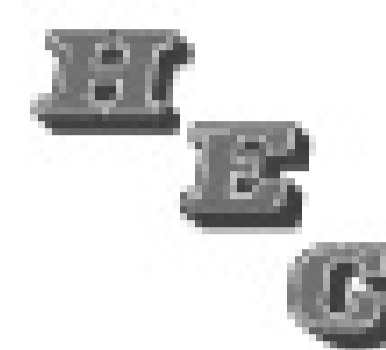
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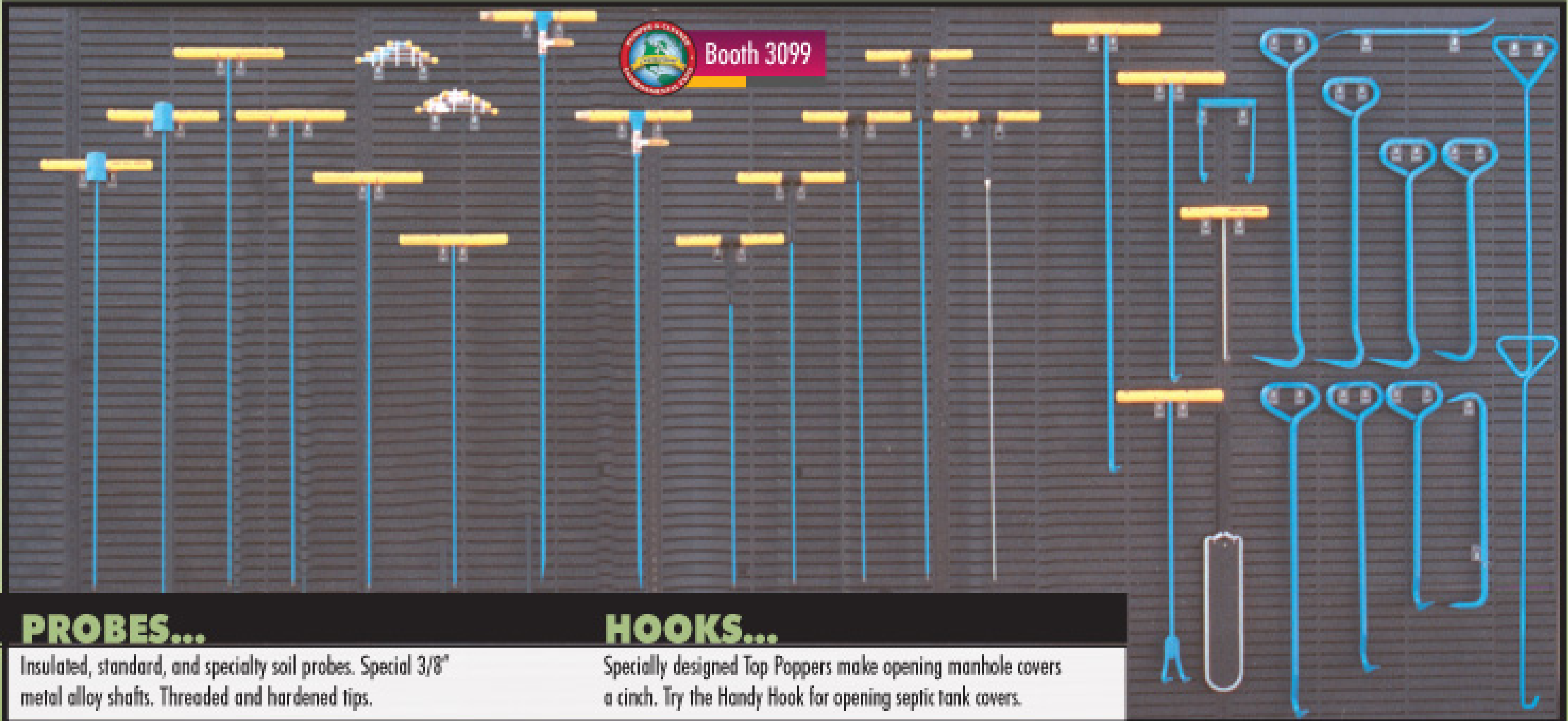
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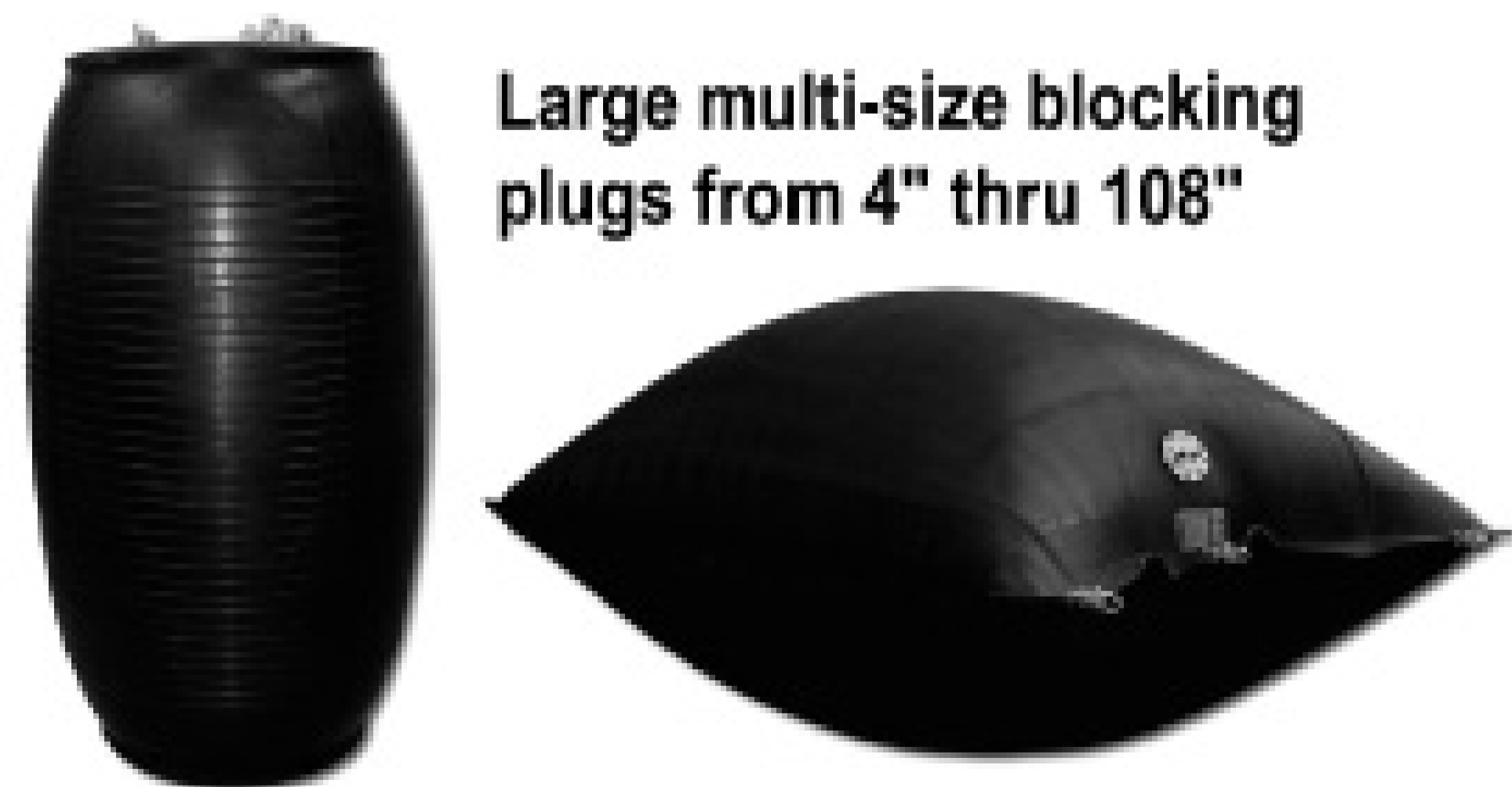
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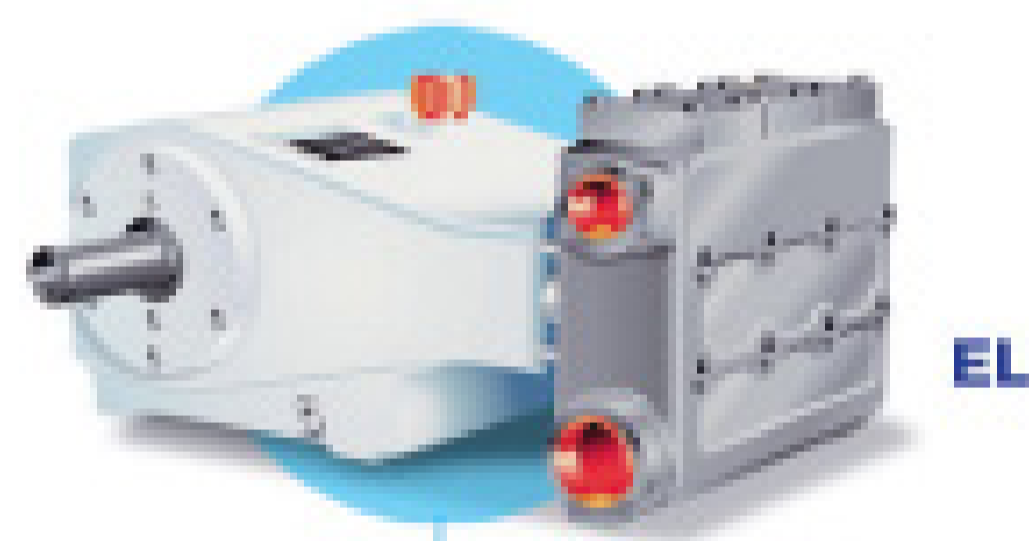
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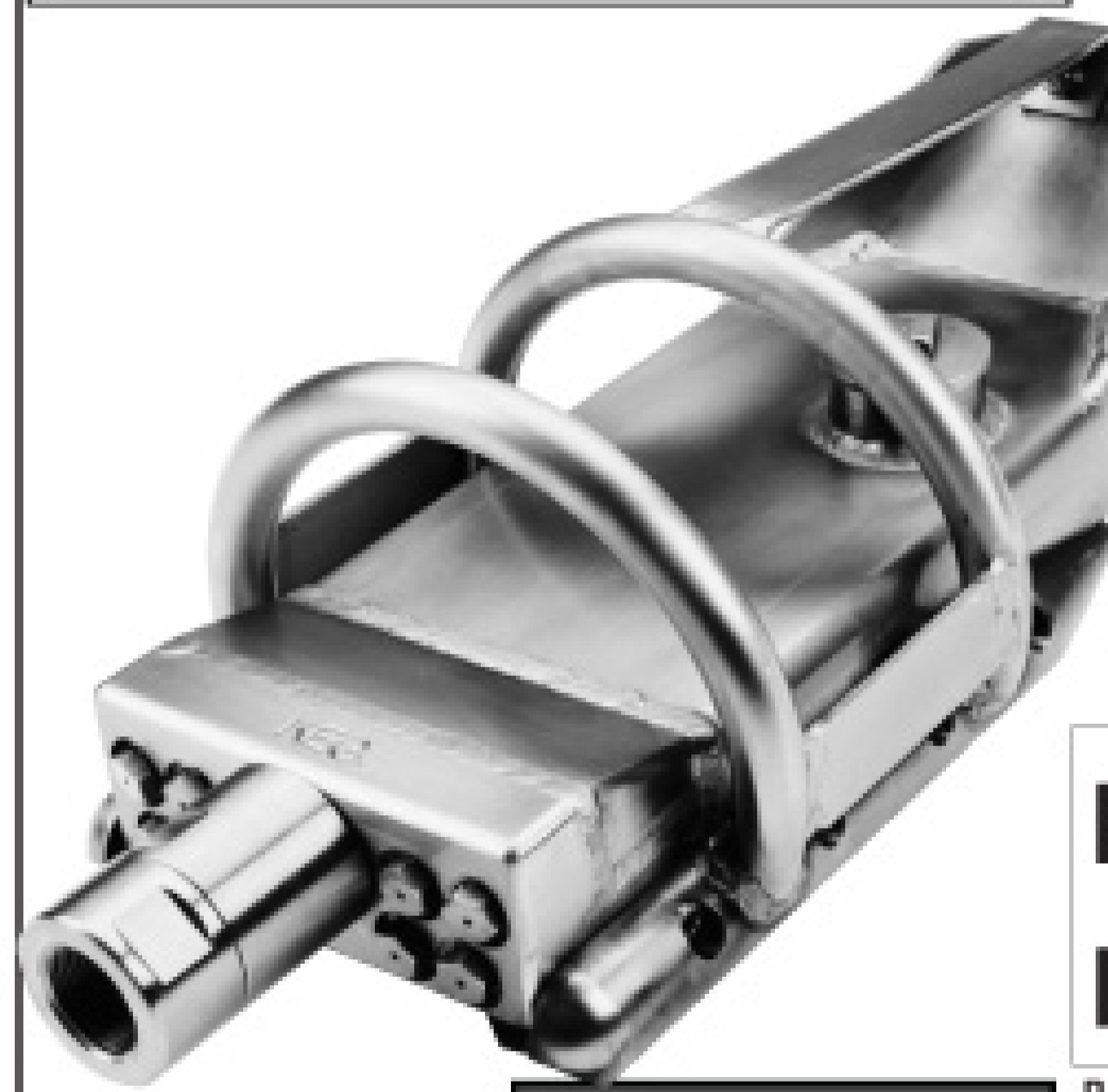
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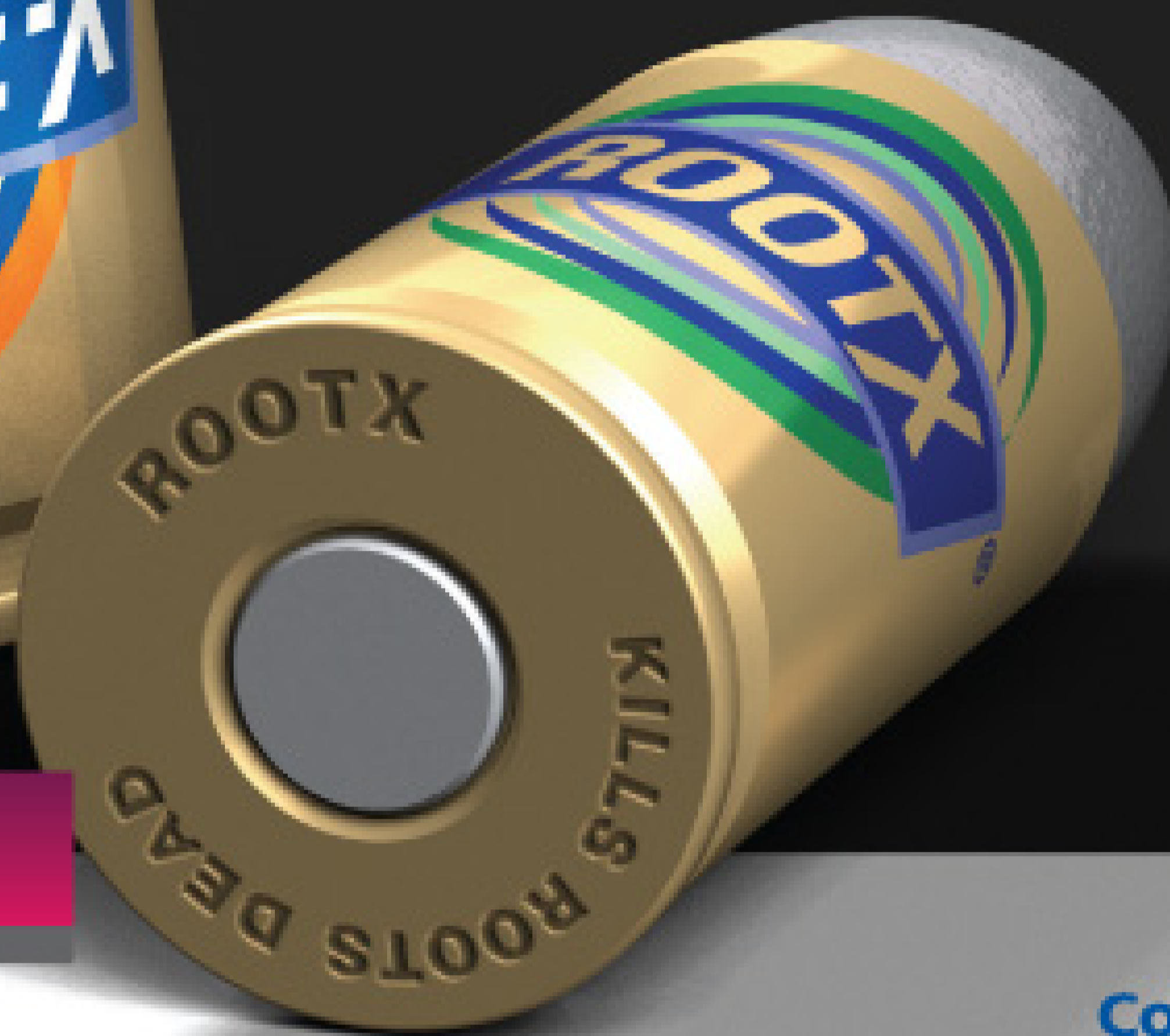
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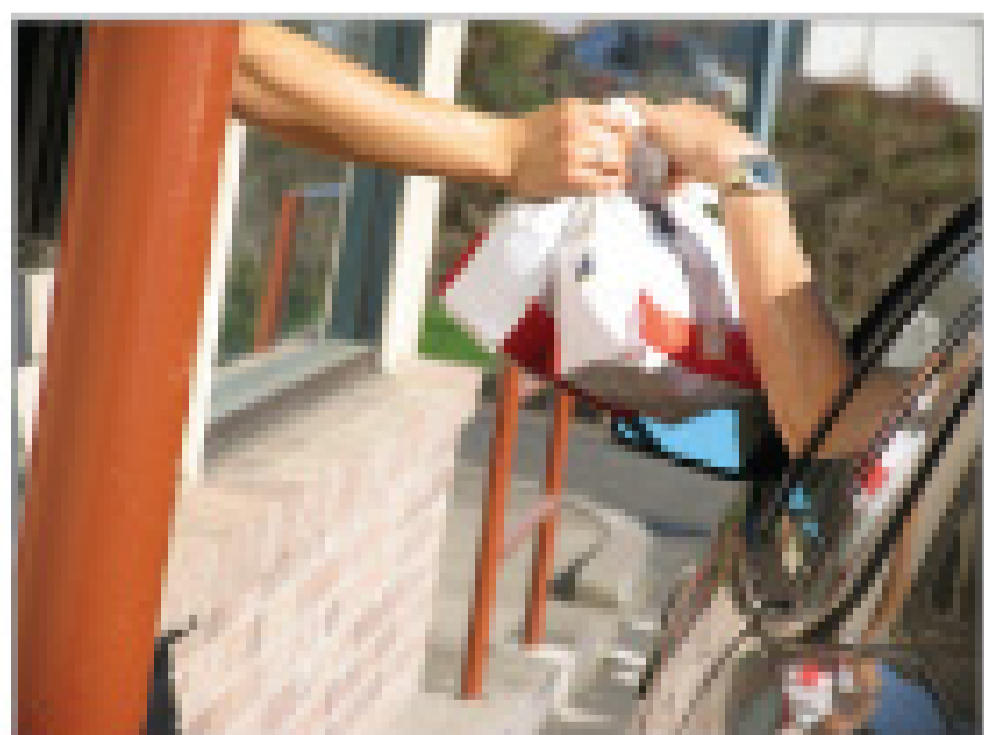


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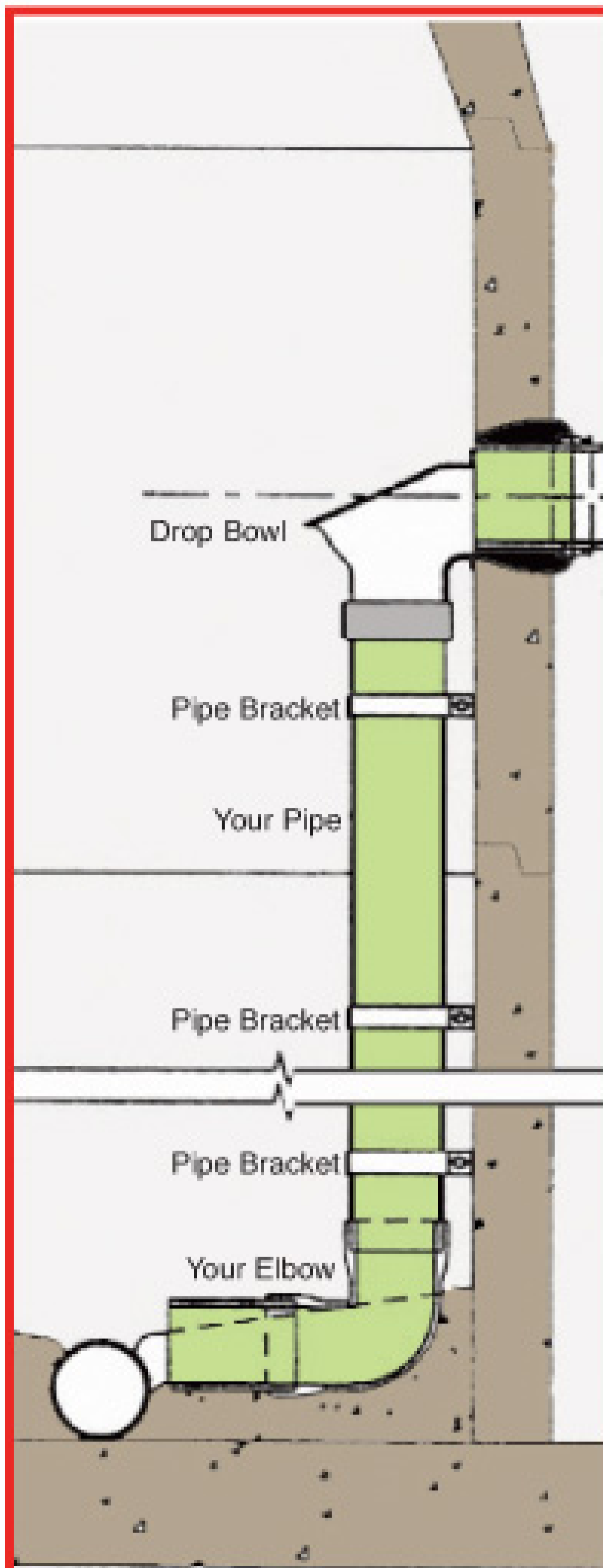
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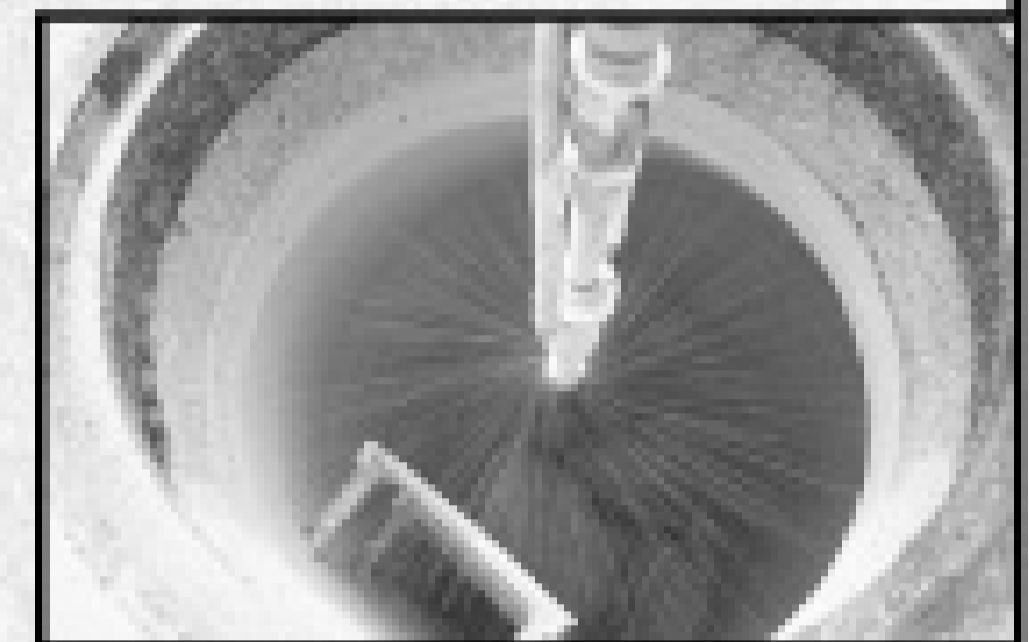
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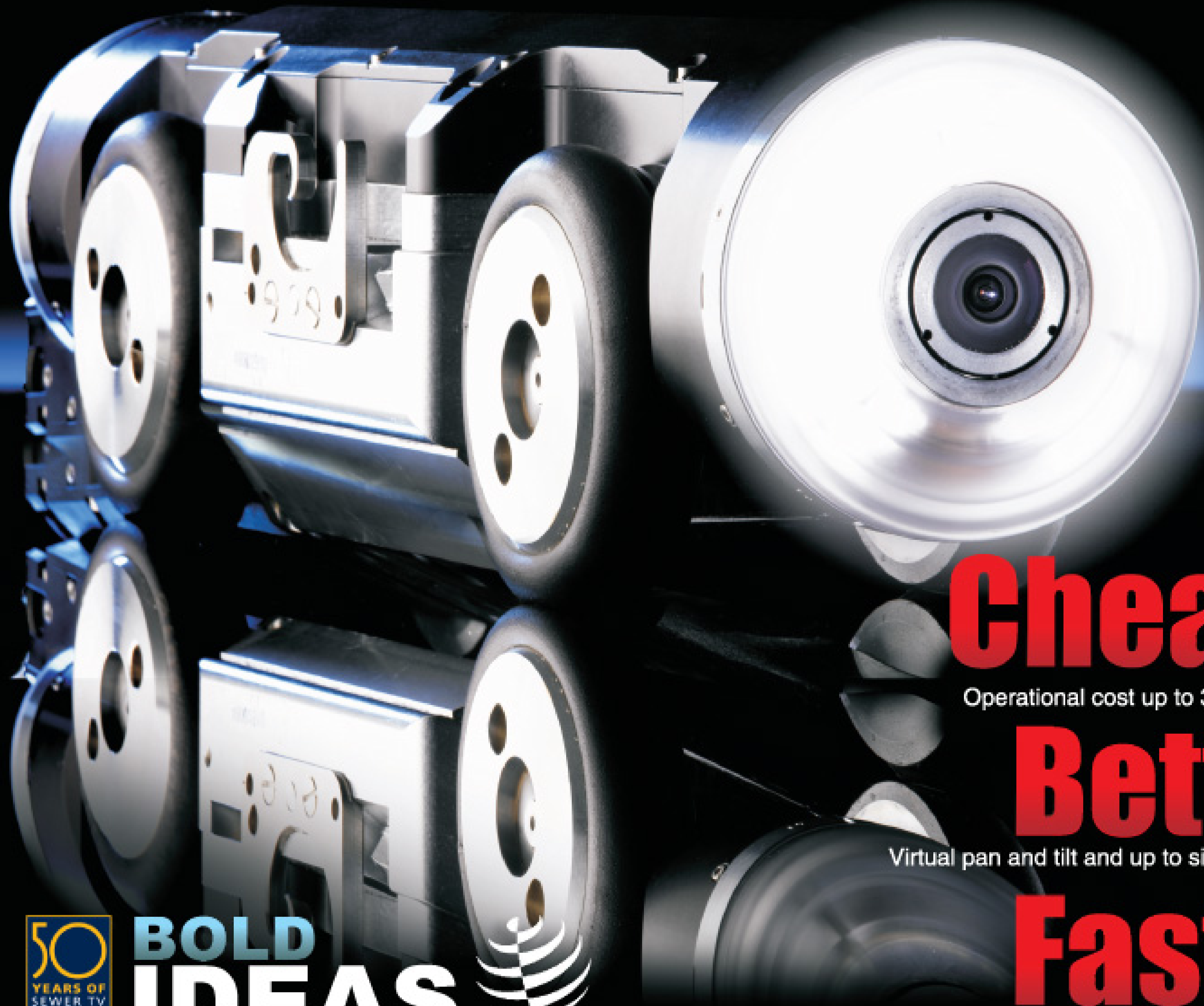
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AROUND AND UNDER

Horizontal directional drilling helps the Ogunquit Sewer District work around challenges of tourists, tides, and environmental restrictions

By Angus W. Stocking, L.S.

Ogunquit is a seasonal resort town on the coast of Maine, but its sewer district faces some big, non-seasonal problems: relentless tides, environmental challenges, and older infrastructure.

Since the Ogunquit Sewer District is considerably older than much of the town, which was incorporated in 1980, many pipes pass directly under major hotel and housing developments, as well as other utilities.

The town's tidal locations mean that environmental agencies closely scrutinize any work on the system. There is even an endangered bird nesting area in the seawall dunes, affecting the window of time in which some work can be done. That window is already constricted by weather, tides and the tourist season, reports district superintendent Phil Pickering.

The district also has major seasonal problems with inflow and infiltration. Storm events over four or five inches — which include Maine's famous nor'easters — cause trouble. In addition, tourist season drives the district's flows

from the normal 300,000 gpd to 800,000 gpd.

In the face of these and other challenges the district uses horizontal directional drilling (HDD) aggressively for line installations and replacements. The town also keeps current with other modern technologies and techniques, notably geographic information systems (GIS).

Small but challenging

The district's staff of seven serves 1,700 accounts and manages a modest amount of pipe — about four miles. Much of that lies within tidal flats, and some runs underneath a tidal river. The area is drained by the Josias and Ogunquit rivers. The town's 3.5 miles of beach and dunes form a barrier peninsula, connected to the mainland by bridge.

"The district got started with town-owned sewer going back to the 1930s, so we still have some pipe going back to the 1940s, mostly clay tile," says Pickering. "We also have a lot of ductile iron.

One factor working in the district's favor on directional drilling projects is favorable soil condi-

A crew from O'Brien Construction uses an open-cut trench technique to install pipe on an Ogunquit Sewer District project. (Photos courtesy Ogunquit Sewer District)



tions. "There's marine base clay at 30 feet, and other than that we're usually dealing with sand," Pickering says. "Clay works well because it holds drilling fluids. Sand is also pretty good, but you have to be cautious of frac-out, and cleanup costs are higher." (Frac-out is the forcing of drilling fluids out of the drilled hole).

HDD got started in 2004, when the district sent a 900 foot "shot" under the Ogunquit River. Another project in 2005 that showed the promise of HDD took place in 2005 involved replacement of a segment of force main with 8-inch HDPE.

"Directional drilling was the obvious choice for that project," says Pickering. "The old cast-iron pipe installed in the 1960s was deteriorating, and we needed to increase capacity. We could excavate to put in new pipe, but the system had to remain in service, and that made pipe bursting impractical, too. A long bypass system would have been necessary, and that would have been very costly."

The only way

Ultimately the district completed

a 1,100-foot shot that passed under a bridge, several utilities and a 16-inch sewer main, and around a hotel pier and rocky outcrops. "HDD was really the only way to do this job," says Scott Kelly of Enterprise Trenchless Technology Inc. (ETTI), the district's contractor.

"Other alternatives would have been extremely



PROFILE: Ogunquit (Maine) Sewer District

TOWN POPULATION:
1,300

INCORPORATED:
1980

TOWN AREA:
4.3 square miles

ANNUAL BUDGET:
\$1.2 million

WEB SITE:
<http://ogunquit.govoffice.com>

time consuming, costly and disruptive. Not one single house, business, or utility was disrupted as a result of our operations." The firm used Ditch Witch HDD equipment.

Even though it went smoothly, the project was challenging, even by HDD standards. A stone pad had to be constructed in a tidal area to support the drill rig, and work had to be scheduled to take advantage of low tides. But the bottom line is that HDD pulled off a project that might have been impossible otherwise.

The district's most recent project, replacing more than a mile of ductile iron force main with 10-inch HDPE, represents Phase Two of a project that began in 2005. "We're doing this because we have concerns about the older force mains," says Pickering. "It's an old cast-iron line, and we hope to get it replaced before it fails. It's also a bottleneck in the system." That stretch of pipe handles about 80 percent of the district's flow and is a major source of I&L.

Environment friendly

A main benefit of HDD in this case is the avoidance of environmental restrictions, as much of the new pipe has to pass through tidal areas and across a river. "We don't believe we could have gotten per-

mitting for another approach," says Pickering. "But doing it this way, we didn't have any permitting problems."

HDD shots for this project were as long as 1,800 feet. Locating for the project had to be done between tides, and there were other challenges as well. "We had to construct a gravel road to get support equipment to the site," says Kelly, "and we used a foot-bridge that spanned a river to transport water and slurry to the drill from a remote parking lot."

The project's first phase passed final testing on a Saturday and was flowing the next day, just in time for an extremely high tide and nine inches of rain on Monday: "This line couldn't have come at a more crucial time," said Kelly.

Initial plans for the project called for even longer shots. Load calculations showed that pressures would be very close to safe limits for 10-inch HDPE. The district hired a consulting engineer to reroute the HDD shots. "His calculations were nearly perfect," says Kelly, "and saved damaging the pipe on final pullback. The engineering paid huge dividends on this project."

Preparing for tourists

Summer tourist season always

challenges the district staff. "For one thing, it would not be advisable to close any streets between Memorial Day and Labor Day," says Pickering. "That means any construction has to fall outside the most convenient work period." Grease is also a problem.

"We've always had a bit of a grease issue, probably because we have 55 restaurants in our district," Pickering says. To mitigate those issues, Ogunquit passed a grease ordinance that gives the district a way to work with restaurants.

"We've been picking away at the problem," says Pickering. "We

require grease traps, and we require inspections to make sure that they're installed properly. We also work with the restaurants on maintenance and cleaning issues, and we require them to keep records, which we collect each fall."

In the weeks before tourist season, the district gets ready by conducting a massive spring clean-

WHAT'S A NOR'EASTER?

Maine residents know nor'easters as large, hurricane-like storms that typically come in winter and spring, affecting mainly coastal areas of the Northeastern United States and Atlantic Canada.

Winds of up to 90 mph come from the northeast. Like hurricanes, the storms dump huge amounts of rain or snow, causing floods and record tidal events. Nor'easters also occasionally bring historic blizzards, such as the North American Blizzard of 2006, which dumped 27 inches of snow — an all-time record — on New York City. Very large nor'easters sometimes form a hurricane-like eye.

The name for the storms is somewhat controversial. Some writers insist that it is an affectation not rooted in regional New England dialect or pronunciation. However, the term is quite old and is generally accepted, even in New England.

A "pig launch" with two 8-inch mains coming in and two 10-inch mains going out allows mains to be switched off for maintenance with 10-inch pigs.



"There's marine base clay at 30 feet, and other than that we're usually dealing with sand. Clay works well because it holds drilling fluids. Sand is also pretty good, but you have to be cautious of frac-out, and cleanup costs are higher."

Phil Pickering



Contractors prepare for an 1,800-foot horizontal drilling "shot," the first phase of a 5,200-foot project.

At right, 1,800 feet of 10-inch HDPE is pulled into position before being pulled through a pre-drilled underground "trench." Below, a pump is used to clear mud slurry from a receiving pit, where pipe will be pulled in after a high tide has receded.



"We've always had a bit of a grease issue, probably because we have 55 restaurants in our district. We've been picking away at the problem. We require grease traps, and we require inspections to make sure that they're installed properly."

Phil Pickering

ing. "We spend quite a bit of time in spring making sure that all our lines are cleaned out and that we have no grease issues," Pickering says. "At the treatment plant, we go over pumps and other equipment to make sure we have maximum capacity. In-house, we're getting all our tanks cleaned out and online, and we'll check details, like making sure that air diffusers don't have algae buildup. It's like getting ready for battle."

Using technology

Other equipment used by the district includes a John Bean 2,000 psi/75 gpm waterjetter with 600-gallon tank, an Aquatech JV1000 vacuum truck, a Thompson portable pump, and an a Silver Bullet mini-crawler camera from InsightVision.

"We've only had the track camera about a year," says Pickering, "and so far we're using it reactively, taking it to problem areas. I don't really like that, and we'll be using it more proactively, on a schedule, soon."

In addition to grease, the staff encounters roots. "Lately, we've

found a lot of areas invaded by roots, particularly in the areas where we still have a lot of clay tile in use," Pickering says. Rather than use chemical root control, the district replaces root-bound pipe with new HDPE for a more permanent fix.

The district's GIS is about a year old, built on ESRI software and laid over recent 6-inch pixel, high-resolution orthophotography (each pixel in the final images translates to six inches on the ground). All manholes are located, either by orthophotography or by GPS. Information tracked includes line sizes, types of inverts, slopes and rim elevations.

Other information, such as property lines and ownership, was provided by the Town of Ogunquit in exchange for access to the orthophotography — a trade that worked out well for both parties.

Close collaboration

To get an idea of what kind of system he wanted, Pickering cooperated with the nearby towns of Westbrook and Sandford, which

consulted with him on GIS design. The district is working on including video footage of pipelines, cleaning and repair status, and information from two Flo-Tote flowmeters, which are used to investigate I&I issues.

"We're still working on issues with our IT guy, and I'm very hopeful that we'll be using it much more than we are now," says Pickering. Eventually, the GIS will be used proactively to schedule maintenance and repair.

The flowmeters are deployed as needed to investigate I&I issues. They were immediately helpful in discovering areas where infiltration groundwater was leaking into pipes. They also helped the district find residential and commercial sump pumps that were illegally tied into the sanitary sewer system.

The wastewater needs of even a small community require dedicated, skillful, and an imaginative staff. The Ogunquit Sewer District is doing what is necessary to get the job done. By recognizing and adapting to the special challenges of the tourist season, the district keeps service reliable, without keeping excess capacity in place year-round.

By using horizontal directional drilling skillfully, the staff can

complete even huge projects that can be worked on only in the off-season. The people of Ogunquit — especially the "summer people" — benefit greatly from the district's aggressive, innovative use of this and other technologies. ♦

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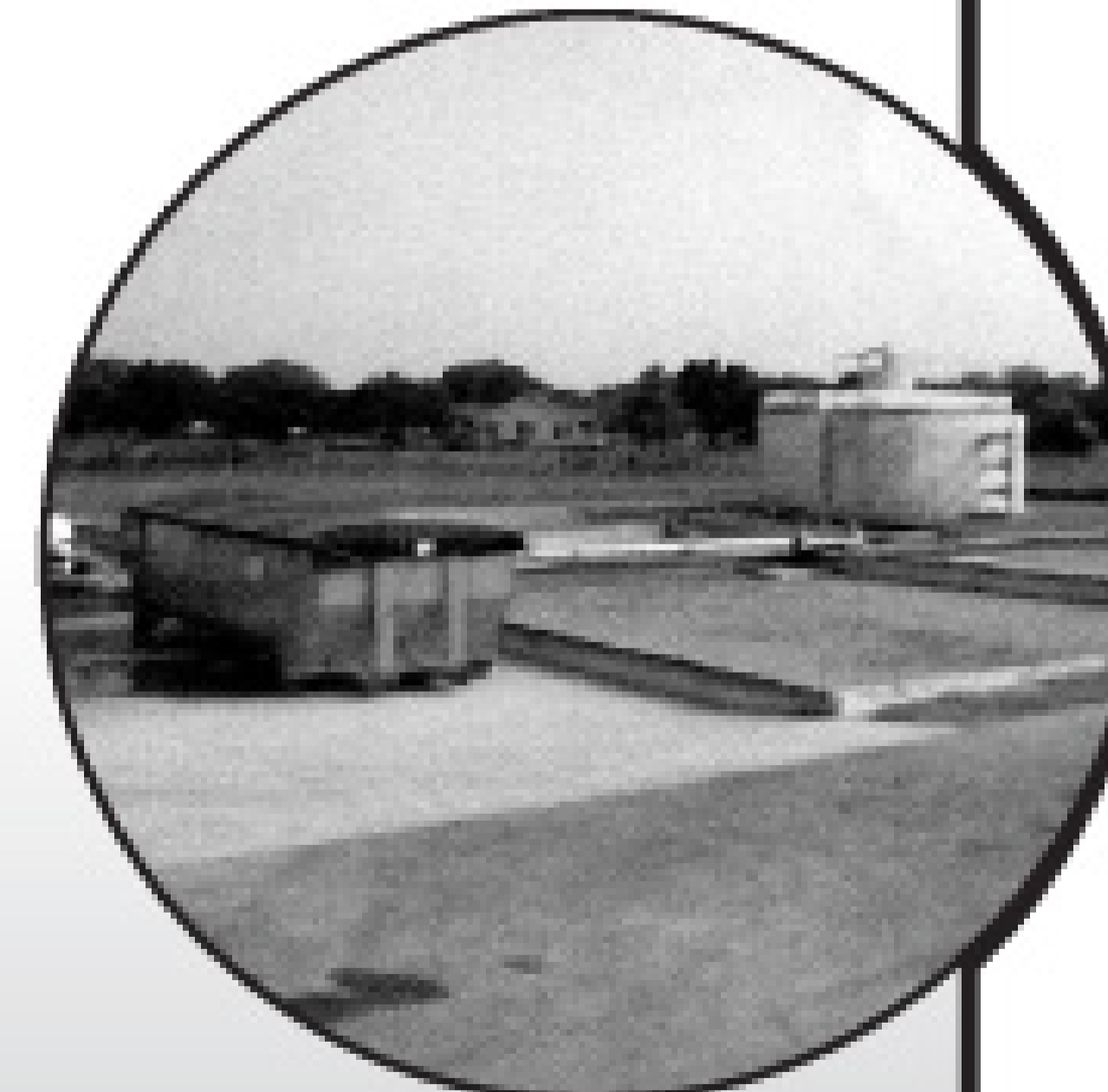
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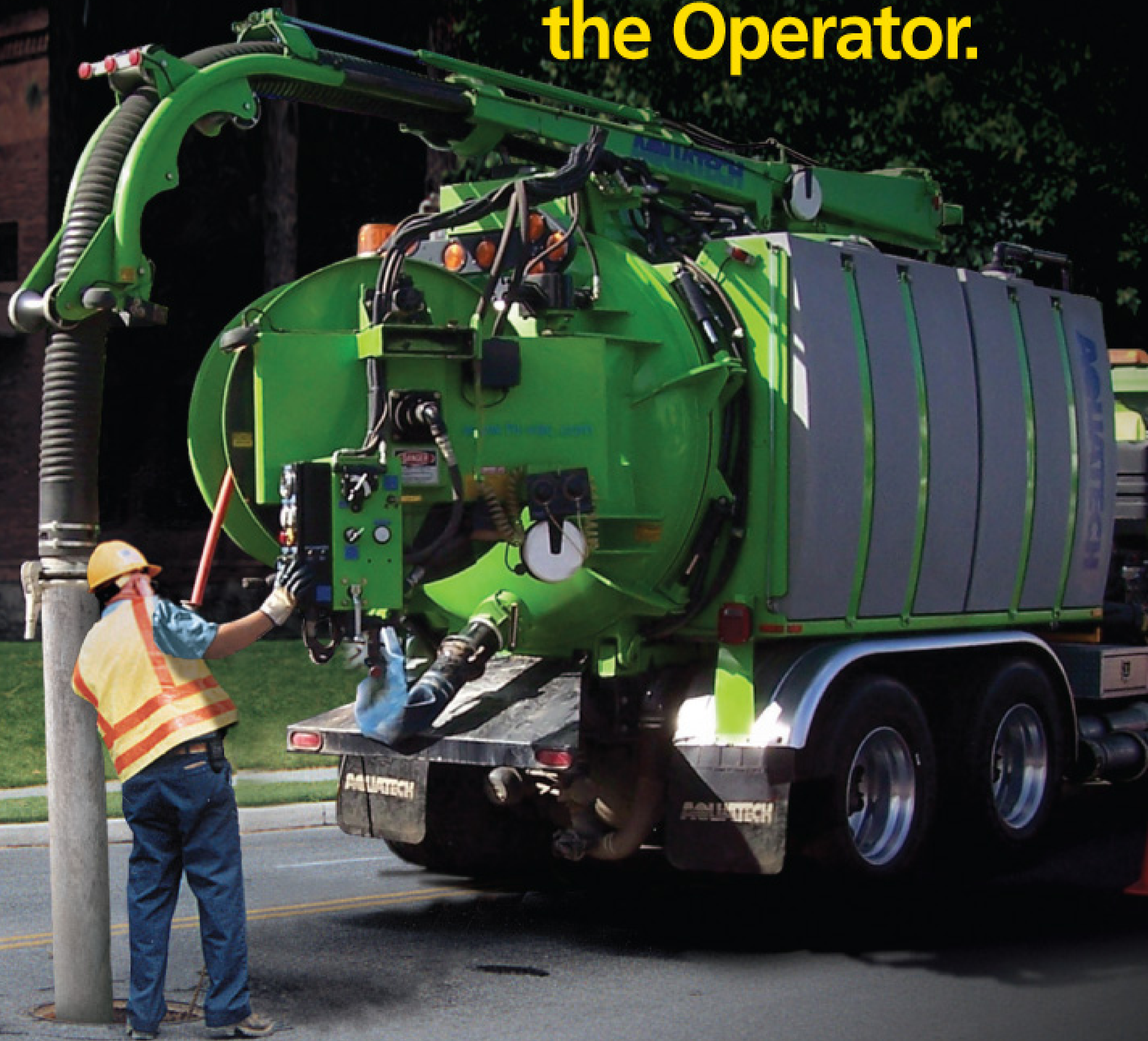
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NEW SCRUTINY FOR SPILLS?

Legislation now before Congress would require communities to monitor and give public notice of combined and sanitary sewer system overflows

By Stephen Barlas

The U.S. Department of Justice Department has penalized more than 50 city and county wastewater systems around the country in the past decade for violations of the U.S. EPA's 1994 combined sewer overflow (CSO) rules.

Now, Congress has proposed a bill that would toughen enforcement with requirements for monitoring and community notification of CSOs and sanitary sewer overflows (SSOs).

The Raw Sewage Overflow Community Right-to-Know Act (H.R. 2452/S. 2080), with bi-partisan support, would trump and expand the 1994 CSO policy, which often leaves notification and monitoring requirements to the states, whose implementation regimes differ markedly. Rep. Timothy Bishop (D-N.Y.) is the House sponsor of the bill, and Sen. Frank Lautenberg (D-N.J.) is the Senate sponsor.

On the same plane

At present, National Pollutant Discharge Elimination System (NPDES) permits allow CSOs but do not authorize SSOs. So the EPA has had a much more informal policy toward notification and monitoring of SSOs. The Right-to-Know bill would put CSOs and SSOs on the same regulatory plane, expand the notification requirements and, by establishing a federal requirement, force all states to meet minimum standards on notification and monitoring.

A 2007 report on notification laws in 11 states by American Rivers, the environmental group leading the charge on the Right-to-Know bill, found that only Maryland had a strong program to protect public health against sewage overflows into rivers and

other waters.

"Most states reviewed had either no public notification requirements for sewage spills or selective or sporadic notification," says Katherine Baer, who directs the healthy waters campaign at American Rivers. She agrees, however, that some local communities around the country do a very good job on notification.

But what worries sewer system officials is that the monitoring pro-

for condition assessment in buried water and wastewater facilities, says that to install a wireless notification system for SSOs, a community would pay about \$3,500 per manhole cover.

SSO notification is trickier than CSO notification, because a sewer system owner is never quite sure where an SSO will occur. That means a monitoring system must cover a fairly large number of possible overflow sites.

"This well-thought-out legislation would be a welcome addition to federal efforts in protecting public health as well as the natural environment."

Rep. James Oberstar (D-Minn.)

vision in the Right-to-Know bill could force all NPDES-permitted wastewater systems to install wired or wireless electronic devices at the point of all CSOs, and also at sanitary sewer overflow (SSO) points, such as manhole covers.

Counting costs

In terms of monitoring requirements, the bill states that sewer utilities "must institute and utilize a methodology, technology, or management program that will alert the owner or operator to the occurrence of a sewer overflow in a timely manner ..."

CSO and SSO monitoring systems are not cheap. Kevin Shafer, executive director of the Milwaukee Metropolitan Sewerage District, said the agency spent \$50 million over the past five years to upgrade its monitoring system so that it can provide immediate notification of SSOs and CSOs, which is what the Right-to-Know bill would require.

Jeff Graham, president of Hydromax USA, a firm in Louisville, Ky., that provides data collection

With a CSO, there are designated points where an overflow would enter a river or stream. A CSO monitoring system might cost \$6,500 per CSO location. In both cases, there are also costs for monthly visual site checks of the system, and other maintenance.

Action expected

Senior Democrats in the House support the Bishop bill, including Rep. James Oberstar (D-Minn.), chairman of the House Transportation and Infrastructure Committee, which held a hearing Oct. 16, the first step in moving a bill forward.

"This well-thought-out legislation would be a welcome addition to federal efforts in protecting public health as well as the natural environment," Oberstar said. He noted that Duluth, Minn., had just experienced numerous sewer overflows after massive rainstorms in the Lake Superior basin. Jim Berard, spokesman for the Oberstar committee, which has jurisdiction for the bill, said action

was likely in early 2008.

The Bishop/Lautenberg bill would expand CSO notification beyond the current EPA policy. Wastewater utilities get explicit permission for CSOs in their NPDES permits, which are issued by the EPA or the state. Those CSOs are subject to a public notification provision included in the EPA's 1994 CSO policy.

That policy says the public must receive adequate notification of CSO occurrences and impacts. But systems can do that in a variety of ways, including posting of affected areas, posting of selected public places, and posting of CSO outfalls.

The Right-to-Know bill mandates public notification within 24 hours, as well as contacting of local public health agencies, and the sending of a report to the state or EPA within five days providing detailed information, such as the magnitude, duration, and suspected cause, and steps taken or planned to reduce, eliminate, and prevent recurrence. The bill does not define "public notification."

Bob Matthews, co-chair of the Water Environment Federation wet weather task force, says California adopted a state collection management plan in 2006 that includes a good description of public notification, which a federal law might want to echo.

Taking action

Of course, even without a federal law on CSO and SSO notification and monitoring, the Justice Department, with the EPA, has been acting against many NPDES-permitted cities and counties over the past decade. They include Mobile and Jefferson County (Birmingham), Ala.; Atlanta, Ga.; Knoxville, Tenn.; Miami, Fla.;

New Orleans, La.; Toledo, Ohio; Hamilton County (Cincinnati), Ohio; Baltimore, Md.; Los Angeles, Calif.; and Louisville, Ky.

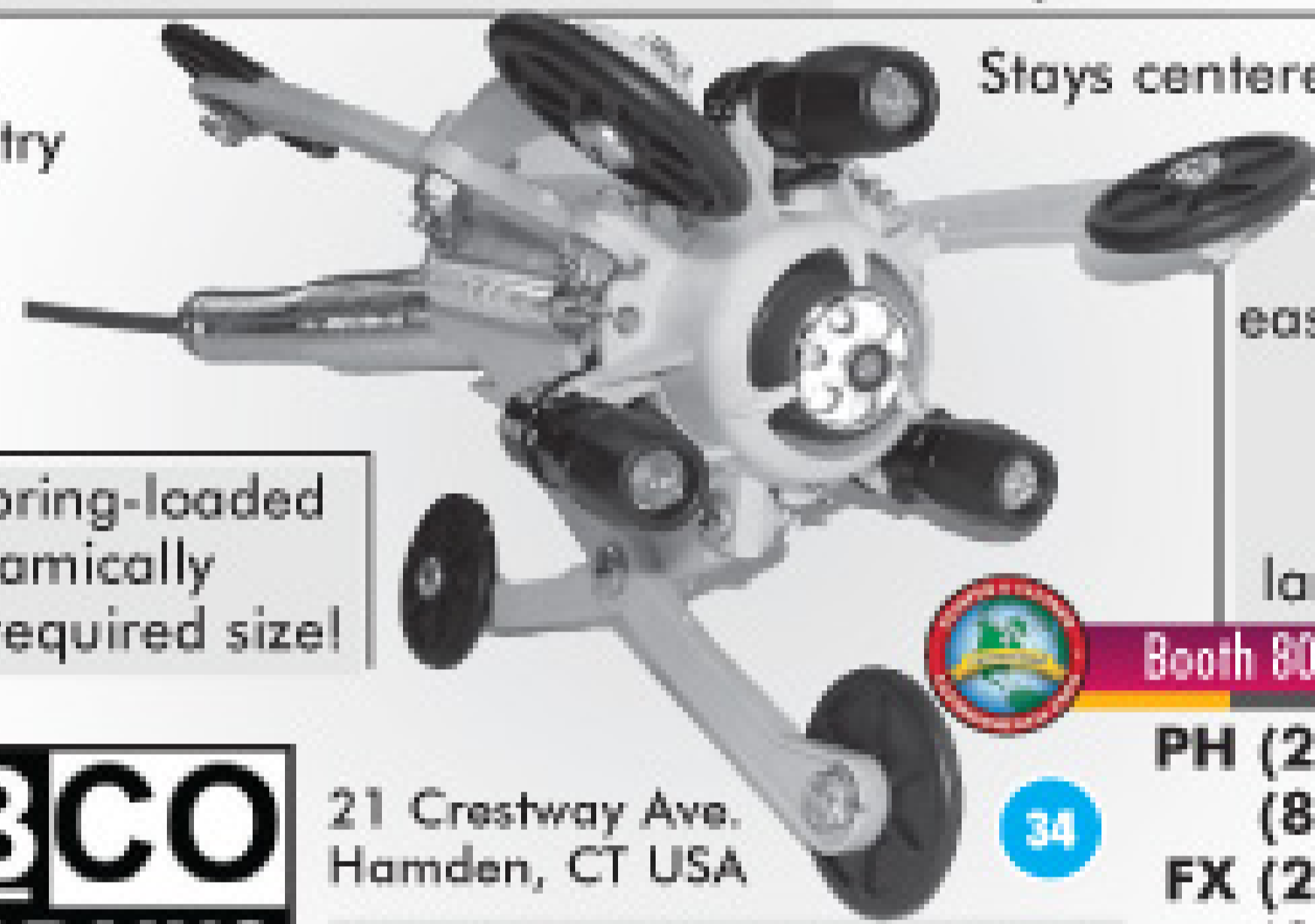
The department hit Sanitation District No. 1 of Northern Kentucky with a consent decree in October 2005 that included a requirement for CSO and SSO monitoring. Mike Apgar, director of strategic initiatives for the district, says the wastewater system uses modeling as its method of monitoring.

There are about 100 CSOs in

the district, and when a heavy rain falls, the district assumes there will be events and notifies the Ohio River Authority. Neither the CSO/SSO notification nor the monitoring that Sanitation District No. 1 uses would appear to pass muster under the Right-to-Know bill. Apgar said the cost would be "astronomical" if the district had to install wired and wireless monitors at all CSO and potential SSO points. ♦

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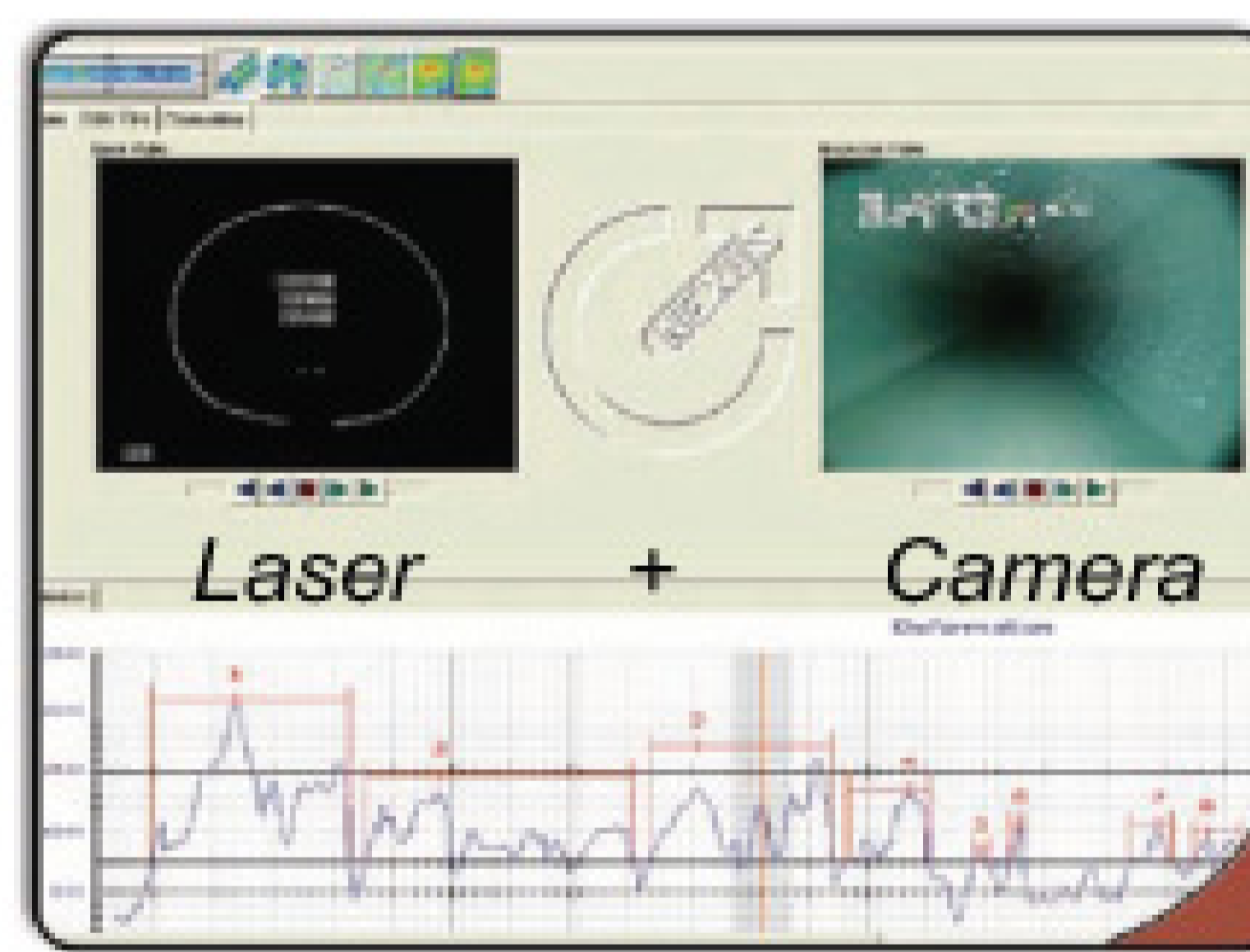
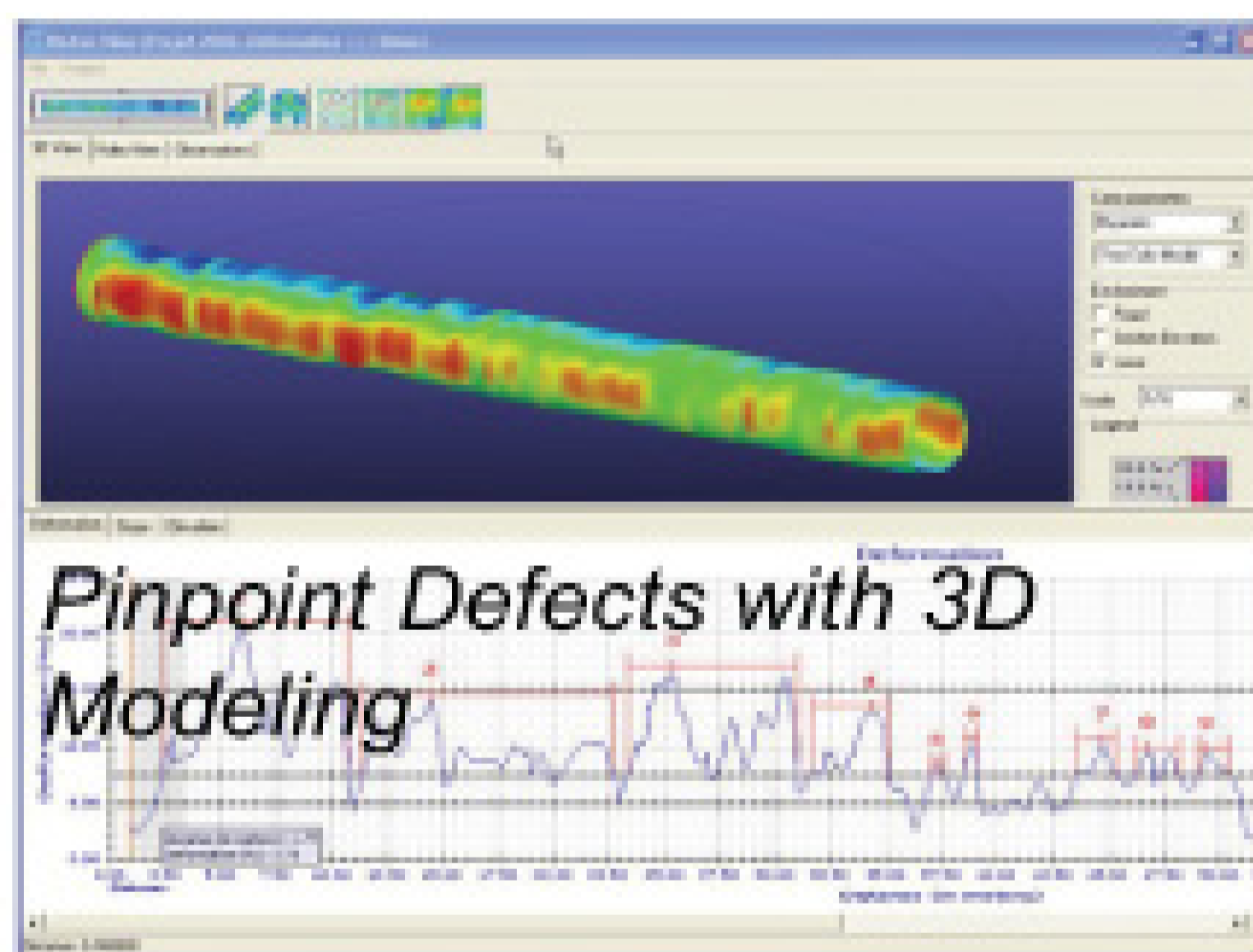
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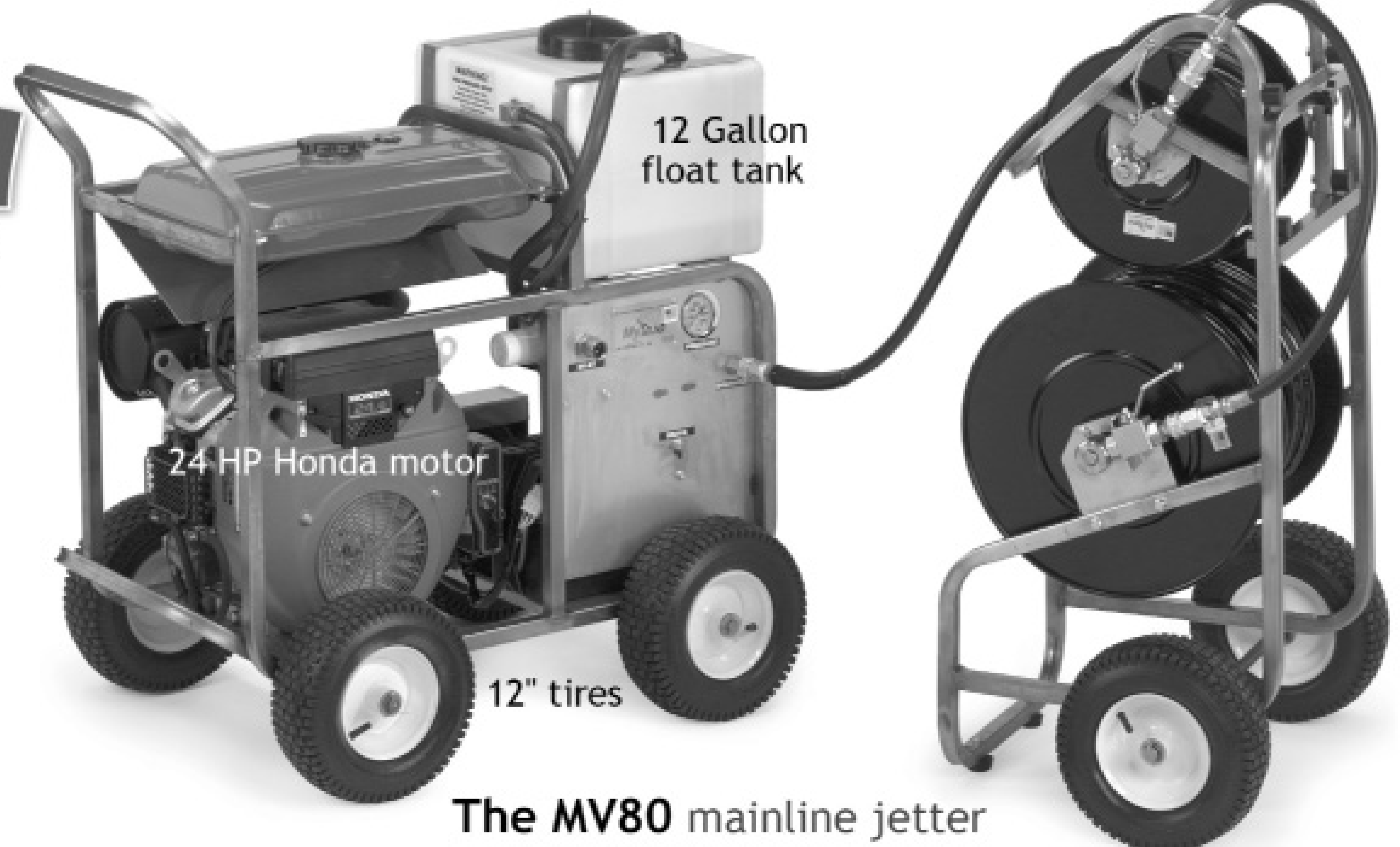
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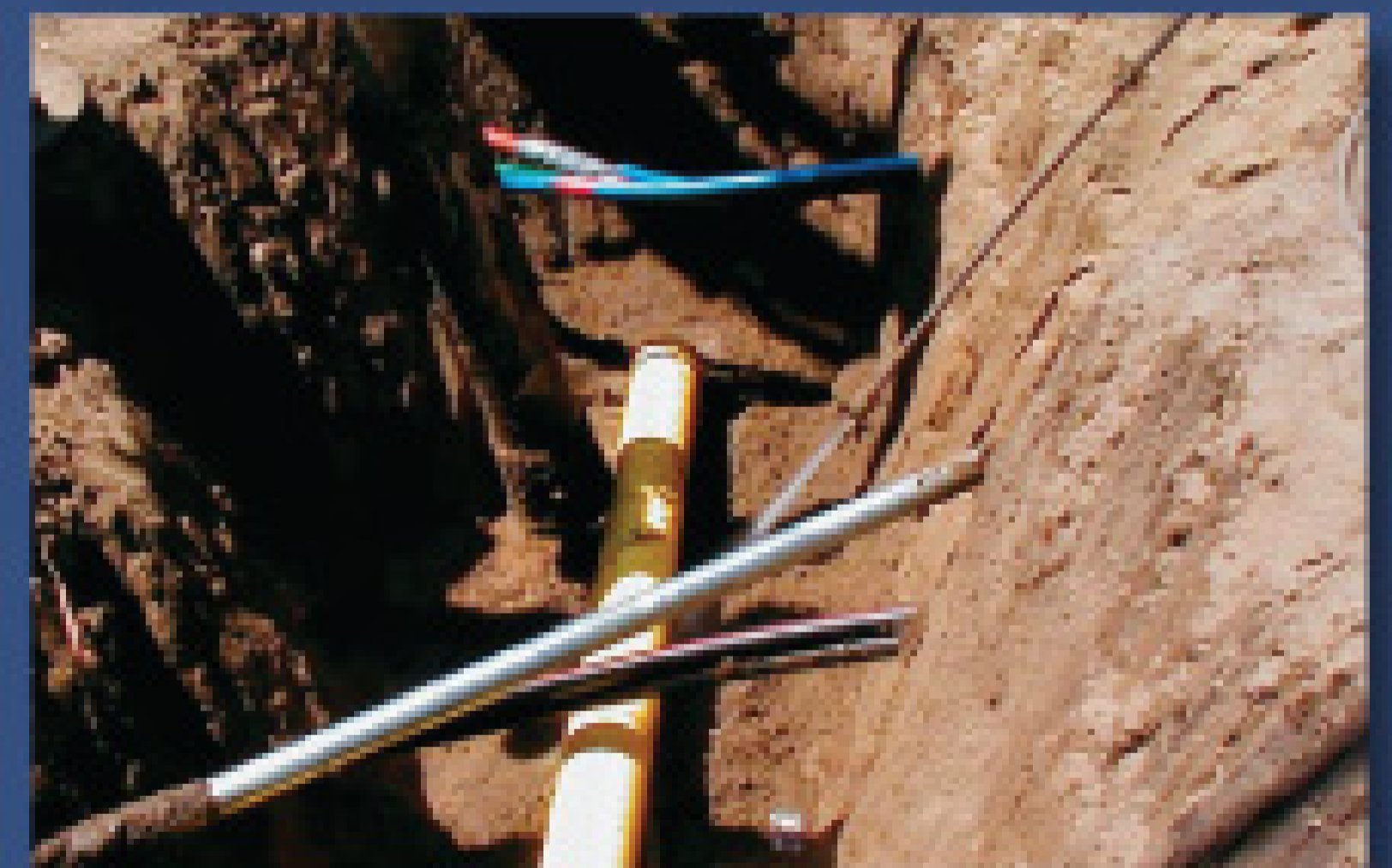
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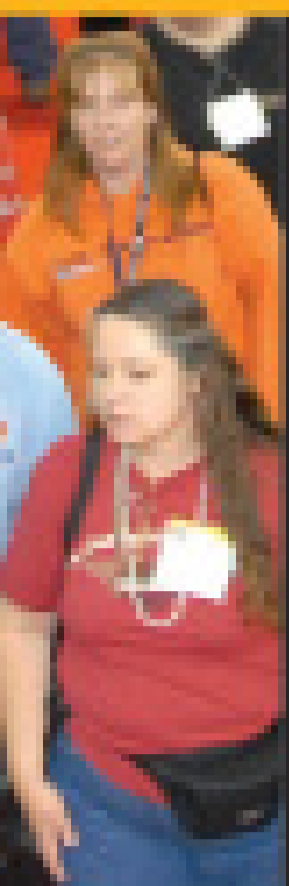


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Exhibitors provide hands-on look at industry's latest technology.

By Ed Wodalski

A new year. A new location. New vendors and thousands of new products promise to make the 2008 Pumper & Cleaner Environmental Expo International in Louisville, Ky., the best ever. And seeing this is the Expo's 28th year – that's saying something. Although with three big days of educational seminars, nationally known entertainer Jeff Foxworthy, chart-topping Big & Rich, and nearly a million-square-feet of exhibition space you might not need much convincing. Still, we realize the one reason you come to the Expo is to get a hands-on look at the industry's latest technology. To help you plan your visit, here is a look at some of the many products you'll want to see.



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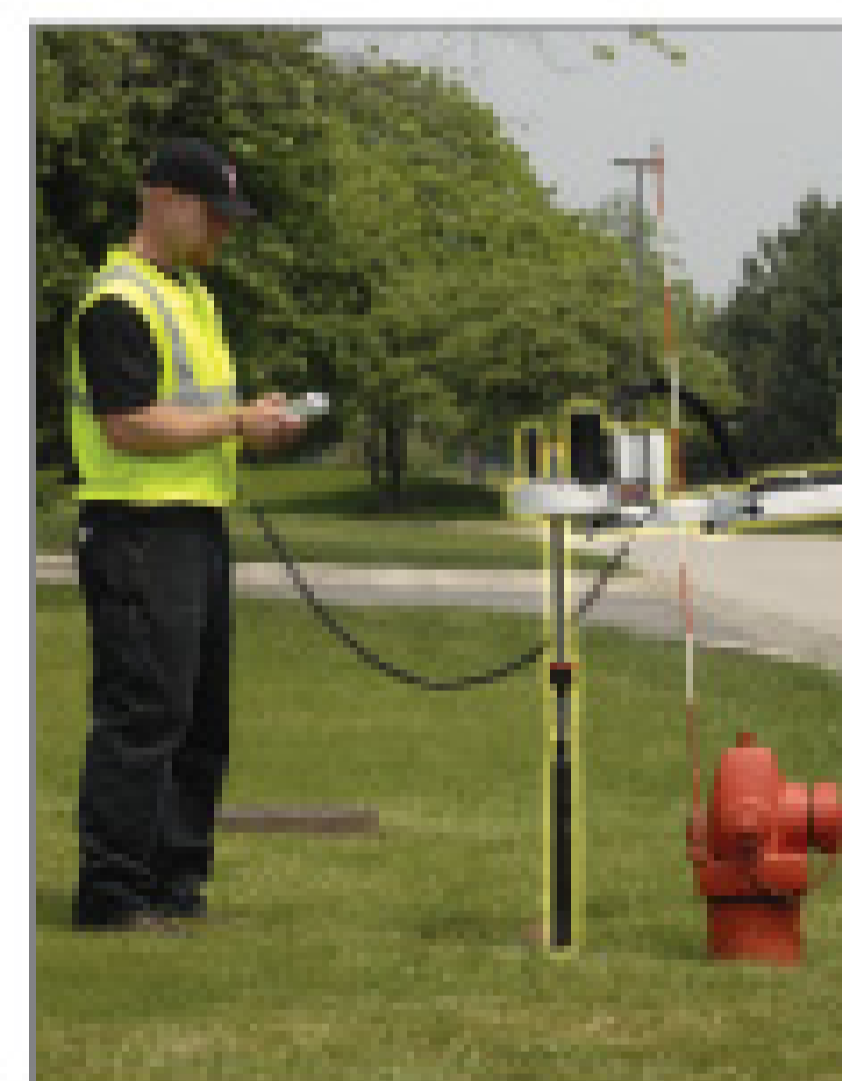
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Madewell Products Corp.

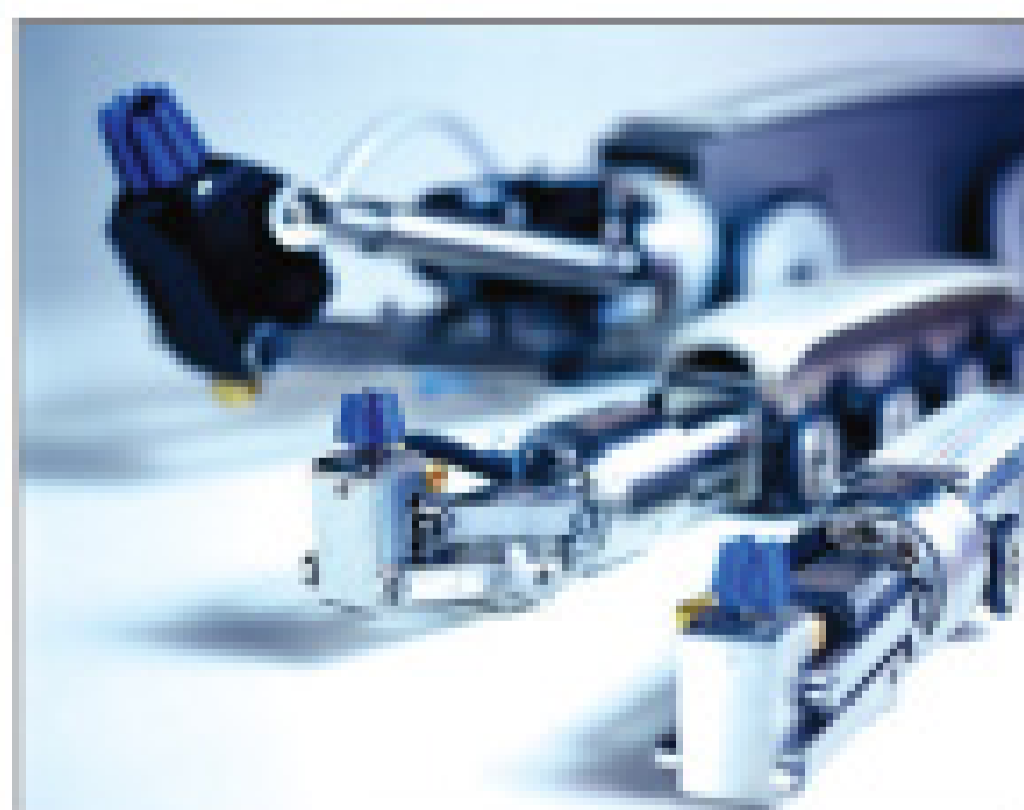
The Modular Restoration Trailer features a hydraulically powered mortar mixer/pump, 5,000-psi pressure washer, 90-gallon capacity plural component epoxy spray pump and 10,000-watt hydraulically powered



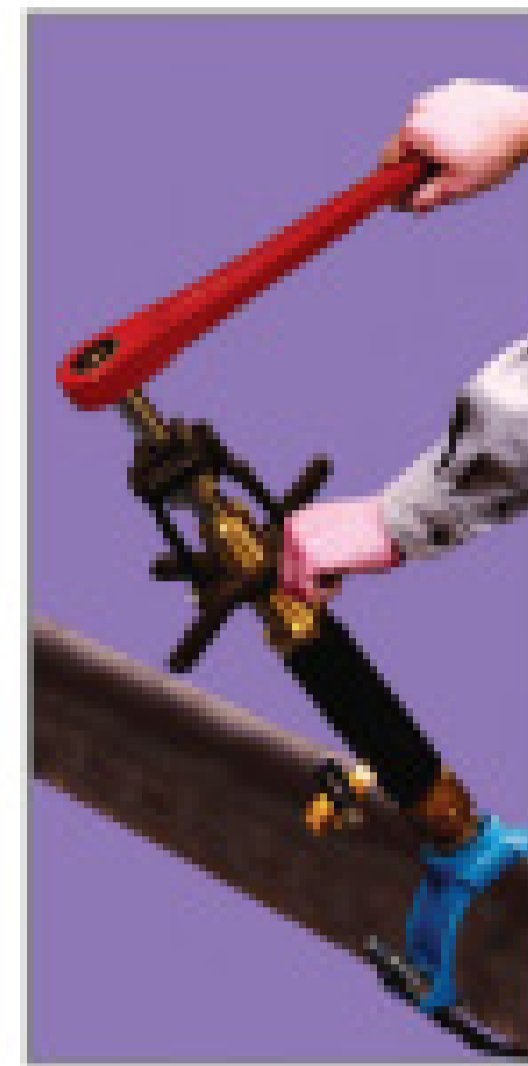
generator. The equipment package also can be mounted on a goose neck trailer, track vehicle or truck. [770/856-4470; www.madewell.com](http://www.madewell.com); Expo booths 5013, 6011.

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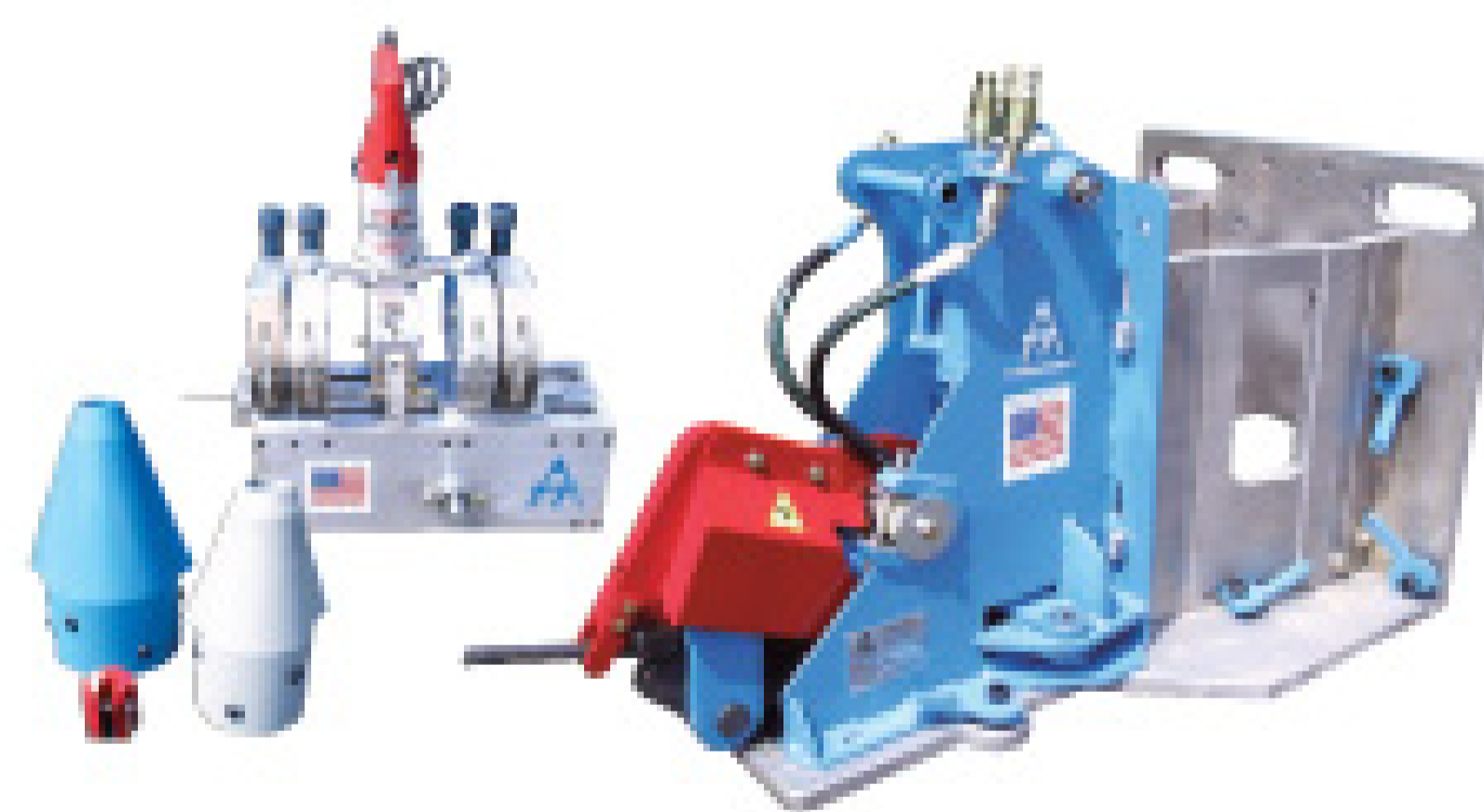
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TRIC Tools Inc.

The BC30 monolithic puller is available in both high-pressure and low-medium pressure configurations. The unit is engineered to replace from 3/4-inch water pipes up to 6-inch sewer laterals and beyond when



combined with BIG SHOT piercing tools. Its lightweight, compact design enables the unit to be operated by an independent plumber and helper. [888/883-8742, www.trictrenchless.com](http://www.trictrenchless.com); Expo booth 6089.

Wil-loc Inc.

The Polyron line of HDPE transition fittings bonds metal with HDPE by injecting resin through precision hole patterns to encapsulate the metal shank. The result is a single-component transition fitting. The 4- to 12-



inch fittings feature ball-and-socket couplings with double-pin design on the locking lever. The 1-inch to 2-inch mini stainless-steel fittings have tapered male threads. The fittings are designed to meet or exceed the pressure and temperature ratings of HDPE pipe. [800/801-0123, www.willoc.com](http://www.willoc.com); Expo booth 13015.

Formadrain

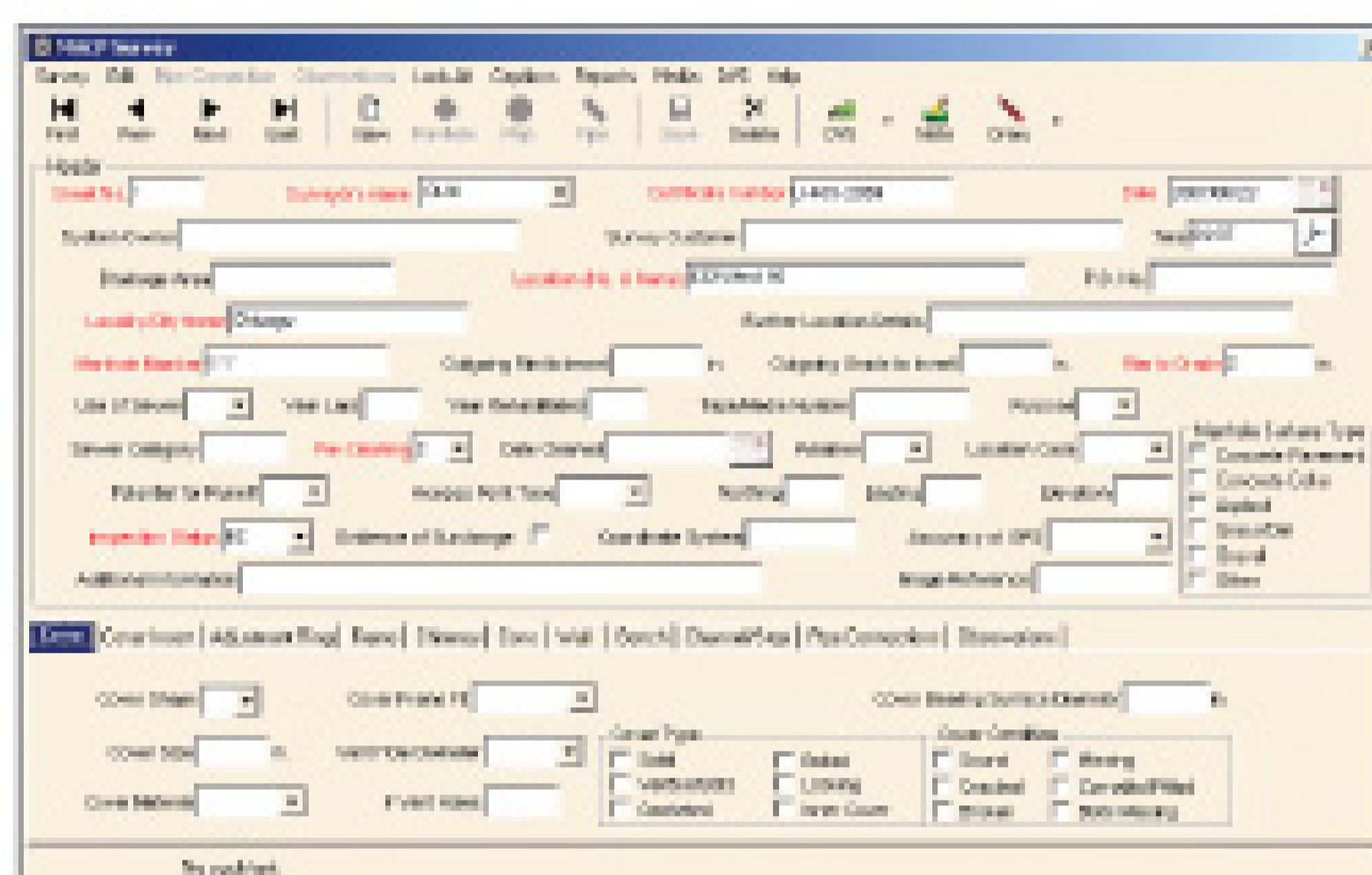
The inflatable LMC (later-main-connection) system is designed to repair tee and "Y" sewer connections. Made of fiberglass and polyethylene sheeting and epoxy, the sys-



tem requires three access points to install (two manholes and a cleanout, inside or outside the building). No digging is needed. [888/337-6764; www.formadrain.com](http://www.formadrain.com); Expo booths 4020-21.

PipeLogix Inc.

The MACP certified (NASSCO) manhole, survey and assessment data collection software enables inspection teams to collect, analyze and share information about manhole components per the MACP format. Compatible with all CCTV systems, the software can be used by itself or with other

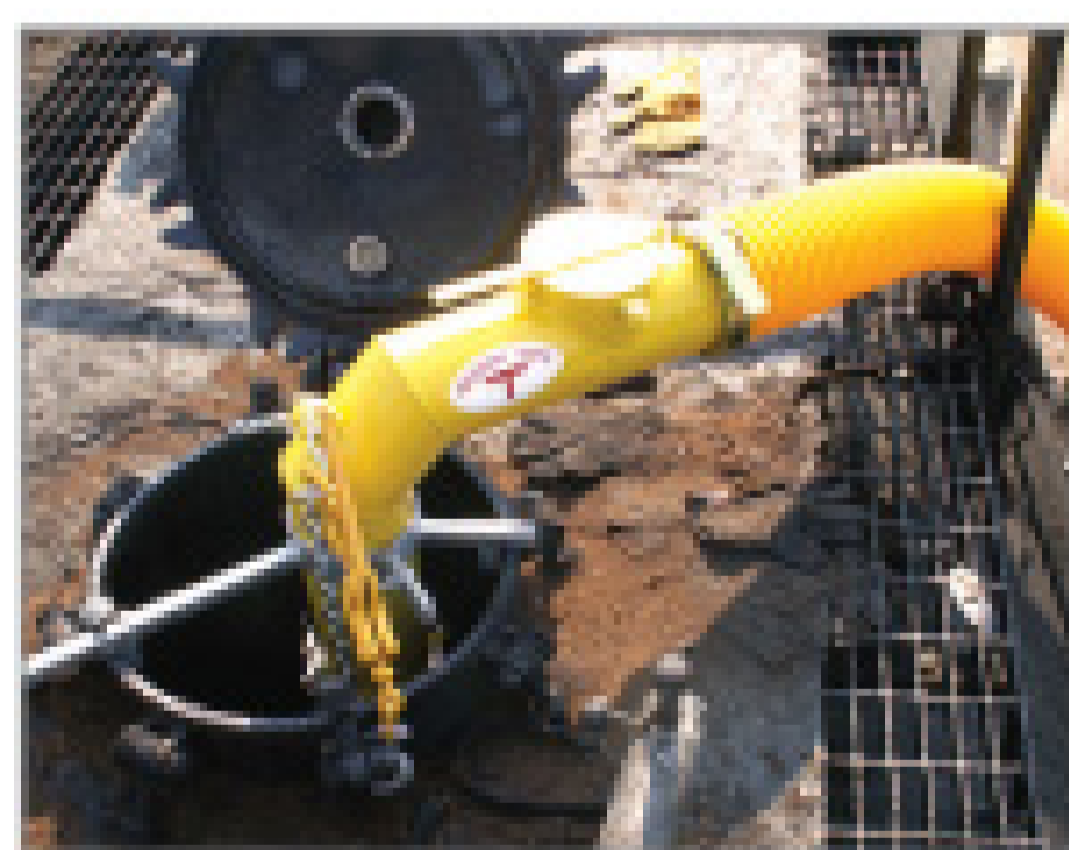


flexidata components. Mandatory entry fields assist operators in creating accurate and complete surveys that are validated per MACP requirements. Each manhole component (cover, cone, bench, etc.) has its own entry tab, enabling users to create detailed reports of the asset's condition. Survey data can be exported to a MACP data exchange file for sharing with asset management programs. **866/299-3150, www.flexi-data.com; Expo booth 158.**

Safety Devices

Ace Supply Co.

The Kwikk-Lokk Manway-SAFE-T vacuum interrupter provides vacuum truck operators with



an extra margin of safety when working with high-suction hoses. Designed to quickly break vacuum in case of an emergency, the device is available with optional Manhole Manager. **814/899-3644; www.kwikk-lokk.com; Expo booth 7146.**

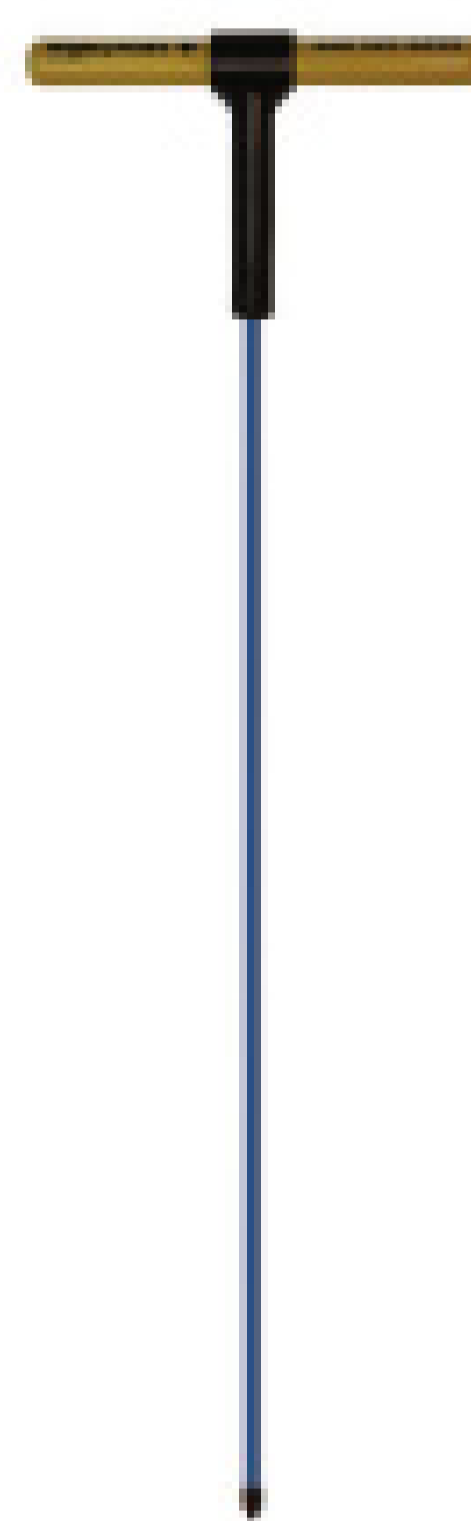
Ashtead Technology Rentals

The Mala Easy Locator is designed to locate utilities and anomalies 20 feet below the surface. The system is configurable for different soil types and is engineered to work over multiple surfaces with the off-road cart. The unit features adjustable wheel height and can be pulled backwards to operate on rough terrains and unstable soil. **800/242-3910, www.ashtead-technology.com; Expo booth 9208.**



T&T Tools Inc.

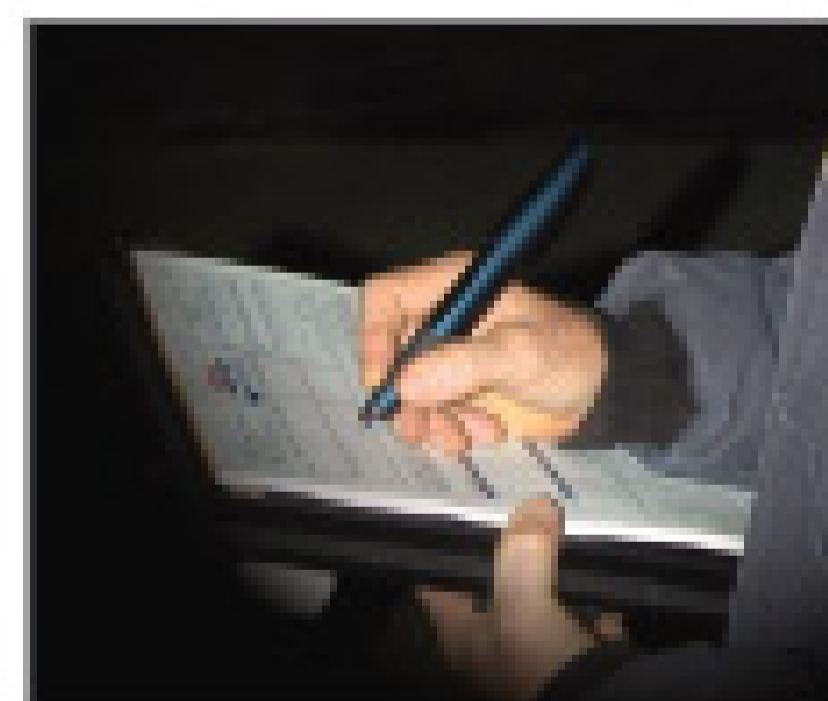
The insulated Mighty Probe provides protection against electrical shocks (up to 50,000 volts). The optional Slide Adapter enables the probe to be driven into hard ground. The probes feature a steel shaft with replaceable tip and are available in lengths from 3 to 6 feet in 6-inch increments. **800/521-6893, www.tandttools.com; Expo booth 3099.**



Data Systems

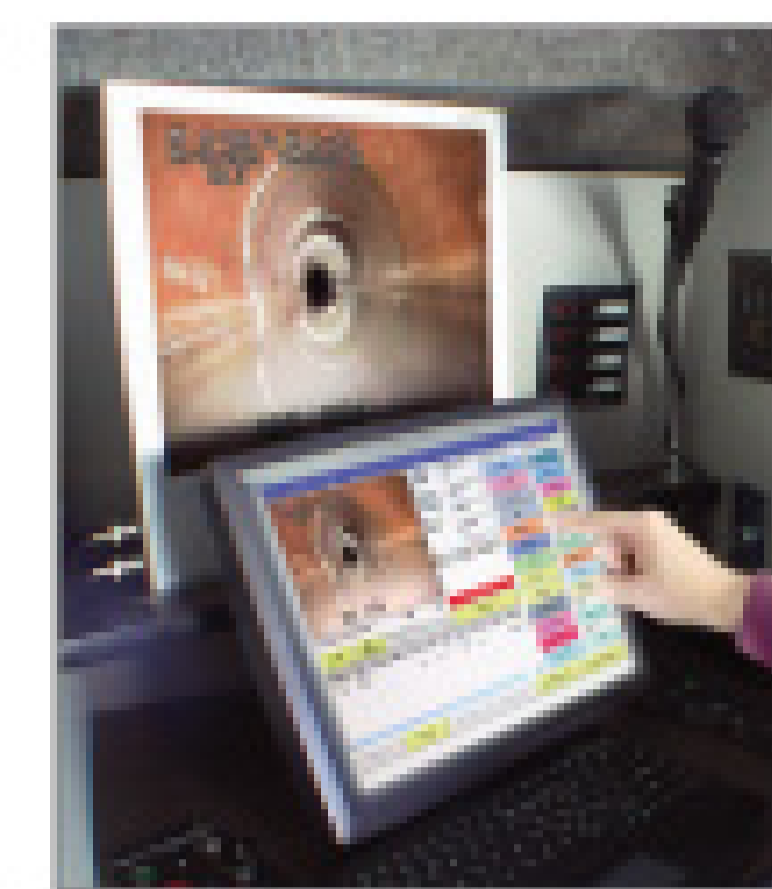
Famhost

The Linkwriter wireless pen enables drivers to transmit paperwork from the jobsite to the office in seconds. Using a digital pen and regular paper printed with a special background, a tiny camera registers the pen's movement. When the user checks "send," data is transmitted through a Bluetooth-enabled phone, wireless laptop, tablet PC or desktop for viewing. Data is stored as both an image and text, enabling inventory to be updated in real-time. **800/658-1676, www.linkwriter.com; Expo booth 4140.**



Cobra Technologies

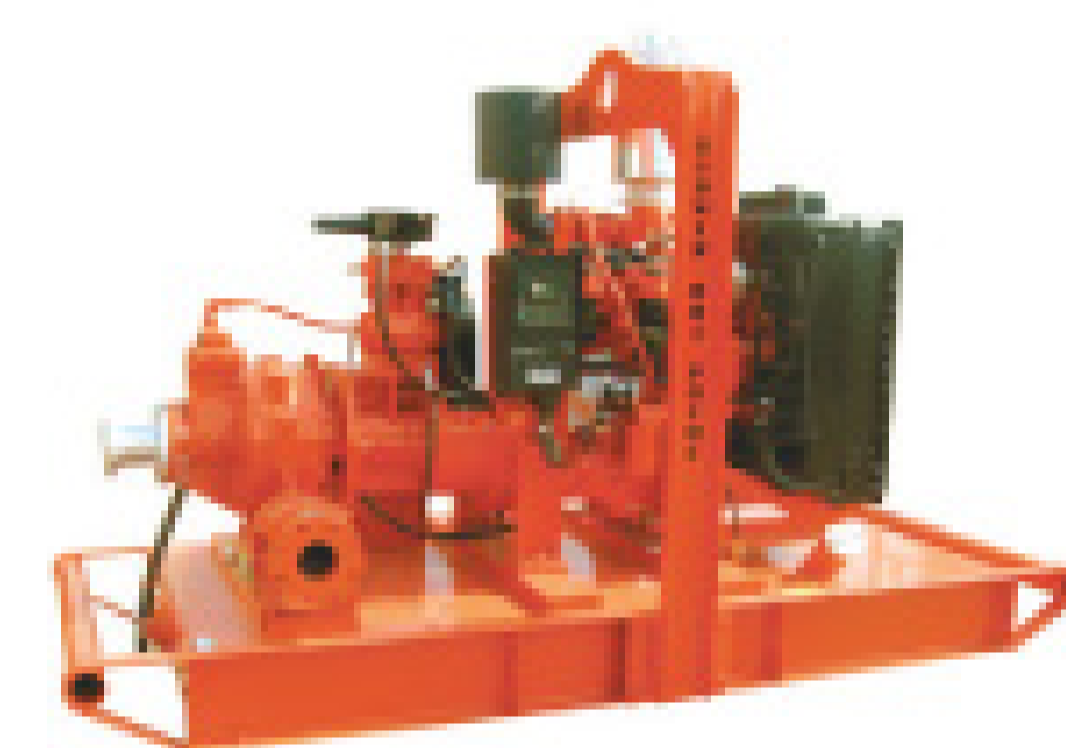
The CobraTouch 9000 series data logger features touch-screen input and front-end validation, eliminating the need for operators to remember coding requirements for each defect. PACP compliant, with other formats available, the software is like having instant access to a PACP/WRC manual. **770/498-9200; www.cobratec.com; Expo booth 7057A.**



Pumps, Valves

Godwin Pumps of America Inc.

The 4-inch by 4-inch CD140M and 8-inch by 6-inch CD180M portable diesel pumps offer both elevated heads and 3-inch solids handling capabilities without sacrificing flow rate. The pumps achieve total dynamic heads to 280 feet and flows to 1,100 gpm. Both pumps are automatic, self-priming and feature an oil bath mechanical seal that enables them to run dry without damage. **856/467-3636; www.godwinpumps.com; Expo booth 9029.**



Liberty Pumps

The Omnivore 2-hp grinder pump with V-Slice Cutter Technology provides 367,000 cuts per minute for superior shredding performance in demanding sewage applications. An open volute design eliminates the cutwater - improving solids flow and reducing potential jamming. Other features include a one-piece cast iron body, quick-disconnect power cord, stainless steel impeller and dual shaft seals. Complete pre-assembled systems are available. **800/543-2550, www.libertypumps.com; Expo booth 9215.**





Thompson Pump & Manufacturing Inc.

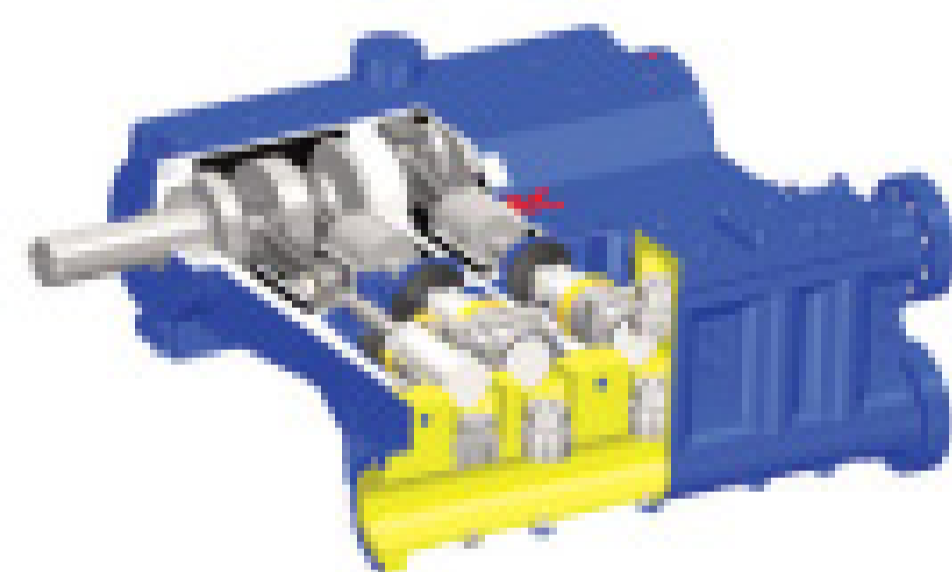
The compressor-assisted, dry-prime TSC series trash pumps are designed for flows to 1,750 gpm, heads to 172 feet and spherical solids to 3 inches. Ranging from 4 to 6 inches in size, the pumps are made for sewage bypass or general dewatering and feature the environmentally friendly ENVI-ROPRIME system, designed to prevent



fluids, such as sewage and containments, from entering the venturi and spilling on the ground. The weather-resistant, sound-attenuated Silent Knight canopy enables the pumps to operate at 70 dBA or lower for use in residential areas or near schools or hospitals. 800/767-7310, www.thompsonpump.com; Expo booth 8025.

FMC Technologies Inc.

The Q12 line of sewer cleaning pumps offer 80 gpm at 3,000 psi and 520 rpm. The slower operating speed is designed for longer life, less maintenance and lower operating cost. 281/260-2121; www.fmctechnologies.com; Expo booth 9235.



Mody Pumps Inc.

Designed for mobile sewer bypass operations, the 10-hp Submersible Manhole Pump fits a standard 21-inch manhole. Able to pass 3-inch solids, the unit can pump up to 1,100 gpm and heads up to 60 feet. Available in a variety of voltage/frequency configurations, the pump also fea-



tures a Class H insulated motor equipped with thermal protection, and tandem tungsten carbide upper and lower mechanical seals. 888/900-6639, www.modypump.com; Expo booth 18023.

HPP

Designed for the municipal sewer jetting and industrial cleaning industry, the 160-hp



Series MLR and 190-hp Series RLR high-pressure pumps are engineered for performance and dependability. 888/708-1894, www.hpp.it; Expo booth 18037.

Banjo Corp.

Constructed of glass-filled polypropylene for strength, corrosion resistance and durability, the compact Banjo ball valve allows for maximum flow in a range of sizes from 1/2 to 4 inches. The valve features stainless-steel bolts, 100 percent PTFE ball seats and FKM (viton type) body seals, providing 100 psi at 70 degrees F and 75 psi at 150 degrees. 765/362-7367, www.banjocorp.com; Expo booth 19014.



Force America Inc.

The Add-A-Fold 2010 integrated, multi-function valve is designed to electronically control both cylinders and motors for light and medium duty mobile applications. Features include input flows up to 30 gpm and operating pressures to 3,500 psi. The manifold-style design offers easy serviceability. Optional gear-pump or load-sense options are available. 888/993-6723, www.forceamerica.com; Expo booth 8021.



Posey Hydro Solutions

The Dirty Water Valve Assembly is made for high-pressure plunger pumps that face excessive valve and seat erosion and water



bypass due to leaky valves brought on by impurities in plant process water. Field tested over three years, the valve provides a positive "memory" seal, extends the time between valve seat lapping, and has a replaceable plastic cushion ring.

330/239-2552; www.poseyhydro.com; Expo booth 18031.

Jetters, Nozzles

Cam Spray

The SK3907V trailer jetter is powered by a 23-hp Vanguard engine and delivers 3,900 psi and 7 gpm. The larger SK3012K is powered by a 29 hp, liquid-cooled, fuel injected Kawasaki engine and delivers 3,000 psi and 12 gpm. Both SK Series models come with a DC-powered variable speed reel. 800/648-5011, www.camspray.com; Expo booth 3069.



Durand-Wayland Inc.

The John Bean SewerJet 700 pressure washer is designed to handle serious emergencies as well as routine, preventive maintenance, such as cleaning grease from the sides of manholes. The unit can be operated by one person, tows easily and doubles as a cleaner of power equipment, including dozers, graders, mowers and trucks. 800/241-2308, www.johnbeansprayers.com; Expo booth 2017.



Dyna-Vac Equipment

The Jet-N-Vac 1000SC trailer-mounted combination sewer cleaning system features a 1,400-cfm PD vacuum pump in combination with an 18-gpm, 4,000-psi jetting system. Made to punch through stubborn obstructions, the combination unit brings big-truck capability to a compact system that can be easily customized. 888/298-8668, www.dynavacequipment.com; Expo booths 7168, 7169, 7171.



SRECO-Flexible Inc.

Designed to clean 4- to 18-inch lines, the Bronco trailer jet combines pipeline cleaning

with camera inspection. Delivering 20 gpm at 4,000 psi, the jetter features a 325-gallon water tank, articulating reel, and 500 feet of 1/2-inch hose. The complementary Jet-Cam includes 600 feet of coaxial cable on an electronically operated reel. The jetter/camera unit is powered by an electric-start, 90-hp, 2.5 liter, 4-cylinder Ford gasoline engine. Standard accessories include 15-degree and 35-degree cleaning nozzles. 800/421-6536, www.sreco.com; Expo booth 10007.

Triple R Specialty

The Hurricane 3010 trailer jetter delivers 3,000 psi at 10 gpm and comes complete with gasoline engine matched to the pump manufacturer's output rating, 400 feet of 1/2-inch hose, nozzles, safety equipment and more. 800-356-9661, www.triplerspecialty.com; Expo booth 8223.



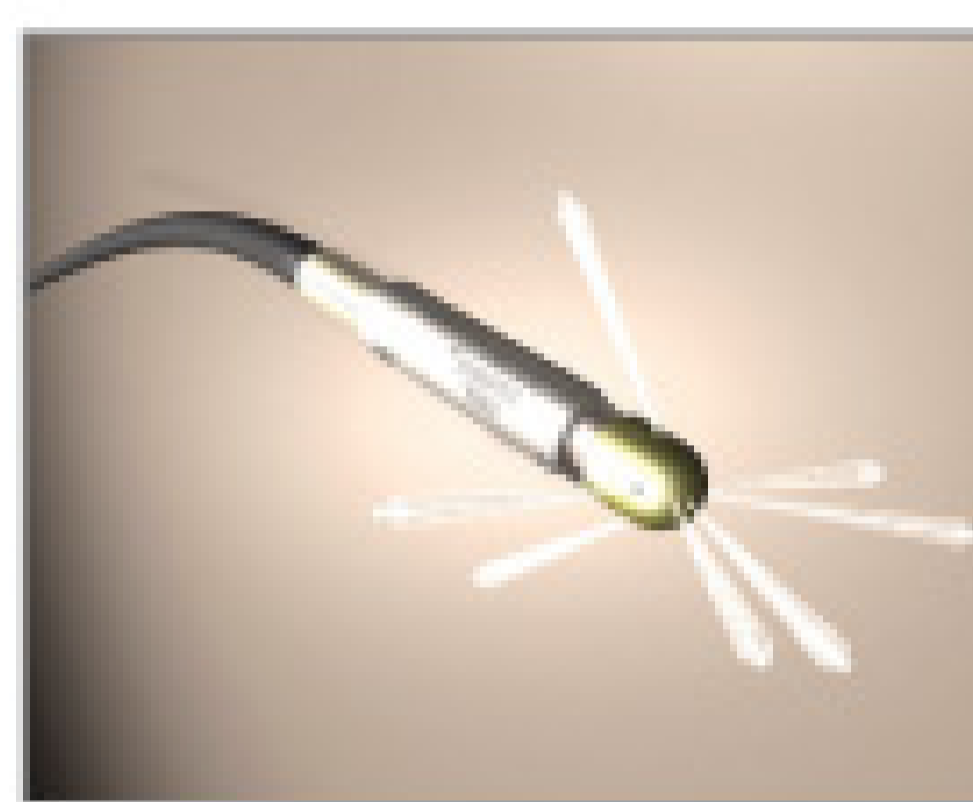
NozzTeq

The stainless steel JAWS sewer nozzle features a "looping" water system of individual conduits for increased efficiency. The system is engineered to produce disciplined, well-defined and powerful water streams that stay together longer and farther for more efficient pipeline cleaning. 866/620-5915, www.nozzteq.com; Expo booth 8181.



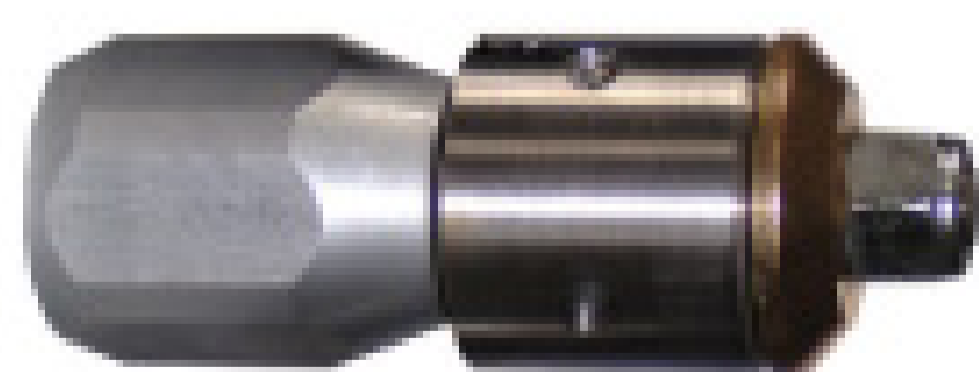
StoneAge Inc.

The Banshee tube cleaning nozzle, models BN13, BN18 and BN24, range in size from 13 mm to 24 mm and come with choice of inlet pipe thread connections. Featuring 20,000 psi capacity, the replaceable heads are available with either polishing or unplugging jetting options. Models BN13 and BN18 can clean tubes as small as 5/8-inch, while the BN24 is designed for tubes from 1.1 to 2 inches and features the Universal Head. 866/795-1586, www.stoneagetools.com; Expo booth 3000.



Enz USA Inc.

The golden jet RGS radial nozzle features four radial jets that act like a blender in emulsifying grease and scouring the walls of lift stations. Available in sizes from 1/2 to 1 1/4 inches, the nozzle's rotational speed is controlled by a drive and brake jet system. 630/692-7880, www.enz.com; Expo booth 67.



Arthur Products Co.

The enhanced 1-inch Advanced Spin Jet nozzle can have up to four side jets and four 45-degree rearward jets for an expanded operating envelope. 800/322-0510, www.arthurproducts.com; Expo booth 9107.

Monitoring Systems

Canplas Industries Ltd.

The Endura Sentry Grease Monitoring System measures FOG buildup in the interceptor and reports the status to a remote, wireless, wall-mounted user interface. The battery-operated unit offers a value-added service for the maintenance contractor, as well as ensuring that the interceptor is being serviced on a regular basis. 888/461-5307; www.endurainterceptor.com; Expo booth 20038.



City Meter Inc.

The Sewer Service Meter is designed to continuously, and economically measure the flow of sewage through a gravity service pipe. Constructed of PVC for direct insertion in the pipeline, the meter provides flow data for invoicing customers based upon actual flow volume. It also can locate sources of inflow and infiltration, and determine the actual flow through septic tanks. The meter is able to pass 3-inch spherical solids, while the readout is equipped to drive most AMR systems. 803/533-1681, www.city-meter.com; Expo booth 19018.





Hydro-Excavators, Trucks, Accessories

Vactor Mfg.

The HXX Prodigy vacuum excavator features an optional 9-yard debris tank mounted on a tandem axle chassis. Lighter and more compact than the full-sized HXX HydroExcavator, the HXX Prodigy is designed for mobile applications and features an above-deck compressor system that does not need a holding tank to build pres-



sure, eliminating wait time. The excavator can use either air or water to perform non-destructive digging, offering 10 to 20 gallons of water per minute at rates from 1,500 to 2,500 psi. Optional onboard heaters enable it to cut through frozen ground or heavy clay. [800/627-3171](tel:8006273171), www.vactor.com; Expo booth 1092.

Ring-O-Matic Mfg.

The 550 hydro-excavator features a 50-hp Cat diesel engine, 850-cfm lobe-type blower and high-pressure Cat water pump, produc-



ing 5.5 gpm at 3,500 psi. The unit also has a 200-gallon water and 550-gallon spoils tank, hydraulic remote-control boom, pressurized offload, full-opening hydraulic door and low tongue weight for towing safety. [641/780-4099](tel:6417804099), www.ring-o-matic.com; Expo booths 7042-43.



SuperVac 2000

The Hydro-Excavator SVHT-6400 features an 840,000 Btu, 6,000-psi boiler and 6,000-psi, 10-gpm water pump with 3,000-gallon debris tank, double-wall insulated 1,200-gallon co-polymer/polypropylene water tank, 6,400-cfm, 27 Hg vacuum pump, two cyclones and cartridge filter. Other features include hydraulic door locks, insulated enclosure (less than 83 dBA) and a 100-foot hose reel. [866/839-5702](tel:8668395702), www.supervac2000.com; Expo booth 7031.

GapVax Inc.

The MC Series combination JetVac provides the ability to vacuum, jet and hydroexcavate in one unit. The vehicle features a unitized water/debris tank, direct-drive blower and water pump, front control box,



and front-mounted boom and hose reel. The debris tank can hold up to 12 cubic yards and the water tank up to 2,000 gallons. The water pumps deliver up to 100 gpm/3,000 psi, while the blowers deliver up to 5,000 cfm/27-inch Hg. [814/575-6766](tel:8145756766), www.gapvax.com; Expo booth 1022.

Capital Rubber Corp.

The Power Booster by Pressure Lift attaches to a WeatherFlex or other vacuum hose line, providing greater vertical lift and distance. Powered by compressed air or water, the unit also breaks up solids, reducing stress on the vacuum pump and decreasing pump times. [800/258-3000](tel:8002583000), www.capitalrubbercorp.com; Expo booth 3093.



Cougar Industries Inc.

Completely sealed against dust and water, the Model NHD-110 hydraulic vibrator promotes the flow of material out of the pump truck, ensuring that material is not hauled back to the jobsite. The unit also helps eliminate premature wear and tear on equipment, specifically hydraulic cylinders, brakes, clutch and transmission. Operated from inside the cab, it also reduces the risk of lost time and a potential workman's compensation claim. [800/262-2106](tel:8002622106), www.cougarindustries.com; Expo booth 3051.

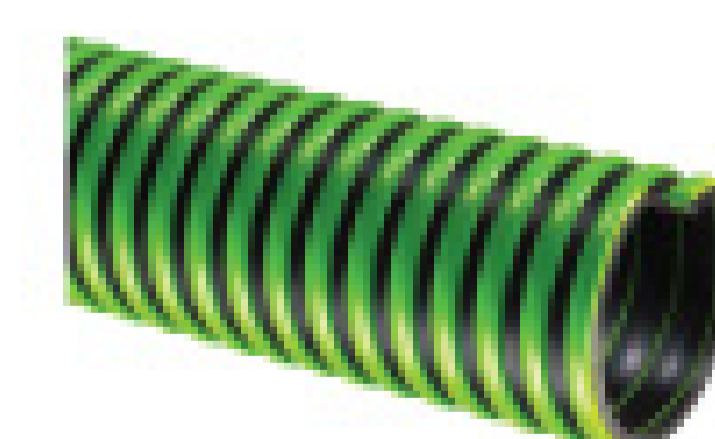


Concept Engineering Group Inc.

The fluid excavation tool is designed for utility line locating and repair. The tool utilizes compressed air and waterjets, individually or simultaneously, for optimal excavating. The tool features an articulating digging head, fiberglass barrel and non-metallic water hose, and can dig holes as small as 4 to 6 inches in diameter. [888/557-2339](tel:8885572339), www.air-spade.com; Expo booth 7058.

Kroy Industries

The 6-inch and 8-inch Kroy Vac couplers offer an O-ring seal for vacuum or pressure usage. Designed for the vacuum industry, the inside bore of the coupler is smooth to prevent against wear from abrasives and eliminate turbulence. [888/477-5769](tel:8884775769), www.kroyind.com; Expo booth 8161.



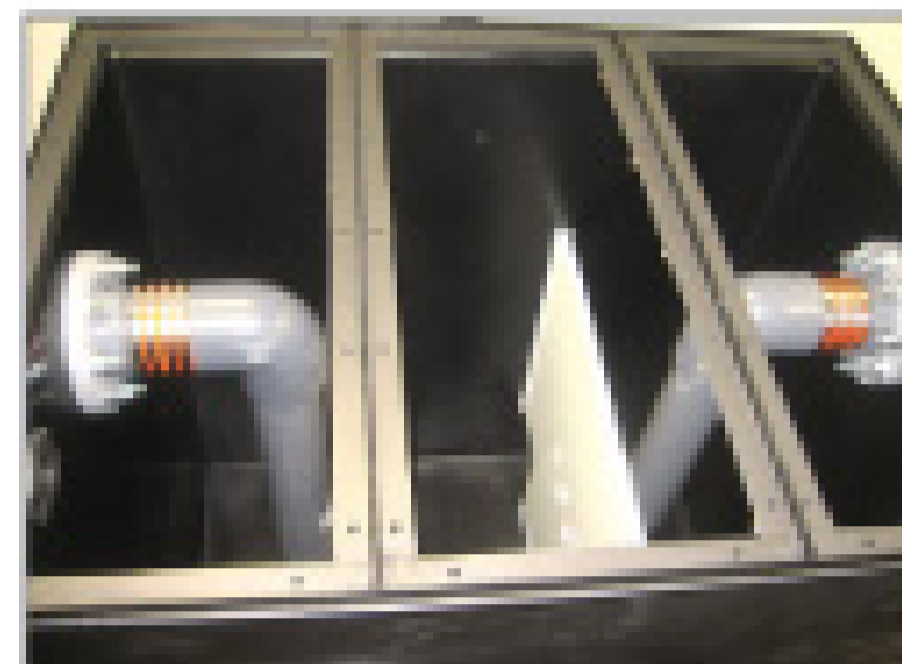
Kuriyama of America Inc.

Tiger high-pressure discharge and suction hoses feature flexible EPDM/polyethylene construction for chemical resistance and durability. Designed to be flexible even in cold weather, the hoses have a UV and weather-resistant exterior and synthetic yarn reinforcement to resist kinks in tight bends. [847/755-0360](tel:8477550360), www.kuriyama.com; Expo booth 32.

Grease, Holding Tanks

Ashland Trap Distribution Co.

The APGI Series grease interceptor is designed to separate grease, oil, fats and other sediment from large commercial and industrial sources. Made of high density polyethylene, the unit is corrosion and acid resistant, has a non-skid 3/4-inch cover, can be installed above or below ground, and is available with steel or aluminum non-skid thread plates. [800/541-8004](tel:8005418004); Expo booth 3011.



Containment Solutions Inc.

Flowtite Green-Build water tanks are designed for potable and non-potable water applications, including green building initiatives. The underground fiberglass tanks are lightweight, non-corrosive and come in sizes ranging from 500 to 50,000 gallons. Applications include rainwater harvesting, landscape irrigation, gray water reuse, and stormwater collection and treatment. [877/274-8265](tel:8772748265), www.containmentsolutions.com; Expo booth 3143.



Inspection Systems

CUES Inc.

The K2 Series portable CCTV pipeline inspection system can be mounted in a range of vehicles, trailers, or used as a stand-alone device. The unit comes with either an ergonomic hand-held or wireless control that operates all CUES transporters and cameras. The K2 Base Station features built-in diagnostics,



including the video cable. The K2 can be used with the Laser Profiling System to analyze pipes for deformation, true pipe diameter, corrosion, capacity, and verification of liner installation. [800/327-7791](tel:8003277791); www.cuesinc.com; Expo booth 1068.

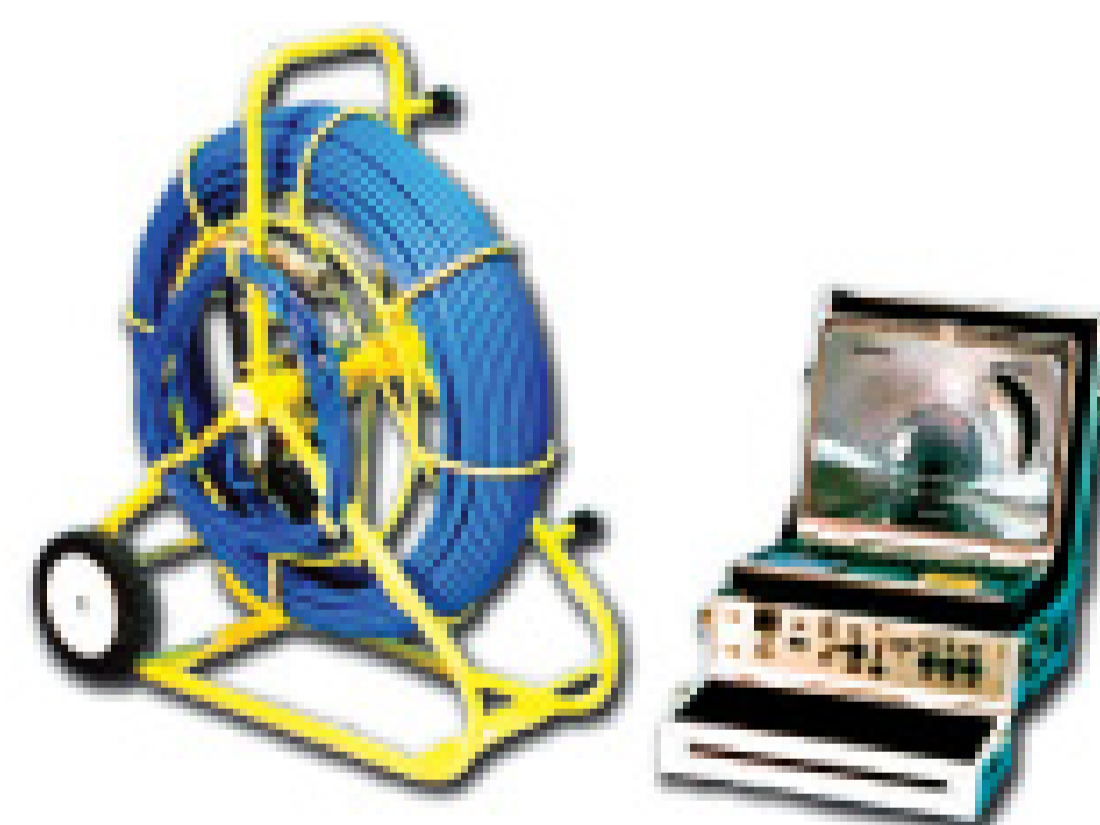
Envirosight LLC

The SuperVision 140 video inspection crawler can travel up to 1,640 feet through pipelines 6 inches and larger, rapidly evaluating condition and identifying maintenance needs. The crawler features a short wheelbase, steerable six-wheel drive and an array of traction options. It also comes with a remote-operated camera lift that adjusts view height to center the camera in a variety of line sizes, a monochrome rear-viewing camera with infrared illumination to help prevent flips and cable snags during reverse travel, and PipeBus network for concurrent control of multiple functions. [866/936-8476](tel:8669368476); www.envirosight.com; Expo booth 1130.



Ratech Electronics Ltd.

The Inspector PC digital inspection system features a removable laptop retrofit into the camera control unit and comes with a self-leveling color camera. The laptop can view and record inspection data in digital format (mpeg) and take digital stills (jpeg). A detailed report of the inspection is also produced. Once completed, the recorded inspection, images and report can be burned onto DVD within minutes. [800/461-9200](tel:8004619200), www.ratech-electronics.com; Expo booth 144.



Aries Industries Inc.

The Pathfinder Discovery Cube System with mini pan and tilt camera/transporter is designed to inspect relined 6-inch pipe in hard-to-reach places. Weighing 23 pounds, the lightweight but durable camera/transporter can operate in pipes from 5 inches to 24 inches. The system includes camera, transporter cube and off-road vehicle. [800/234-7205](tel:8002347205), www.ariesind.com; Expo booth 1008.



RS Technical Services Inc.

The OmniSTAR probe camera measures 2.45 inches in diameter and is 6 inches long. This 360-degree pan and rotate camera produces a 550-line, high-resolution image with an automatic iris and adjustable focus. The probe uses 16 ultra-high-density, white LED lights for illumination. Teamed with the Mighty Mini tractor and a variety of wheel options, the unit can inspect pipes from 4 to 12 inches in diameter, or it can be mounted on a push cable to inspect lines as small as 3 inches. [800/767-1974](tel:8007671974), www.rstechserv.com; Expo booth 4069.





Rabco

The Universal Roller Skid can adapt most portable video inspection systems for use in 6-inch to 12-inch pipelines

and larger, and accepts most standard push cameras under 2 inches in diameter. The skid is constructed of lightweight, durable, corrosion-resistant composite nylon. Three pivoting arms are engineered to adjust to fit the required diameter, keeping the camera head centered in the pipeline. No extra parts, tools or manual adjustments are required. Six rugged, nylon wheels enable the skid to roll through the pipe. Optional auxiliary flashlights are available. A safety harness is included for secondary/emergency retrieval. [800/237-2467](tel:8002372467), www.pumpersupply.com; Expo booth 8069.

Chemicals

Lenzyme Inc.

Trap-Clear Grease Blocks are designed to slowly dissolve and release strong grease eating bacteria, helping to control grease buildup and odors in municipal lift stations, sludge ponds, wet wells and commercial grease traps. [800/223-3083](tel:8002233083); Expo booth 6151.



Dewatering, Dredges

Prime Solution Inc.

The Rotary Fan Press biosolids dewatering system and Inline Rotary Thickener are totally enclosed to eliminate odors, and feature few mechanical parts for low energy consumption and maintenance. The compact units are designed to operate with minimal supervision. [269/673-9559](tel:2696739559), www.primesolution1st.com; Expo booth 9103.



Aqua-Zyme Disposal Systems Inc.

The 30-cubic-yard ADS Dewatering Unit can be filled with 25,000 gallons of sludge or grease trap waste at 1 1/2- to 2-percent



solids in about two hours and can pass the paint filter test within 24 hours. The unit is designed to dump clean and is completely shop assembled. [979/245-5656](tel:9792455656), www.aqua-zyme.com; Expo booth 163.

Liquid Waste Technology

The Pit Hog PH10-40 remote-control electric dredge has a working depth of 15 feet, weighs approximately 5,900 pounds and measures 23 feet, 1 inch long, 7 feet, 6 inches wide and 6 feet, 10 inches high.



Powered by a 460-volt, 60 Hz motor, the unit has a 40-hp submersible pump. Made of structural steel, the dredge is designed for manned or unmanned operation with computer or manual controls. The wireless remote features slurry pump on/off, auger on/off, travel forward on/off, travel speed, hoist up/down and pump speed.

[800/243-1406](tel:8002431406), www.lwtpithog.com;
Expo booths 5195, 6195.

Reels, Plugs

Reelcraft Industries Inc.

The DP7000 Series hose reel features a dual pedestal base design and two-piece, non-welded, interlocking base engineered not to vibrate apart. The reel is available with up to 50 feet of 1/2-inch I.D. hose. [800/444-3134](tel:8004443134), www.reelcraft.com; Expo booth 6051.



Real-Tite Plugs Inc.

Counter sunk, thumb bolt, hex head and steel top plugs are available in sizes from 1 1/2 through 4 inches. Self-contained and code approve, the plugs eliminate the need for threaded adapters. They can be removed while installing fixtures, used to permanently seal openings or be saved and reused again. [800/877-0610](tel:8008770610), www.real-titeplugs.com; Expo booth 3193.



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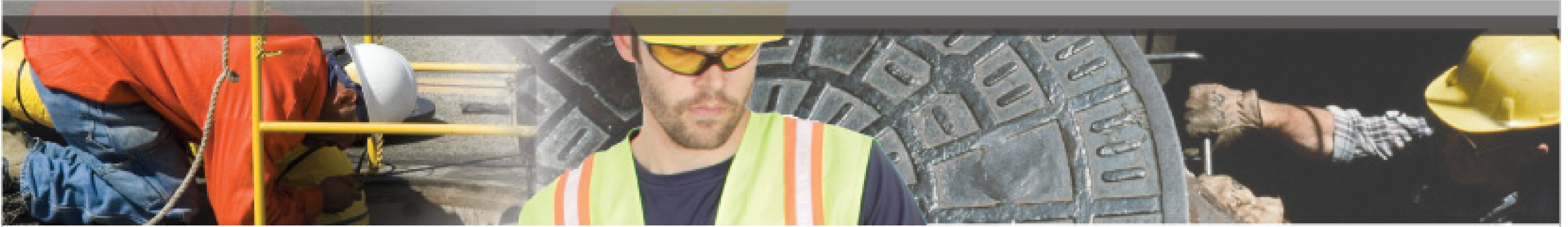
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- **Push Rod Cameras**
for 1" to 12" pipes (100' to 500' lengths available)
- **Robotic Crawlers**
for 4" to 64" pipes (up to 1500' in length available)
- **Tank Inspection Cameras**
- **Video/DVD Recording Capabilities**
- **Ground Penetrating Radars**
- **Confined Space Gas Monitors**

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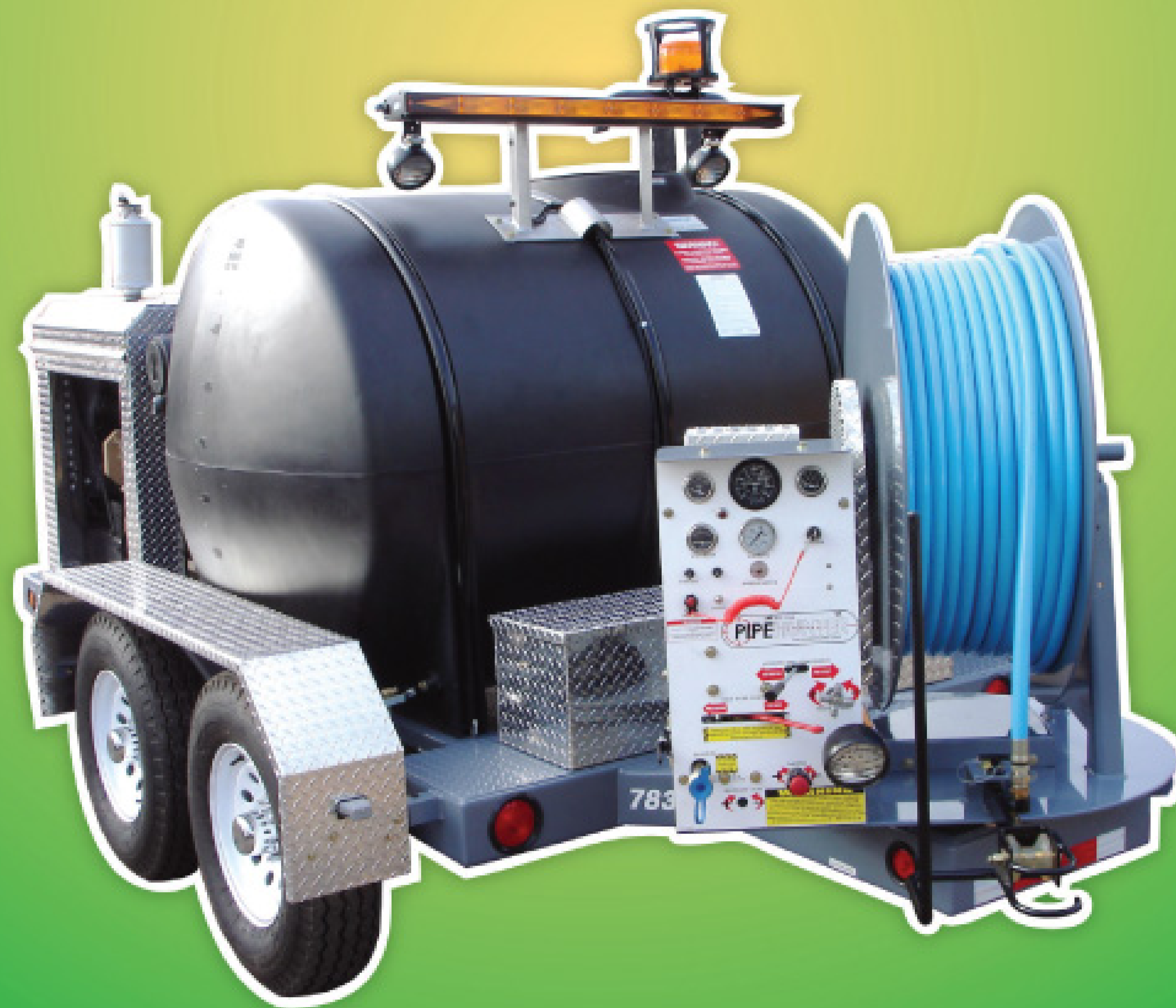
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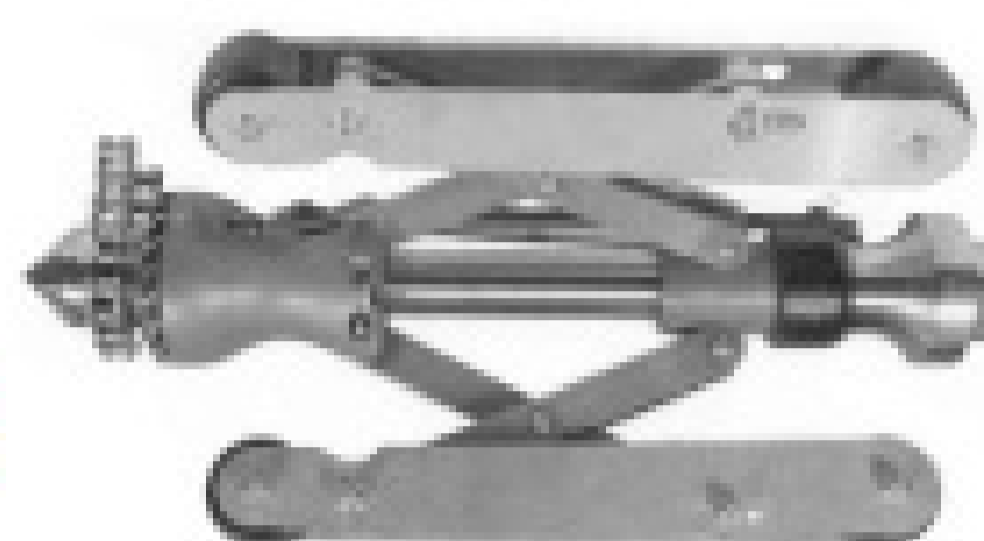
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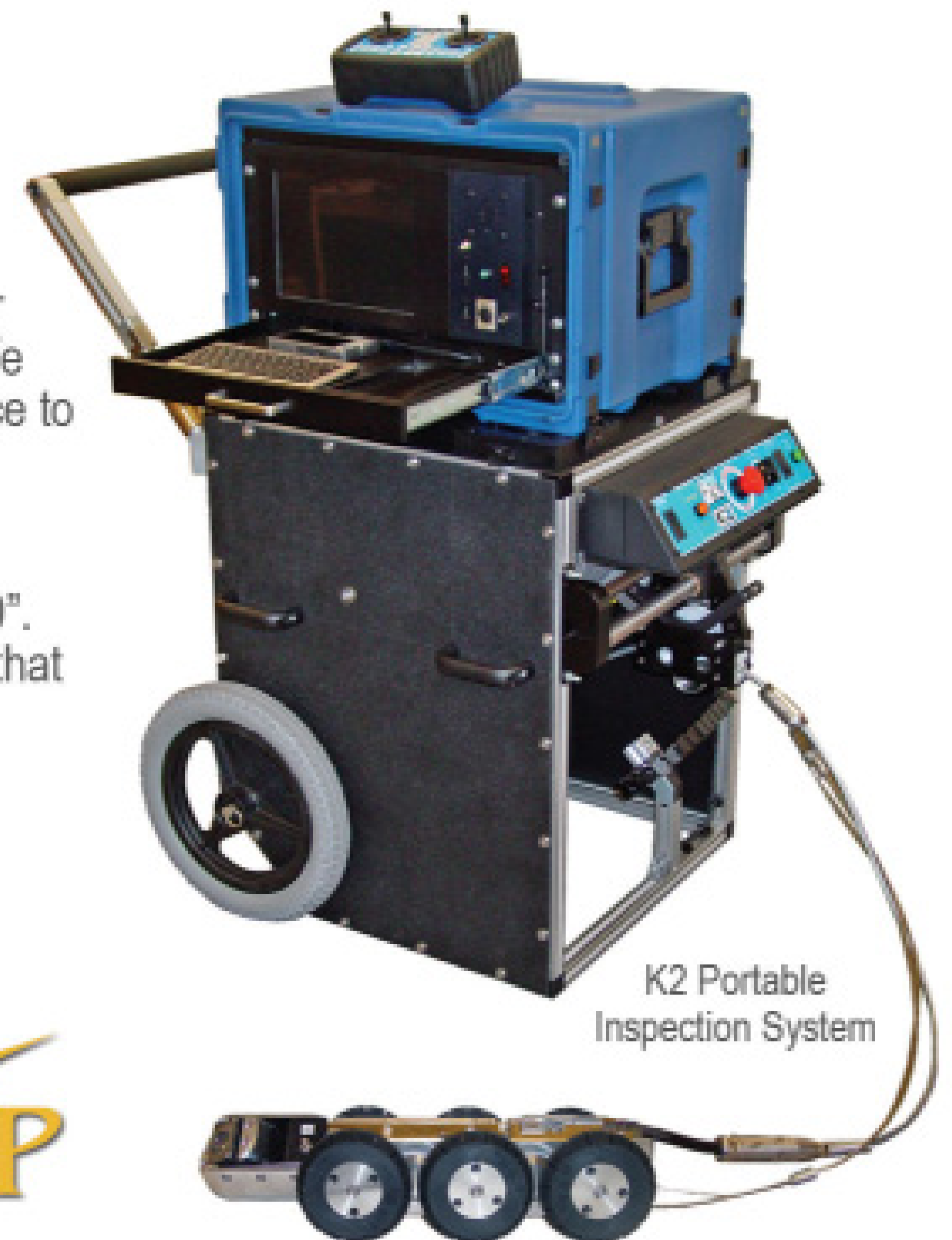
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IDEX Acquires Nova Technologies

IDEX Corp. has acquired Nova Technologies Corp. for \$158 million. NTC is a provider of metering technology and flow monitoring services for the water and wastewater industry, with annual revenues of approximately \$70 million.

AlturnaMats Purchases Mobile Matts

AlturnaMats Inc. has purchased Mobile Matts of Green Bay, Wis. Phil Schounard will continue to head Mobile Matts and operate out of the Green Bay facility.

Putzmeister Launches New Web Site

Putzmeister Water Technology has launched its new web site, www.pmwatertech.com. The site features information on the division's full line of equipment and accessories, as well as its free DVD, *Powerful Water Jetting Solutions*.

Keffer, Debris Dam Inventor, Killed in Car Crash

Business owner John Edmund Keffer, 61, inventor of the Debris Dam manhole safety device, and a member of the Coraopolis (Pa.) Water and Sewer Authority, died as the result of a car crash on Sunday, Dec. 2, in Eastern Pennsylvania. His wife, Jayne, sustained minor injuries.

Keffer was the owner of Northern Environmental Coatings and Consultants, a manhole chimney seal installation company. It was while seeking a product to prevent tools and sandblasting spoils from falling into manholes that Keffer came up with his concept for the Debris Dam, a lightweight, inverted umbrella-shaped product with folding mast. Designed to work at the top of the manhole, the device is held in place by extending arms or spines that pull tight against the side of the chimney cone. It can hold up to 34 pounds of debris.

Known for the expression, "Everyday's a winner," Keffer's death came just days after he had begun semi-retirement.

"He really brought a lot to the table," Thomas Cellante Jr., manager of both the borough and the water and sewer authority, told the *Pittsburgh Post-Gazette*. "John was a true gentleman in every sense of the word. He was well-versed in all matters concerning water and sewer issues, really a first-class asset to that board."

John Schombert, authority president, said Keffer was a hands-on board member who visited pumping stations and treatment plants. "He didn't like making decisions unless he saw what the facility was all about."

In addition to his wife, Keffer is survived by his son Daniel, daughter Christina, mother Betty, sister Sandra Finley, and grandchildren Mackenzie and Ethan. ♦

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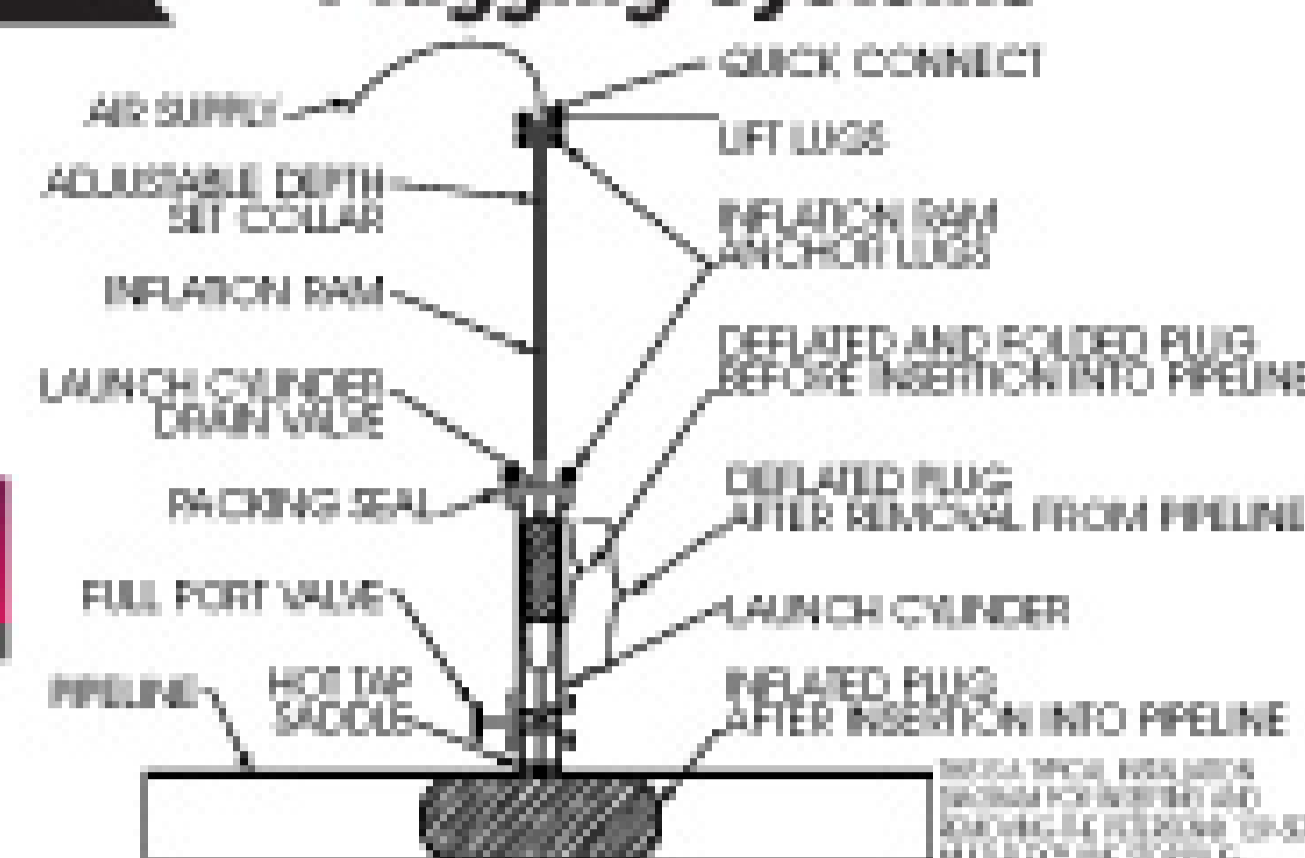
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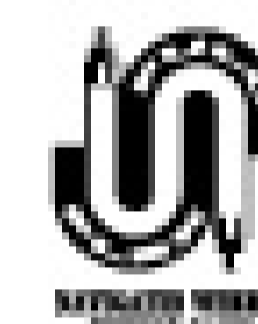
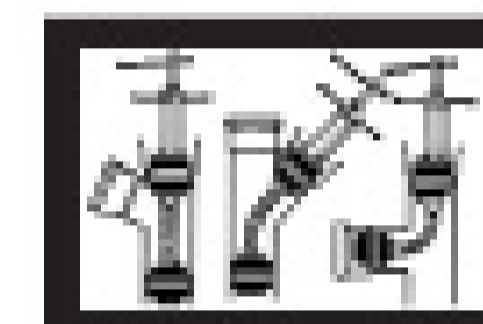
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ACCESS ANYWHERE

Web Work software from Tero Consulting Ltd. combines electronic maintenance management tools with the convenience of browser-based access

By Ted J. Rulseh

Computerized maintenance management systems (CMMS) have become almost essential for water, wastewater and stormwater departments with numerous fixed and mobile assets. These systems make it easy to schedule and complete maintenance tasks, track inventory, assign staff, monitor costs,

and generate management reports.

The Web Work CMMS from Tero Consulting Ltd. in Vancouver, B.C., is an advanced CMMS offering designed to help government and private entities manage operations and maintenance functions across an enterprise network Web. The company says the program was the first commercially available CMMS developed using web architecture, providing functionality through a standard web browser.

The system is designed to be flexible and scalable and to adapt easily to suit organizations of many sizes and people with a wide range of computing skills. In particular, it

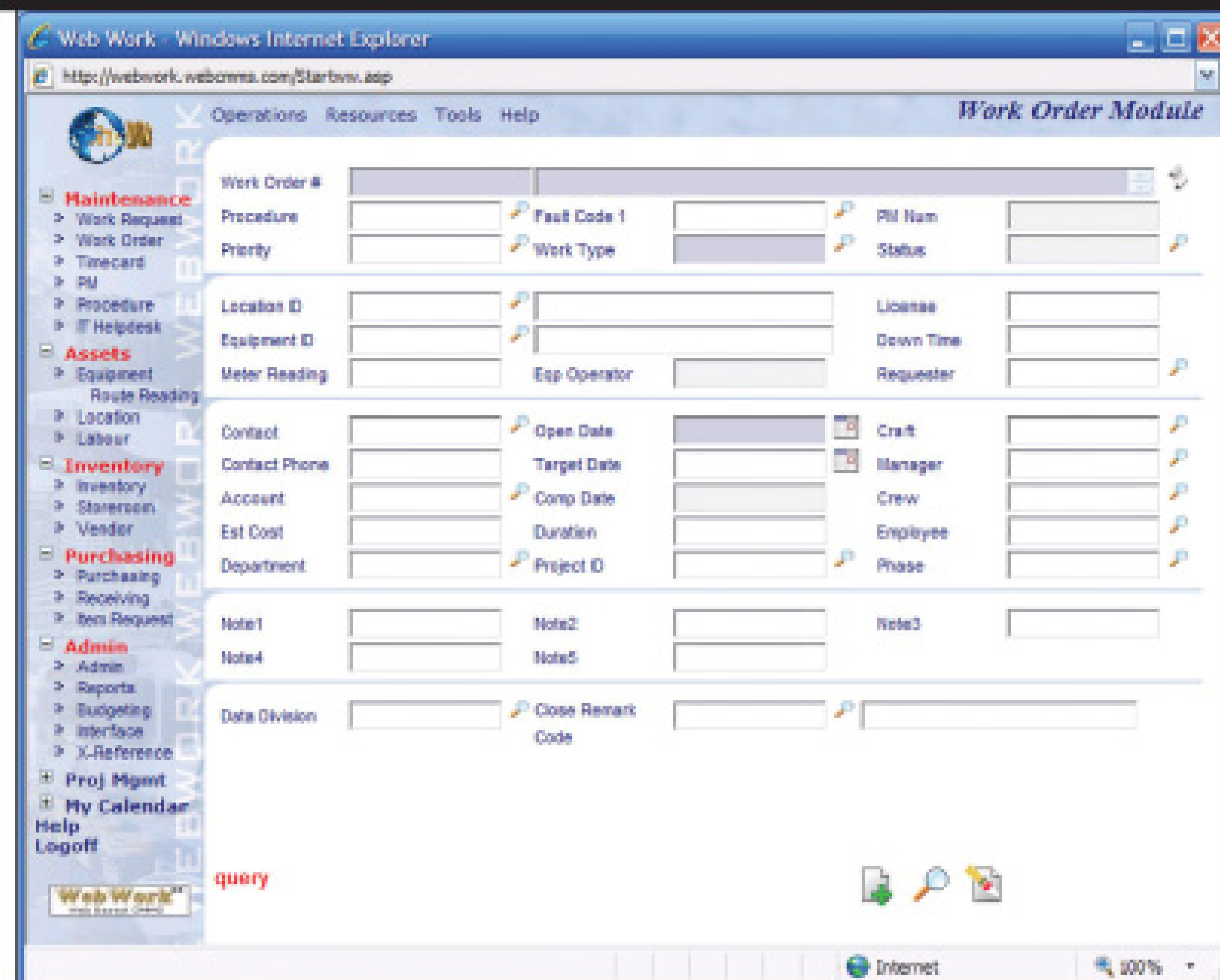


FIGURE 1. MAIN MENU OPTIONS

The Web Work main menu is grouped by functional areas using a collapsible menu system so frequently used options are always visible.

is structured to enable staff members without computer programming knowledge to customize functions and reports.

Ronald Kossik, vice president, technology, with Peak Industrial Solutions LLC, a Web Work distributor, gave an Internet-based demonstration of the software on Dec. 31.

Walk-around

Web Work is available both for purchase and in an application

service provider (ASP) model, in which the user does not host the software on local servers. Instead, the software is hosted remotely by a vendor, and users access it via the Internet.

In the ASP mode, the user is spared the expense of server hardware, software installation and updating, and system maintenance and support. Staff members can access data and use all software functions securely from any computer that has Internet access and a standard web browser.

One key advantage of the web-based model is that field personnel can enter service requests or work orders themselves instead of having to fill out paper forms or phone requests in to the office. This eliminates the errors that can occur when office staff members have to transfer data from forms or telephone notes into the computerized system.

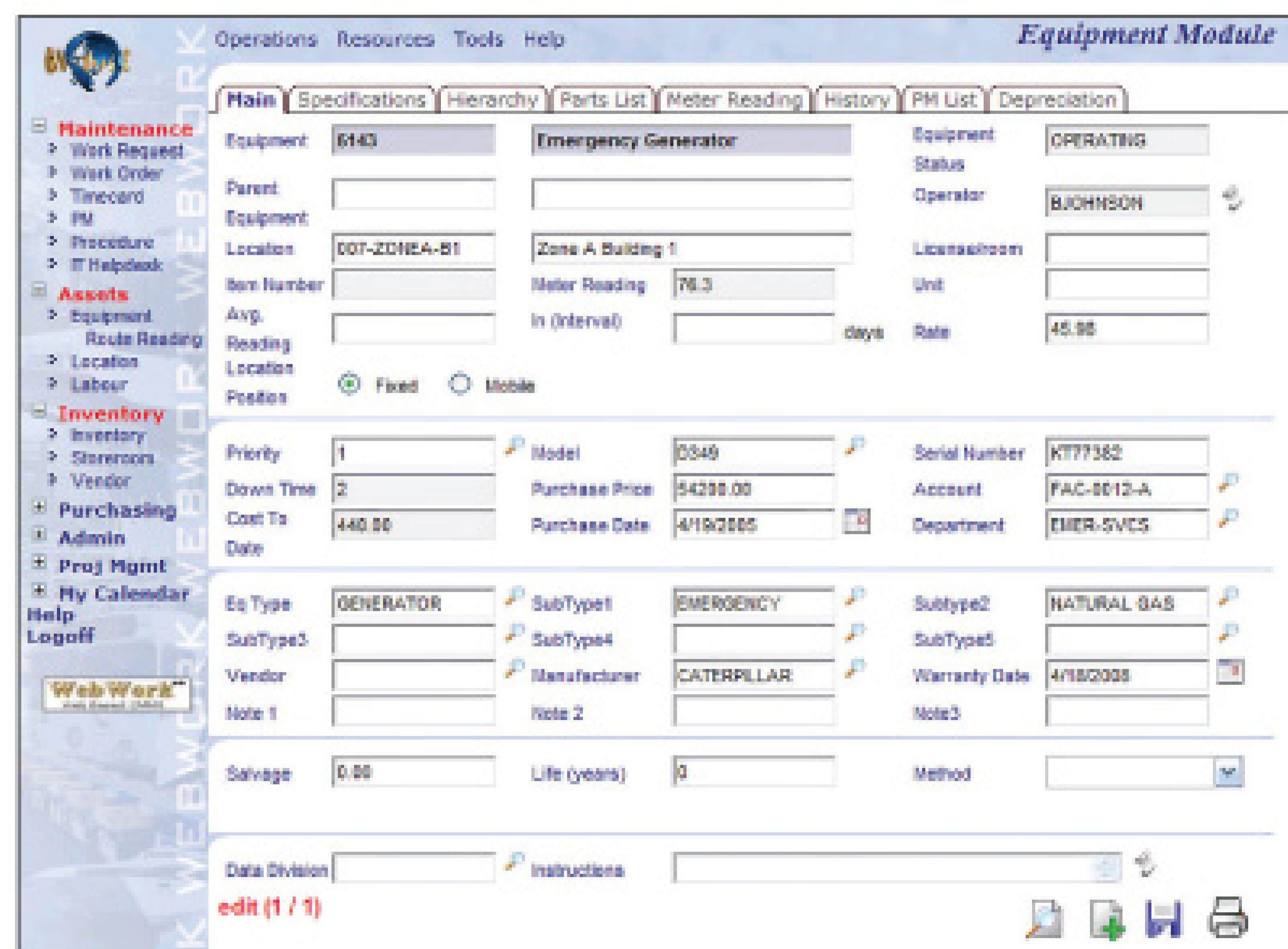


FIGURE 2. EQUIPMENT MODULE

The equipment module records basic descriptive information and summarizes information such as Total Cost to Date. A series of tabs organizes additional details, such as equipment specifications, a parts list and maintenance history.

TECHNOLOGY TEST DRIVE

PRODUCT:

Web Work CMMS software, application service provider model

SUPPLIER:

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Vancouver, B.C.
866/818-8376
www.tero.ca
(distributed by PEAK Industrial Solutions, Brookfield, Wis., 262/783-6260, www.cmmsmadeeasy.com)

LOCATION OF DEMO:

Via Internet

DEMONSTRATED BY:

Ronald Kossik,
PEAK Industrial Solutions

LIST PRICE:

\$600 per month based on 10 users (can vary depending on options)

The core modules of Web Work are all accessed from a main screen (Figure 1). The main modules are listed on the left side: Maintenance, Assets, Inventory, Purchasing, and Administration. A click on any of these brings up a menu of options, each leading to standard but customizable forms.

Operation

Starting from the main screen, Kossik demonstrated the basic functions common to all CMMS (work orders, service requests, inventory control, reporting and others) and highlighted various attributes unique to the Web Work offering.

From the Assets menu, Kossik pulled up an asset list and selected an emergency generator. A form appeared (Figure 2) showing a variety of data on that asset, including fields displaying downtime and cost to maintain to date. "This lets the user know how much as been spent on maintenance and repairs for the asset over its life," Kossik said.

He then demonstrated how assets can be categorized by main type and up to five subtypes. For example, under the main type Pumps, users could designate Subtype 1 as lift station pump or mobile bypass pump, Subtype 2 as

hydraulic pump or vacuum pump, and so on. This greatly simplifies the process of searching for and generating reports on specific types of assets.

This same basic functionality supports the creation of hierarchies (or "parent-child" relationships) among related assets. For example, a hierarchy might consist of a wastewater lift station and its

**The system is designed to be flexible and scalable
and to adapt easily to suit organizations of many
sizes and people with a wide range of computing skills.
In particular, it is structured to enable staff members
without computer programming knowledge to
customize functions and reports.**

pumps and other components. Such hierarchies enable users to generate reports show how much they are spending on lift stations as a whole and how much are on each type of component within those stations.

The program also alerts users to equipment warranty status. "If you try to issue a work order for asset, the software will tell you right away that the equipment is under warranty," Kossik said. Often, he said, technicians are in a fire-fighting mode and fail to check on warranty status. This feature helps

identify repairs that should properly be carried out under warranty rather than at the community's expense.

Users also can define individual lists of specifications for each type of asset (motor, pump, vehicle, generator, manhole, and others); specific lists of spare parts needed for maintenance with inventory levels and ordering information; and service intervals

based on number of days or odometer or hour-meter readings.

Tabs across the top of the screen let users expand and refine the definitions of planned maintenance (PM) activities. Within the Estimates tab, for example (Figure 3), users can define the tasks, labor, materials, and tools expected to be required.

Searches are easily performed using a query function. At the bottom of the Maintenance screen,

Kossik clicked on the word Query, bringing up a form on which he showed how to search for PM activities on a specific asset class. Going to the Department field, he clicked a magnifying class search icon and brought up a list. From that list he selected HVAC, and a list of HVAC-related PM items appeared.

He also showed how the same result is obtained by simply typing the name of the desired item into the appropriate field in the form. More advanced queries to sort for two, three or more attributes can be created simply by marking attributes in a checklist (Figure 4). The query functions work the same way in all modules.

The software also enables creation of inspection or maintenance routes as single work orders with multiple components. This eliminates the need to create and print individual work orders for simple, repetitive tasks, such as exercising water valves or inspecting manhole structures. To illustrate creation of a route, Kossik:

- Selected a smoke detector from a list of items.
- For that item created a specification called Quarterly Inspection.

FIGURE 3. PREVENTIVE MAINTENANCE MODULE
Preventive maintenance activities are scheduled with the PM module, which uses tabs and pop-up windows to organize and manage detailed information, such as procedures, parts and tools required, and previous history. On this screen, a pop-up window is used to edit a specific task in a PM procedure.

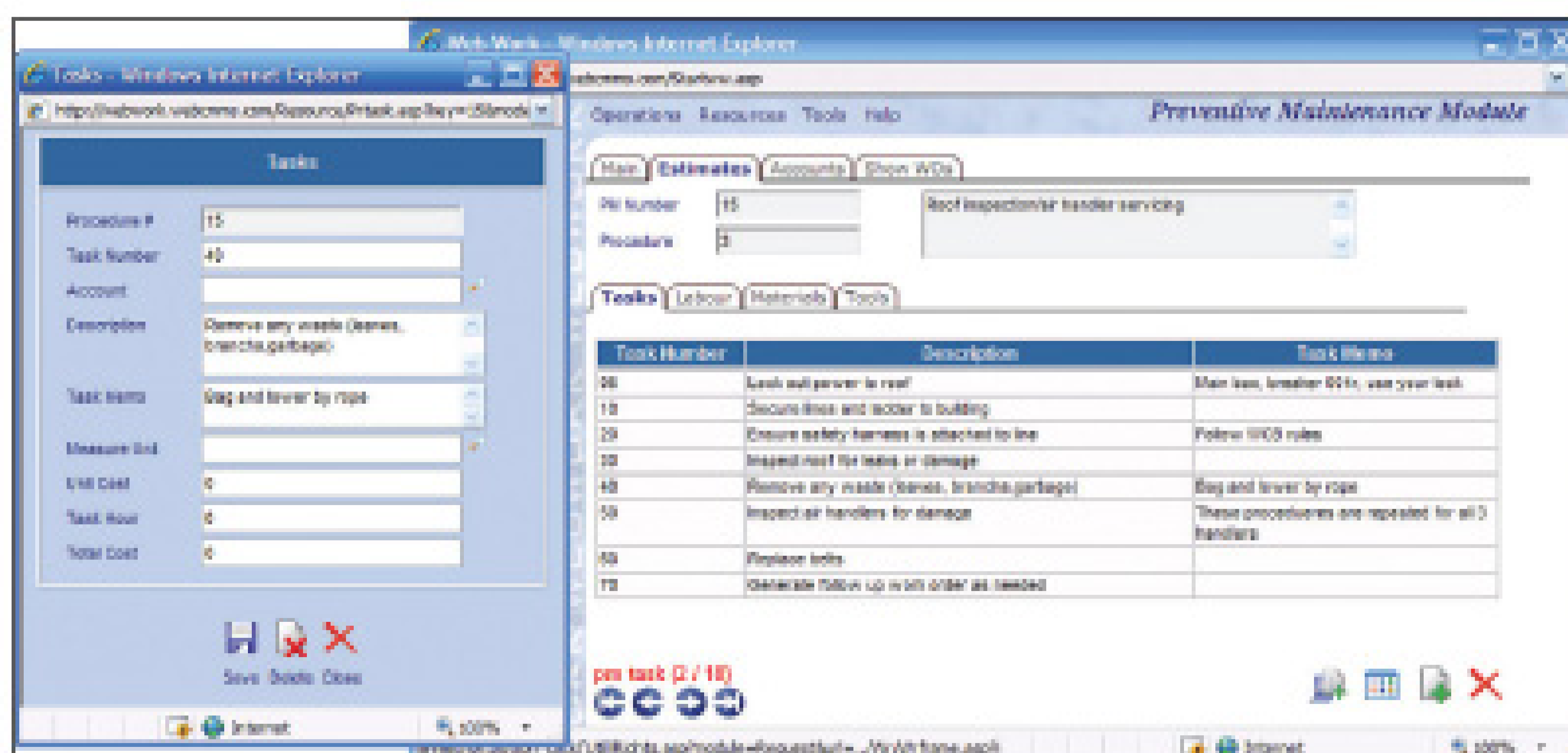
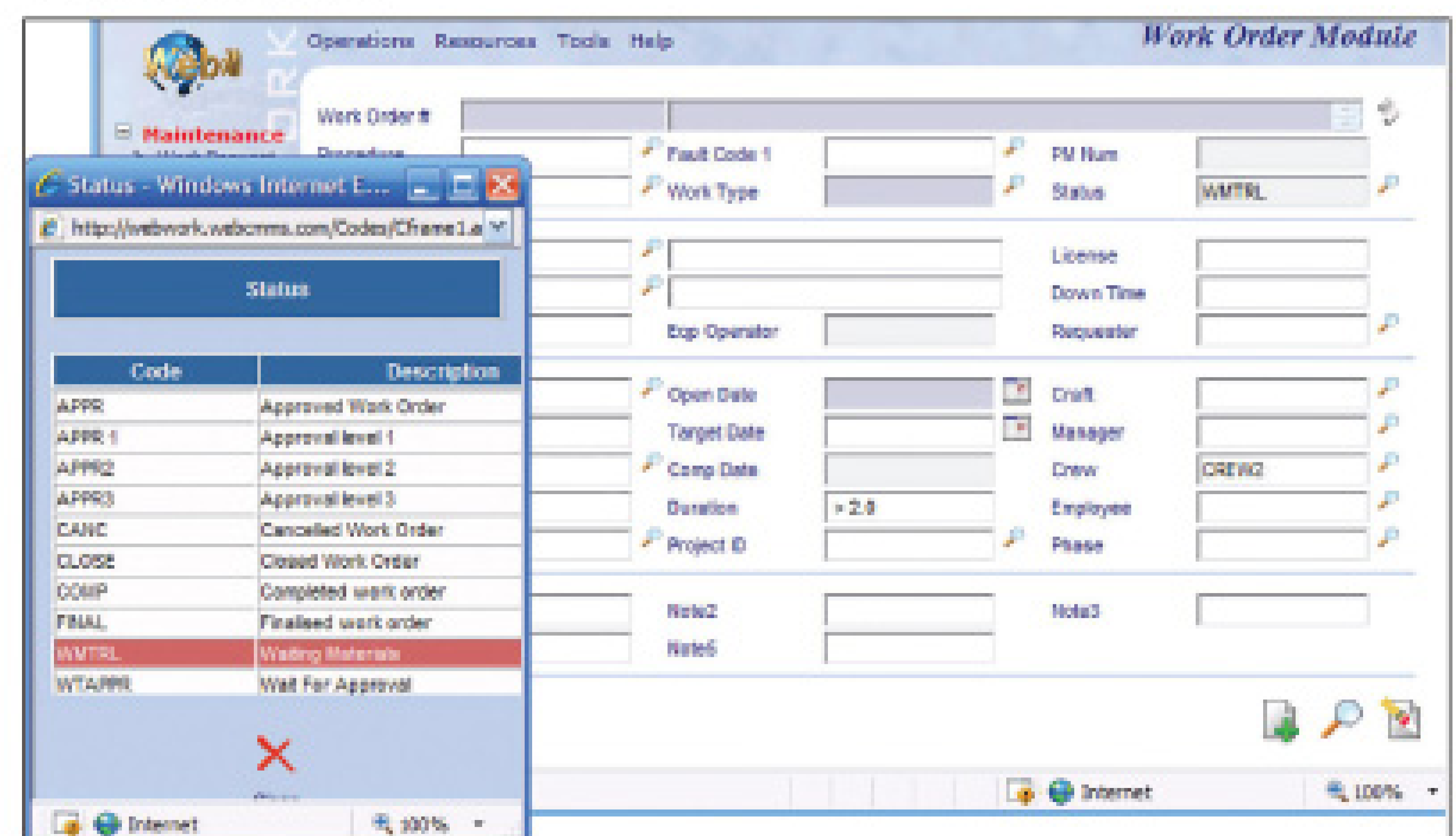


FIGURE 4. COMPLEX QUERIES
All Web Work modules can be queried using the Query-By-Example feature to make complex queries available to casual users. In this example, the user is selecting all work orders with an estimated duration of more than two hours that are assigned to CREW2 and are waiting for materials. A pop-up window is being used to select the code for Waiting Materials.



- Entered P (for pass) as a default value.
- Entered P/F (for pass/fail) as the measurement unit.

He then followed the same procedure for additional smoke detectors to be inspected as part of the route. After creating such a series, Kossik selected New Route, named it Smoke Detectors Floor 2, and selected the two Quarterly Inspection items to add them to the route.

“With the web-enabled ASP model, the cost of installing, configuring and maintaining software is greatly reduced, so the cost of running a CMMS shifts to staff training and support. The low threshold of expertise required for a new staff member to begin using this system is an advantage.”

Ronald Kossik

The same process can be used to specify multiple measurements for each piece of equipment where appropriate (for example, pressure, flow, temperature).

Kossik then displayed a form for a route containing inspection items (Figure 5). This form represents a single work order with a checklist on which the technician can enter the pass/fail ratings. The form can be printed out and filled in manually, or can be completed on a PDA and uploaded to the CMMS upon completion.

“It’s a PDA-based program that the values can be downloaded to,” Kossik says. “The technicians can go through and record the values as they walk around. The program will automatically tell what the next item on the route is. It’s a powerful framework for allowing a large number of pieces of equipment to be serviced without generating an unreasonable number of

paper or electronic work orders,” Kossik said.

The program’s inventory function integrates with the other maintenance functions. Once PM tasks are defined with parts requirements, the system can be used for predictive ordering. Kossik demonstrated an Inventory Reorder report (Figure 6) showing items’ current stock level, quantity on order, and reorder level.

The Report Writer function is designed for more experienced users. The system allows administrators to set security limits to define who is allowed to generate reports. Those users generally receive training in the reporting functions. The system includes a list of standard reports and also allows users to create custom reports.

Observer comments

The Web Work software appears to provide a high degree of flexibility and enables experienced as well as entry-level users to work in the system efficiently. As one example, the software lets users conduct queries either by selecting items from lists or by typing in the name of the desired item into a data field. The former method is easier for entry-level users, but would tend to slow down experienced users.

The route creation function would be faster and easier if users could create a route simply by running a search for similar items instead of having to enter each item manually. However, the user has to go through the selection of items only once, after which the route itself becomes a complete work order.

Manufacturer comments

Kossik noted that the system combines high-level functionality that advanced users need with simple and intuitive attributes that help entry-level users. Operation of basic functions, such as query, is consistent across all modules.

Equipment	Meter Name	Meter Date	Prev Reading	Meter Date	New Reading
27177	C4-4MS-4 ANNUAL PM		P	1/9/2008	P
27178	C4-4MS-5 ANNUAL PM		P	1/9/2008	P
27179	C4-4MS-6 ANNUAL PM		P	1/9/2008	P
27180	C4-4MS-7 ANNUAL PM		P	1/9/2008	P
27181	C4-4MS-8 ANNUAL PM		P	1/9/2008	P
27182	C4-4MS-9 ANNUAL PM		P	1/9/2008	P
27183	C4-4MS-10 ANNUAL PM		P	1/9/2008	F
27222	C4-4MS-59 ANNUAL PM		P	1/9/2008	P
27224	C4-4MS-62 ANNUAL PM		P	1/9/2008	P

FIGURE 5. PM ROUTES

The Web Work system uses a PM Route feature to automate inspecting, reading or servicing large numbers of equipment. In this example, the technician is recording smoke detector inspection results, which will simultaneously update the maintenance histories of all equipment on the route.

Item Number	Short Description	Category	Vendor	SubType0	SubType1	SubType2	SubType3	SubType4	Serialized	Stock Item	Manufacturer	SubType2	Markup Rate
ISSUE ITEM	Main		ACME										
											Avg Price	Last Price	Qty Available
											\$12.75	\$12.75	13
											TOTAL		13

FIGURE 6. PARTS INVENTORY MODULE

The integrated inventory parts management module links parts to vendors, storerooms, PMs, and equipment to enable maximizing parts availability while controlling inventory costs.

“A low threshold of approachability of the software is important from a training perspective,” Kossik said. “With the web-enabled ASP model, the cost of installing, configuring and maintaining software is greatly reduced, so the cost of running a CMMS shifts to staff training and support. The low threshold of expertise required for a new staff member to begin using this system is an advantage.”

He observed that the need to build inspection or maintenance routes item by item is a trade-off on behalf of making the system easy for inexperienced personnel to use. “One service that we can offer is that we can build those routes automatically to reduce manual setup,” he said. “That cuts the job down to size for larger customers.”

Organizations large enough so that route creation becomes a tedious process generally have the

wherewithal to support consulting and integration services that can include automatic route creation, he said.

“Two key attributes of this program are its adaptability to the customer’s operation without programming or other special expertise, and the ability to set up routes so that large-volume, short-duration maintenance activities can be automated in ways that save manpower and enhance efficiency in completing PM schedules,” Kossik concluded. ♦

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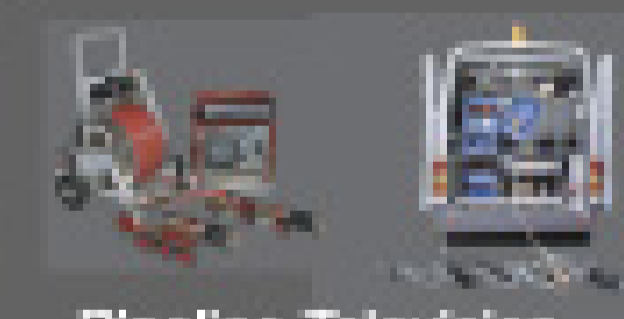
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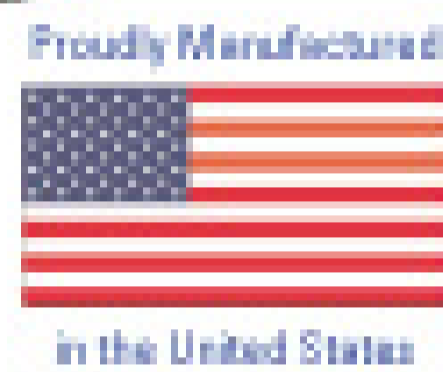
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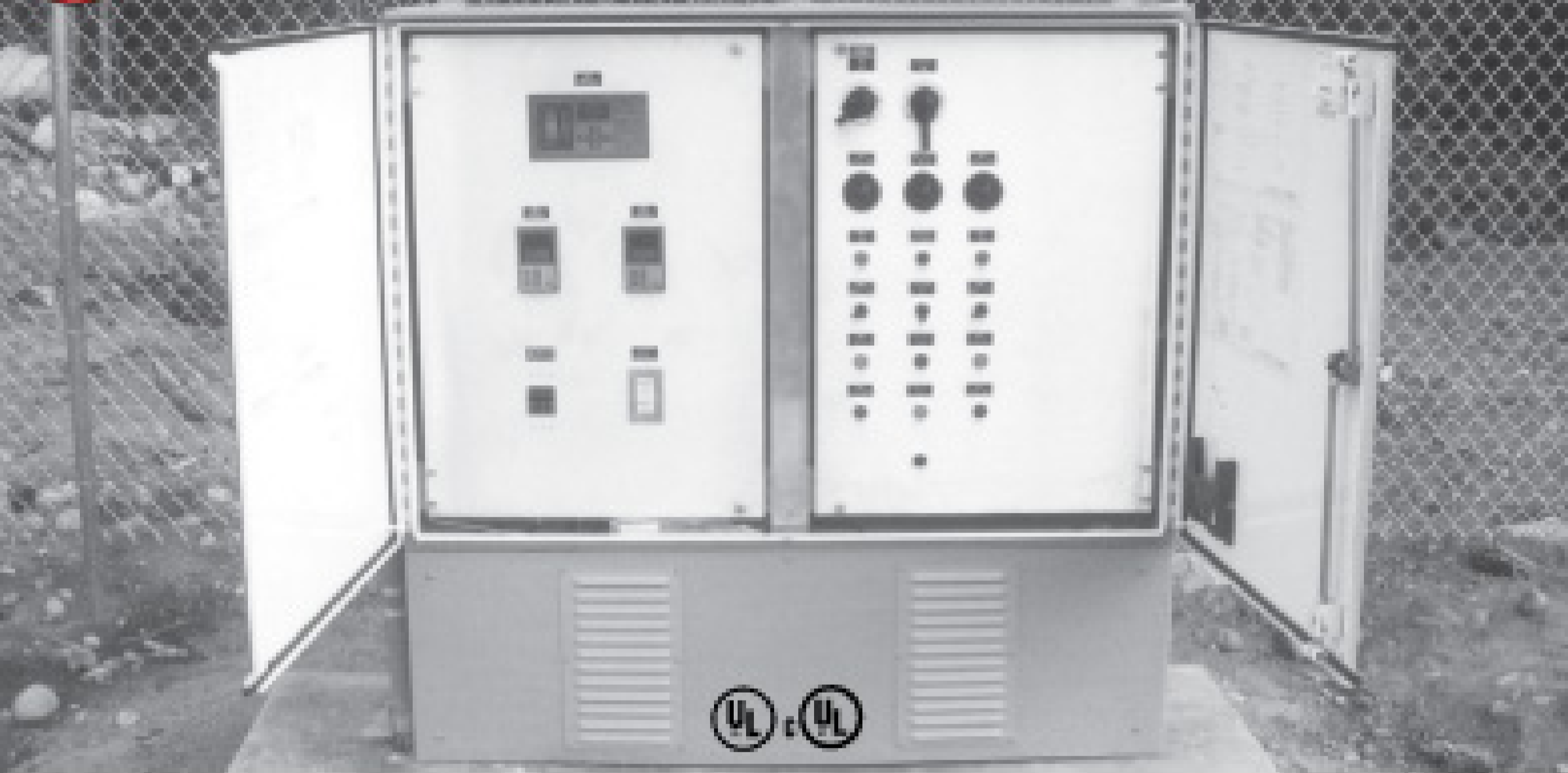
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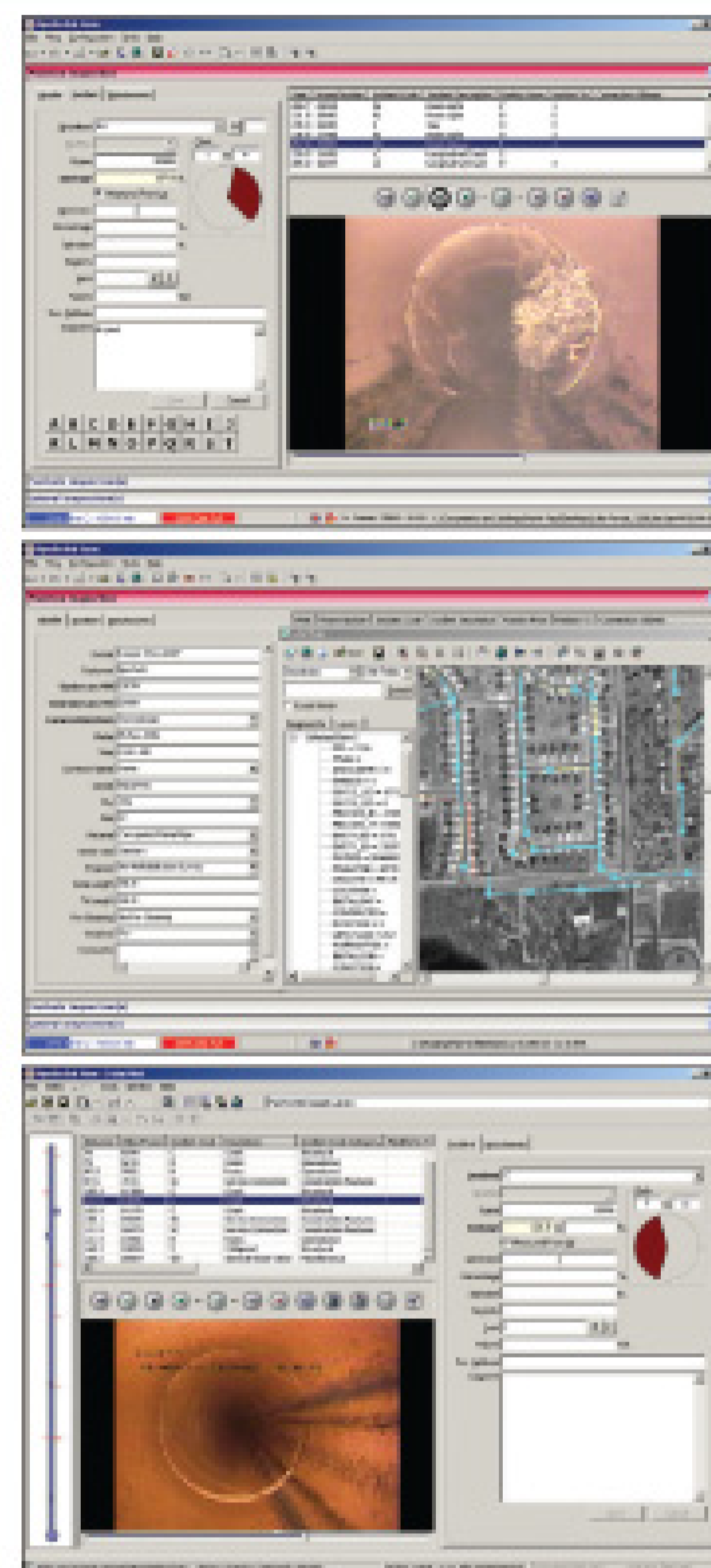


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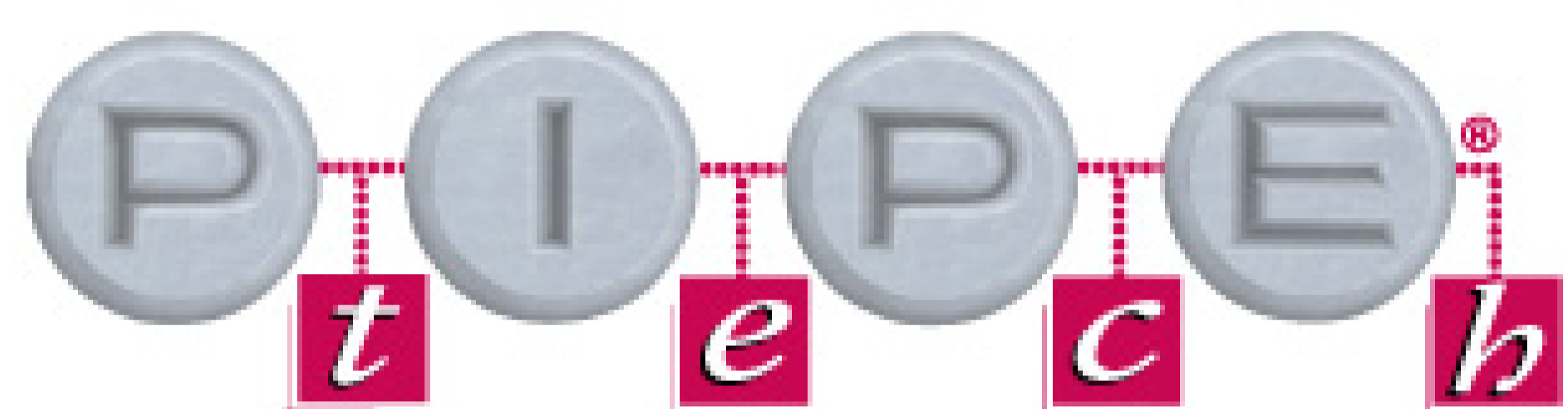
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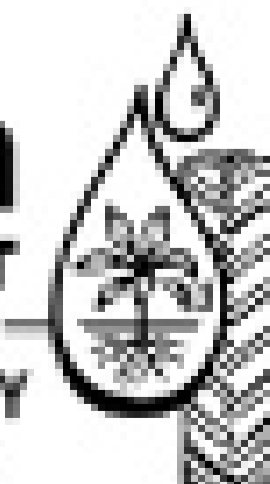
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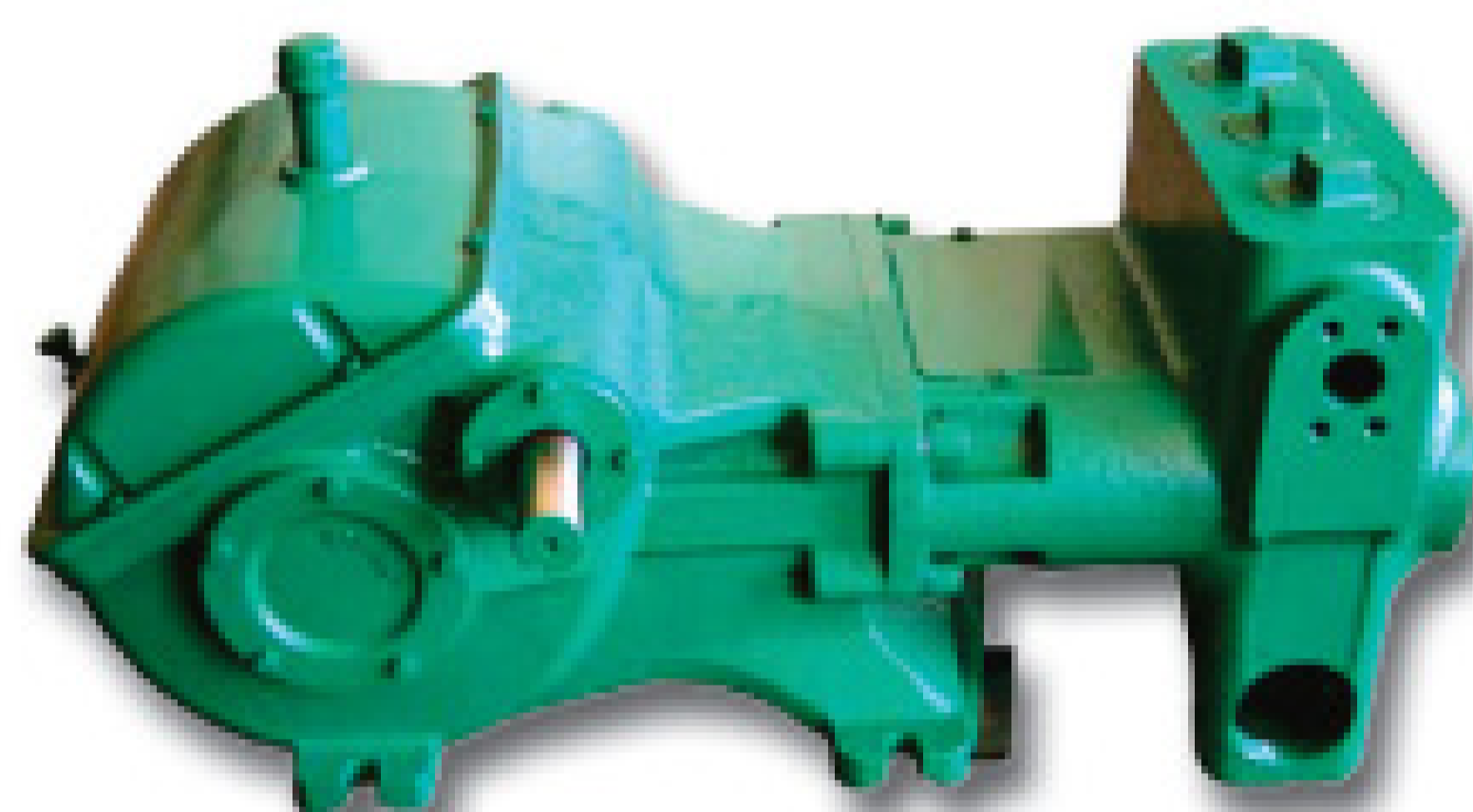
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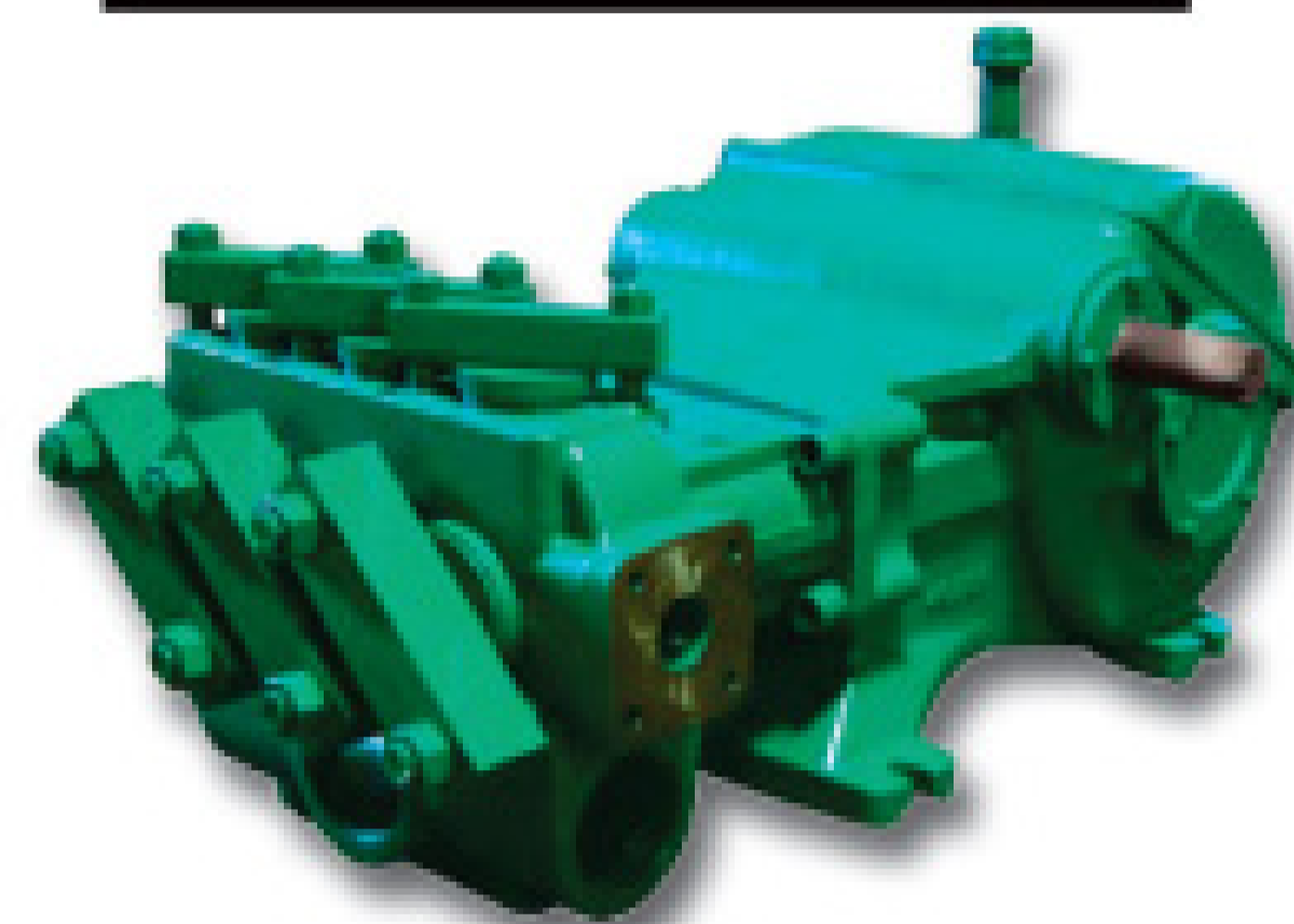
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KEEPING THE LINES OPEN

The City of Atlanta wins support for major infrastructure projects with an extensive public participation and information initiative

By Suzan Marie Chin

Traditional and cutting-edge Internet technologies help the City of Atlanta staff keep residents involved and supportive of improvement initiatives.

Case in point: When the city embarked on its Clean Water Atlanta program, one of the largest infrastructure rehabilitation and improvement programs in history, everyone knew that community involvement and acceptance would be vital.

The work, lasting for years, would cause disruption, interrupt services, delay traffic, bring potential rate and tax increases, and have other effects typical of large public construction projects. Since those impacts couldn't be avoided, the staff planned carefully to get all stakeholders onboard and working

programs in the United States. By embracing technology, Johnson was able to multiply herself and deliver the city's message in a cost-effective and broad-reaching way.

The big picture

In 1993 the Bureau of Pollution Control, as part of its phosphorus reduction program, set out to build a wastewater conveyance tunnel between two wastewater reclamation centers on opposite ends of the city. This multi-million-dollar plan was ultimately scrapped after extensive public opposition.

That event was the impetus for starting a proactive public participation and community outreach program. It includes a structured process for getting public input before the city moves forward with

bursting, point repairs, manhole repairs, and open-cut trench replacement, all requiring explanation and interpretation about their impacts at the grassroots level.

Activities such as smoke testing and CCTV inspection require grassroots work in communities to facilitate contractor access to properties. In addition, projects must be coordinated with other contract work being performed in the city, including gas and water main replacement, streetscape upgrades, and paving.

The public involvement process typically begins with a series of public meetings where city representatives present the problem and possible solutions to the community. The design engineers take community input into consideration. Often, citizens' suggestions are implemented when they fit with the budget and engineering constraints.

The meetings are followed by web site postings, media publicity (including television and radio), mailers, and door hangers. Personal contacts are also important, especially in areas with many businesses and office buildings. A large share of the city's sewer rehabilitation work takes place on easements or private property, and in such cases, personal contact is essential.

The city now repeats the basic process in whole or in part for each new project under the Clean Water Program.

Ever evolving

As the Clean Water Program

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.

progressed, so has the level of community outreach. "The program evolved as a more astute public began to seek out information about technical projects proposed for their neighborhoods," says Johnson. She develops Atlanta's program from two distinct angles: public involvement and public information.

Public involvement invites residents to participate in every phase of project development, beginning with evaluation of alternative solutions. "If done properly, public involvement affords affected stakeholders the opportunity to voice their concerns and preferences, which are then taken into consideration by technical and political decision makers," Johnson says.

After the public involvement phase, Johnson and her department provide timely dissemination of information about project activities, especially to residents and businesses that may be directly affected.

"The NIMBY (not in my backyard) mentality will never go away, but people are far more receptive if they feel that they have been given an opportunity to understand and influence what goes on in their back yards," Johnson says.

Embracing technology

Although Atlanta uses traditional communications like printed billing inserts, direct mail and personal contact, its most powerful and far-reaching communications have used electronic tools, chiefly

"The NIMBY mentality will never go away, but people are far more receptive if they feel that they have been given an opportunity to understand and influence what goes on in their back yards."

Marilyn Johnson

with the city to meet its consent decree initiatives.

The solution was to create the Office of Public Participation within the city's Department of Watershed Management. It began in 1994 as a one-person operation with Marilyn Johnson as director of communications, supported by a few outside consultants. It has since grown into one of the most comprehensive and technically advanced community outreach

investment in any specific project plan. Public involvement and public information programs cover a wide range of projects.

Street-based construction — some 24 contracts per year, typically varying from \$5 million to \$10 million — require high-level coordination with Neighborhood Community Groups. The overall sewer rehabilitation program incorporates many techniques, including cured-in-place pipe lining, pipe

two Department of Watershed Management web sites: www.cleanwateratlanta.org and www.atlantawatershed.org.

The Internet gives Johnson the best means for delivering timely and up-to-date information to Atlanta's 480,000 residents. The sites feature user-friendly navigation, an easy-to-understand interface, and numerous levels of detail not typically seen on web sites.

The web sites have been crucial to getting an early start on helping ratepayers, elected officials and other stakeholders understand the severity of problems that result from aging sewer and water infrastructure.

In developing the sites, Johnson worked with other departments to determine needs and desired outcomes of the public outreach program. The team determined that

means road closure. If there is a road closure, the contractor enters the detour information.

The site also includes educational videos, project maps and progress reports, all updated regularly. A detailed explanation of the city's consent decree, its mission and the various facets of the Clean Water Atlanta program are all explained in simple language.

Visitors to either site can get a brief overview or read more technical, detailed documents. Sections like "Our Water and Sewer Systems Today" help residents understand how Atlanta's drinking water and distribution systems work, whom they serve, their challenges, and the capital improvement plans that address the challenges.

The department recently added the webcast to its communi-

"Despite the enormity of the Clean Water Atlanta water and sewer improvements, the number of complaints and problems that escalate to the desk of the mayor or a city council member is relatively minute because of our communications and public involvement programs."

Marilyn Johnson

one of the most important needs was to provide up-to-the-minute project information, news releases and bulletins so that residents could plan and prepare for projects in their neighborhoods or workplaces.

A unique feature is the traffic advisories section, which provides detailed information on road closures, detours and other events for every project in progress or planned in the immediate future. The site is updated each week using information from each contractor's two-week look-ahead. The schedules are in Microsoft Excel format and are easily uploaded to the site.

The spreadsheets have a column for the "permit code" and the traffic/detour information. The information is color-coded based on impact to the traffic: green means minimal impact, yellow means lane closures only, red

cations arsenal. A webcast of a public meeting related to a major sewer rehabilitation project in a very dense business district was well attended. A public webcast of a water conservation workshop was also just released. This was done in response to North Georgia's Level 4 drought conditions.

Project success

Since the Office of Public Participation (now Communications & Public Outreach) started, not one project has been delayed or abandoned due to public opposition, city staff members say. "Despite the enormity of the Clean Water Atlanta water and sewer improvements, the number of complaints and problems that escalate to the desk of the mayor or a city council member is relatively minute because of our communications and public involvement programs," says Johnson.

Johnson and the Department of Watershed Management constantly find new ways to reach audiences through new technology. Virtual public meetings are among technologies now being considered.

All this communication paved the way for public and political

support for multiple rate increases and unprecedented municipal sales taxes that were needed to fund the city's projects. Johnson observes, "Not every government requires a program as extensive as Atlanta's, but everyone can benefit from positive public exposure." ♦

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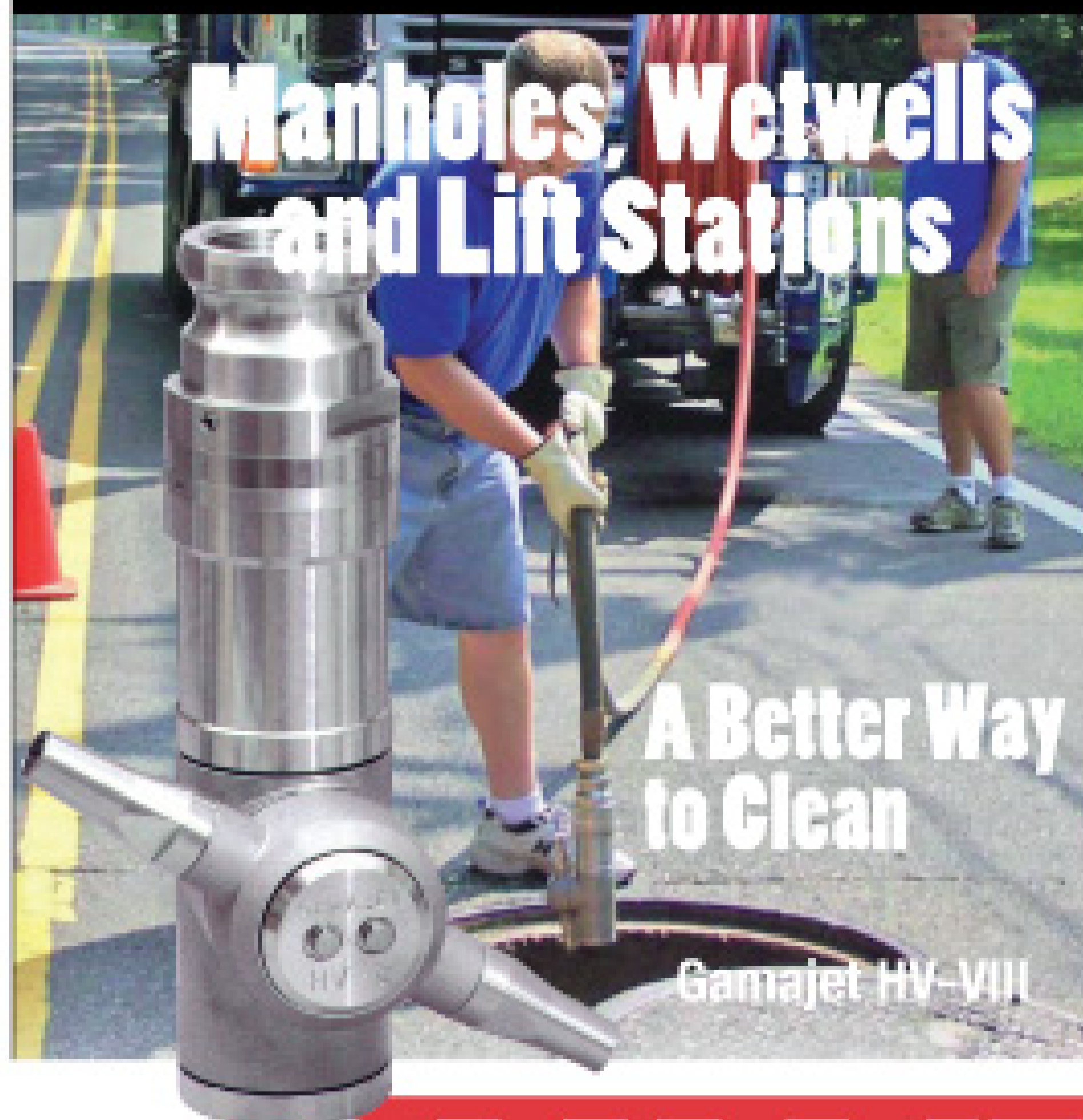
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A technician fastens the EZ Valve insertion system in place on the Bourne Water District's cast iron main. The system enables valves to be installed without having to depressurize the line.

UNDER PRESSURE

A valve replacement system enables a Massachusetts utility to control a water main and protect a railroad bridge

By Kevin Murphy

Built in 1939, a 9.15-inch cast-iron water main in the Bourne Water District of Cape Cod, Mass., runs above ground as it crosses a railroad bridge, then continues underground again.

The line operates at 95 psi, and no one knew if the old valves worked. A rupture anywhere along the main, but especially over the bridge, would be a disaster for superintendent Ralph Marks. To replace the valves with a conventional shutdown was a planning nightmare. The service area was too large to be temporarily out of water. Exercising the valves, advertising the shutdown, and issuing boil orders added to Marks' concerns.

Then Ken Ventura, a sales representative for Cape Cod Winwater Works Co. in Hyannis, introduced Marks to the EZ Valve insertion system from Advanced Valve Technologies LLC in Blue Island, Ill. "The technology requires no tapping machine, coupon to cut, or heavy equipment," says Marks. "It was the perfect solution to our problem."

Made for ease of use

Marks hired Cape Cod Winwater Works to install an 8-inch EZ Valve on either side of the bridge. The installer cleaned and lubricated the pipe surface and rubber gasket of the EZ Valve fitting housing before mounting the valve assembly — a precision-machined ductile

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"The valves, which provide a bubble-tight shutdown, allow us to control the water main and protect the integrity of the bridge."

Ralph Marks

iron casting — around the pipe.

After bolting the valve body to the main, he inserted the resilient wedge gate into the valve body, which operates like a standard American Water Works Association valve (C-509-01). "The only difference is that the EZ Valve expands when pressed into the main," says Ventura. With the valve assembled, the technician installed the power



An exit hose removed metal chips during cutting of the valve opening. This keeps chips from traveling downstream and potentially clogging meters and services.

feed drive unit to the valve and pipe, then filled the valve assembly with water for hydrostatic pressure testing. The EZ Valve is rated for up to 250 psi service.

To cut the slot in the pipe, the technician installed a temporary valve, then mounted the EM cutting system and mill cutter to it. The pipe remained under pressure throughout the operation. The EM system cut a slot 120 degrees across the top of the pipe, allowing the resilient wedge gate to be inserted.

Chips ahoy

"This system is much quicker than the traditional method of cutting out a coupon — the top half of the pipe," says Ventura. "Cutting with the tool takes about five minutes on cast-iron or ductile iron pipe." An exit hose attached to the valve body removed the cutting chips before they could flow downstream to possibly clog meters and services.

After removing the cutting

machine, the technician screwed a threaded completion plug into the valve body through the temporary valve, which he removed. Finally, he positioned the EZ Valve upright and installed thrust-restraint bolts to prevent movement. The resilient wedge automatically aligned to the milled slot, and the valve was operational. Installing both valves took three hours.

"The valves, which provide a bubble-tight shutdown, allow us to control the water main and protect the integrity of the bridge," says Marks. "They operate exactly like AWWA valves from street level, with the same number of turns and same feel. That's what really sold me. I will specify EZ Valves for all future under-pressure installations in Bourne." ♦

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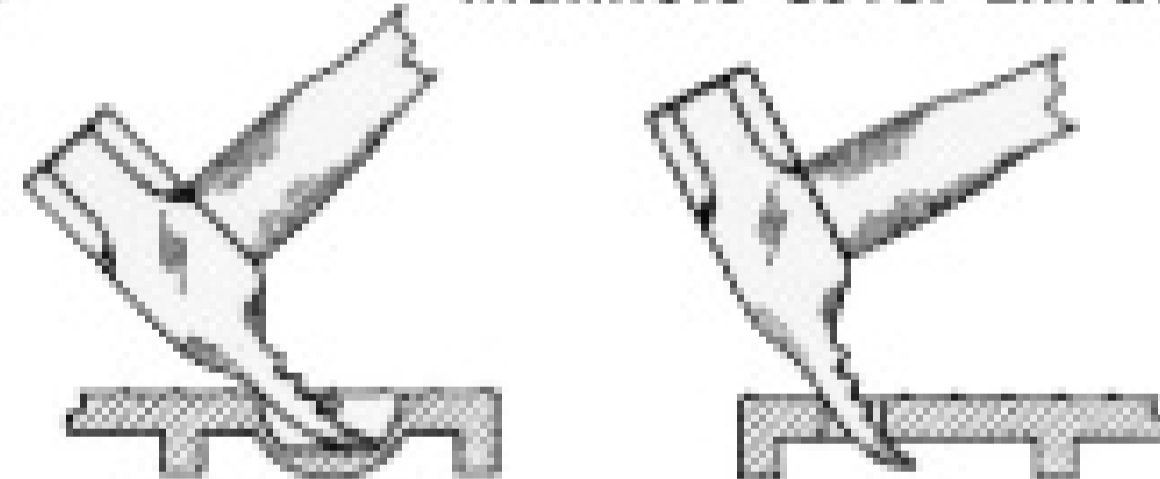
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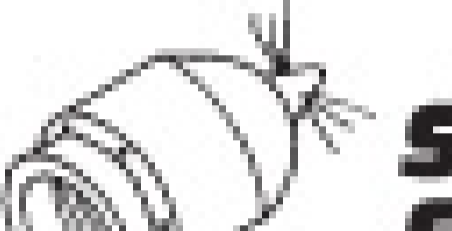
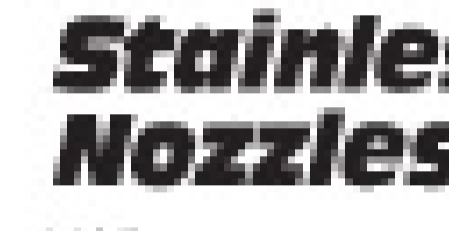
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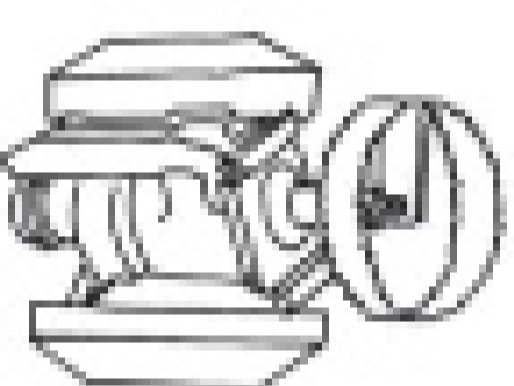

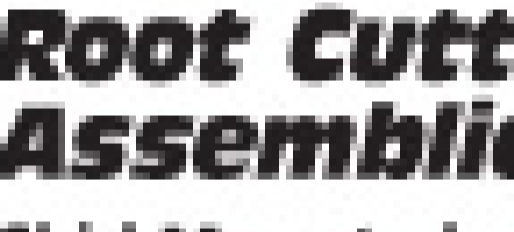
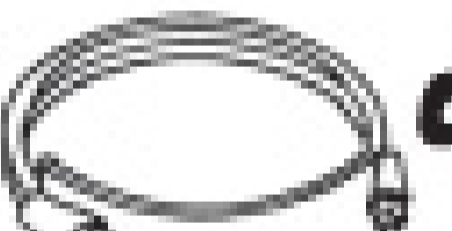




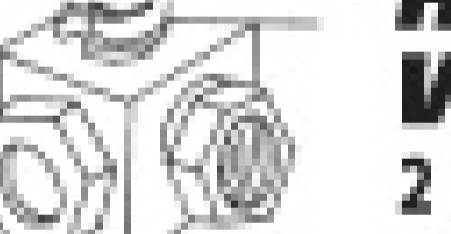

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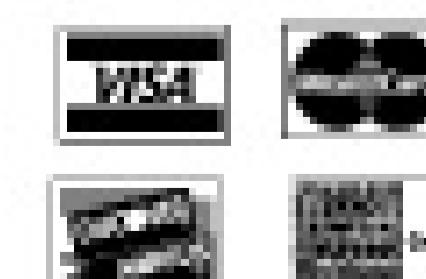
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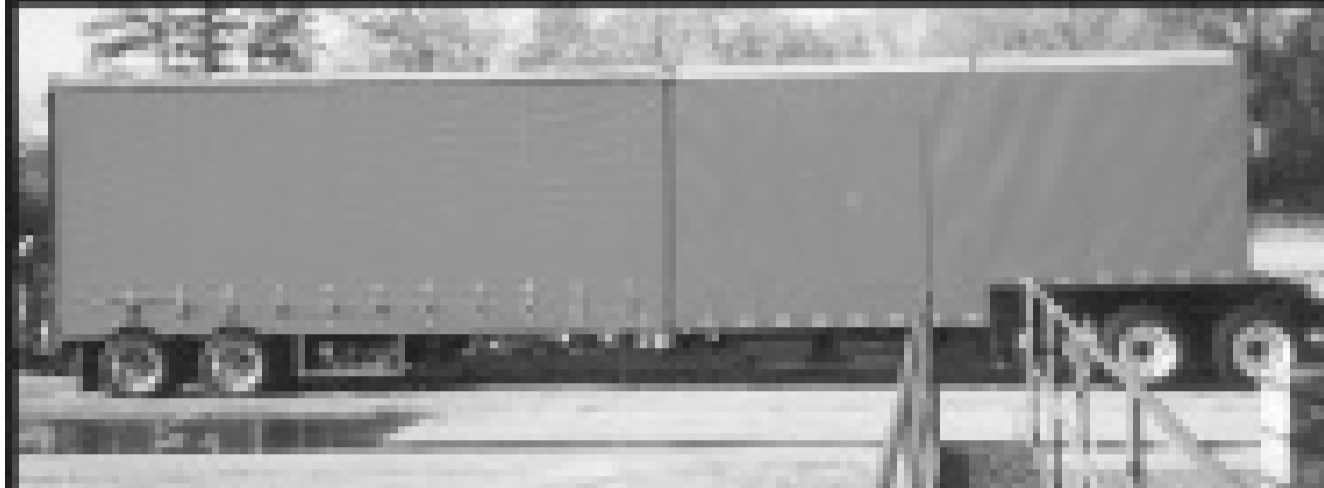
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Mike or George 412-364-2119 C2



1994 Vactor 2110C Series on Ford LN 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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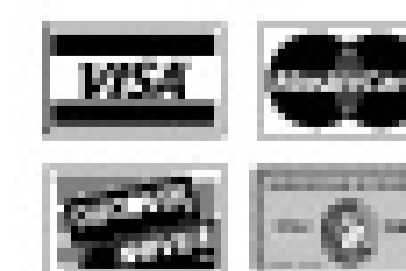
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Denver District Loses Robert W. Hite

Bob Hite, district manager of the Denver Metropolitan Wastewater Reclamation District, passed away on Dec. 4. He was scheduled to retire at the end of 2007.

According to Metro District Chairman of the Board Tony Ferraro, the district experienced unprecedented fiscal stability under Hite's direction and became widely recognized as a national leader in wastewater treatment.

Hite served on the Metro District's Board of Directors as a representative of Denver for 17 years before being appointed district manager in 1988. He also was a former National Association of Clean Water Agencies president and chaired the National Biosolids Partnership.

New Chair for Biosolids Partnership

Richard Lanyon is the new chair of the National Biosolids Partnership. Lanyon was appointed general superintendent of the Metropolitan Water Reclamation District of Greater Chicago in 2006 and is a 44-year employee of the district.

Richmond Utilities District Wins Competition

The Richmond Utilities District won the Maine Rural Water Association's 20th water taste test in December in Freeport. The North Berwick Water District won for best chlorinated water; Richmond won in the *au naturel* category. Richmond also took best of show and will represent Maine in a national taste test in April.

Conference Integrates Stormwater Management

Sponsored by the Urban Water Management, the Integrated Water Quality Conference and Exhibition is March 31 to April 2 at the Louisville (Ky.) Marriott. The event focuses on integration of Stormwater BMPs, Phase II regulations, green infrastructure, and funding for municipal water management programs. It will cover design, construction, maintenance and emerging technology for urban water quality. Visit <http://uwm08.events.pennnet.com/fl/index.cfm>.

EPA Announces 2007 Water Efficiency Leader Award Winners

The U.S. EPA agency announced the winners of the second annual Water Efficiency Leader Awards, recognizing organizations and individuals for leadership and innovation in water-efficient products and practices. The winners are:

- Intel Corp., Ocotillo Campus, Chandler, Ariz.
- Santa Clara Valley Water District, San Jose, Calif.
- Frito-Lay, Plano, Texas
- Lackland Air Force Base, Lackland, Texas
- Kentucky Pollution Prevention Center at the University of Louisville, Ky.
- Allan Dietemann Seattle Public Utilities, Seattle, Wash.

LEARNING OPPORTUNITIES

Trenchless Technology Courses

The North American Society for Trenchless Technology has these classes:

- March 25 – Pipe Bursting Good Practices, Las Vegas
 - March 26 – HDD Good Practices Guidelines, Las Vegas
 - April 27-May 2 – No-Dig Conference & Exhibition, Grapevine
 - April 27 – An Introduction to Trenchless Technology, Grapevine
 - April 30-May 1 – New Installation Methods Good Practices, Grapevine
 - April 30-May 1 – HDD Good Practices Guidelines, Grapevine
- Visit www.nastt.org.

Vehicles Do Not Drive Themselves

OSHA *Guidelines for Employers to Reduce Motor Vehicle Crashes* covers how to calculate the cost of motor vehicle crashes, examples of driver safety programs, a 10-step program to minimize crash risk, and promotion of safe driving practices. It discusses what constitutes aggressive, distracted, and impaired driving and ways to avoid them, and tells how to recognize signs of fatigue to prevent driving drowsy. Visit www.osha.gov/Publications/motor_vehicle_guide.html.

Leadership Institute

Designed for project managers, estimators, and supervisors, the National Utility Contractors Association Institute for Leadership Development is Feb. 25-29 at its headquarters in Arlington, Va. Graduates receive a certificate of completion and institute graduate lapel pin. Call Bill Plenge at 703/358-9300 or visit www.nuca.com.

Author Presents Short Stormwater Treatment Course

Dr. Gary Minton is offering a short course based on his book *Stormwater Treatment: Biological Chemical and Engineering Principles*. CEU credits apply.

- 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.

Desk Reference about Water Wells

Designed for municipal water supply engineers, hydrogeologists, water utility managers, and water resource professionals, *Siting, Drilling & Construction of Water Supply Wells* is a desk reference for any question about water wells, including siting, water quality, drilling methods, field testing, design, construction, development, and operation. Published by American Water Works Association, the hardcover, 199-page book is available at www.awwa.org.

UW-Madison Engineering Course

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

- Feb. 4-5 – Improving Public Works Construction Inspection Skills (J371), Orlando, Fla.
- Feb. 25-26 – Fleet Management: Effective Practices for Public and Private Fleets (J932), Macungie, Pa.
- Feb. 27-28 – Water Storage Tanks-Operation, Maintenance, and Rehabilitation (J931), Macungie, Pa.
- March 10-12 – Asset Management for Water and Wastewater Utilities (J941)
- 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 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.egr.wisc.edu/courses/course_categories.lasso.

CALENDAR

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 (Ky.) Marriott. 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 1-9-21

New England Interstate Water Pollution Control Commission Annual Nonpoint Source Pollution Conference, Progress through Partnerships: Collaborating to Protect Our Watersheds, Mystic Marriott Hotel & Spa, Groton, Conn. Call Laura Chan at 978/323-7929 or visit www.neiwpcc.org.

May 20-23

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

June 8-12

American Water Works Association Annual Conference and Exhibition, Georgia World Congress Center, Atlanta. Call 800/926-7337 or visit www.awwa.org.

June 22-25

National Environmental Health Association Educational Conference and Exhibition, Tucson, Ariz. Call 303/756-9090 or visit www.neha.org.

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.

Sept. 21-24

Distribution Systems Symposium and Exposition for Distribution, Engineering and Plant Operations Professionals, Austin, Texas. Call 800/926-7337 or visit www.awwa.org.

American Public Works Association

APWA has these courses as classroom workshops or as audio/Web-based broadcasts:

- Feb. 20 -22 – Public Fleet Management Workshop, San Jose, Calif.
- Feb. 21 – Water – A Precious Resource in Diminished Supply (Web).
- March 6 – Mastering the Media: Telling the Public Works Story Your Way (Web).
- March 10-12 – Construction Inspection: A Review, Atlanta, Ga.
- April 17 – Innovative Funding – Getting to the End of the Rainbow (Web). Call Carrie Merker at (816) 472-6100, ext: 5213 or visit www.apwa.net.

American Water Works Association

AWWA is offering these CEU/PDH seminars:

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

Maine

The Maine WasteWater Control Association and York County Community College in Wells have developed a Certificate of Business Management for Wastewater program. Sessions are from 8 a.m. until noon at the college.

- Jan. 3 - Feb. 21 – Budget Management
- Feb. 28 - April 10 – Utility Finance

Call 203/646-9282, ext: 203 or visit www.mwwca.org. ♦

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

AN INDUSTRY FIRST

NASSCO launches an Inspector Training and Certification Program focused on trenchless pipeline renewal technologies

By Irv Gemora

NASSCO has introduced an Inspector Training and Certification Program (ITCP) — a standard national program that provides field construction professionals, such as consulting and municipal engineers and contractors, with comprehensive learning and tools to understand and inspect trenchless pipeline renewal technologies.

The first training program focuses on cured-in-place pipe (CIPP) lining, with the first class set for March 18-19 at NASSCO headquarters in Owings Mills, Md. With this program, NASSCO is fulfilling an urgent need for better-informed inspection personnel. The program consists of two days of classroom learning in six areas:

- Introduction to pipe defect identification
- Pipeline renewal technologies and applications
- Cured-in-place pipe — its proper use and application
- Writing and understanding performance specifications
- Quality assurance and testing for cured-in-place pipe
- Effective use of warranties for pipeline renewal technologies

Attendees who complete the training will receive a comprehensive course manual and CEU or PDH credits. Upon passing the examination, they will receive a certificate of completion. Each student will also receive a copy of the NASSCO Trenchless Assessment Guide for Rehabilitation (TAG-R)

computer program when it is finalized later this year.

TAG-R is an easy-to-use, interactive software for evaluating alternative rehabilitation methods. Project requirements are entered into the program, and the software selects the most applicable technologies. After the engineer designs the selected technology for each specific application, these methods can then be employed in the renewal of gravity and pressure, water, sewer, drain, lateral pipes and manholes.

As the ITCP evolves, the multi-day education will include hands-on field installation training and will cover additional technologies, such as manhole coatings and linings, folded pipe, pipe bursting, lateral rehabilitation, slip lining,



and grouted-in-place liners.

This program will provide much needed training for professionals who supervise and inspect CIPP construction and are instrumental in standardizing the quality assurance and testing required for these projects on a national basis. To register for the ITCP for CIPP, or to learn more about upcoming courses, 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.



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For information on member benefits, training programs, and to complete an application online, visit our Website at www.nassco.org or call us at 1.410.486.3500.



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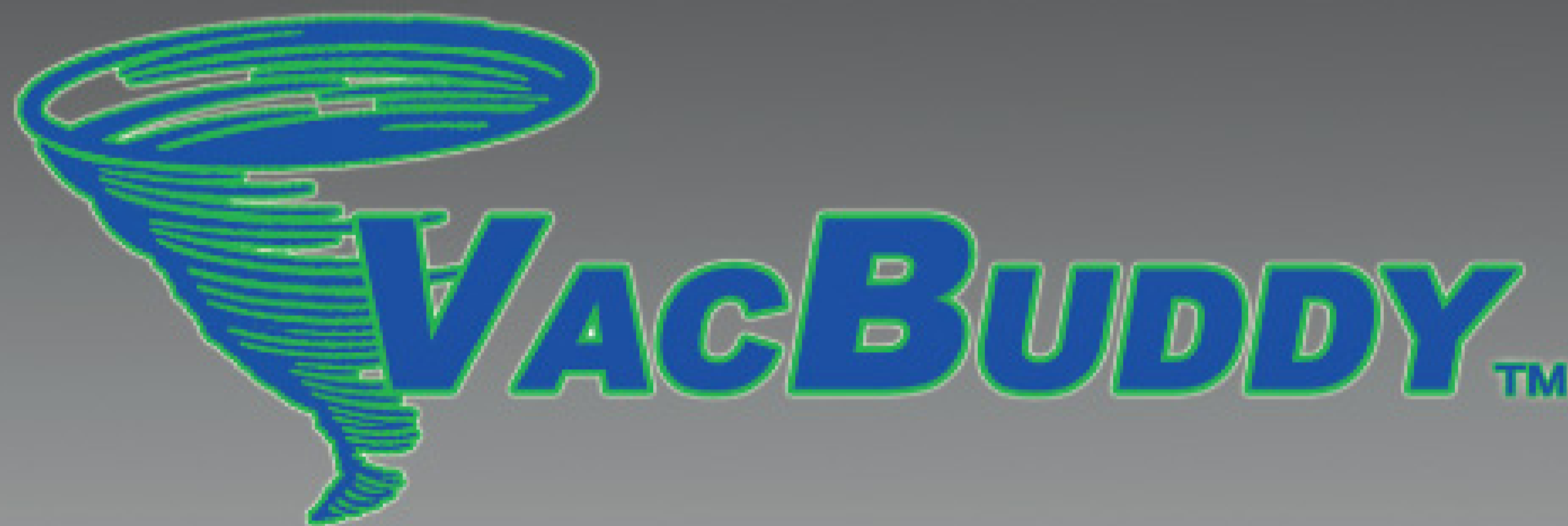
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