

MUNICIPAL

SEWER

&

WATER™

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

May 2010

www.mswmag.com

HUMAN SIDE: BUILDING DIVERSITY IN THE DEPARTMENT
PAGE 42

SEWER: BATTLING HILLY TOPOGRAPHY IN DULUTH, MINN.
PAGE 16

BETTER MOUSETRAPS: BELT PRESS INSTALLATION IN BEAVER DAM, WIS.
PAGE 28



BADGE OF THE PROFESSIONAL

Collections system operators in Monroe County, N.Y., go to school to become certified **PAGE 22**

PRSTD STD
U.S. POSTAGE
PAID
COLE
PUBLISHING

CHANGE SERVICE REQUESTED

COLE PUBLISHING INC., PO BOX 220, THREE LAKES WI 54662

Inspection Software

Free v8 Trial; Free Lifetime Updates.



WinCan v8

Inspection software didn't exist before WinCan™, and despite all the apps that have followed in the past 15 years, WinCan remains the leader in installed licenses and innovation. Now in its eighth release, WinCan lacks nothing: real-time MP4 recording; GIS/GPS integration; powerful filtering and database management; full 3D scanning integration; custom PDF reports; PACP and WRC certification; and an experienced support, training and programming team.

Hydro-Powered Cutter

Mills Away—Rather Than Shreds—Liner.



New Camera

Do sloppy cuts, stalls, and poor visibility slow down relining? Self-propelled HydroCut™ is the only cutter that generates 5 hp at 30,000 rpm to mill quickly and cleanly through the toughest materials. High-pressure water generates unmatched cutting force, cleans the onboard cameras, and cools the motor and bit.

Digital Side-Scanner

Detailed Data—Fast Yet Comprehensive.



New Lens & Lights

DigiSewer™ simply attaches to your ROVER™ or SuperVision™ crawler, making pipe inspection's fastest-growing technology both less expensive and exceptionally versatile. DigiSewer™ captures footage three times faster than CCTV without stopping to pan, tilt or zoom. Even in difficult lines, it generates flat scans that can be rapidly reviewed and annotated.



EnviroSight
Crawlers

**READY FOR
WHAT'S AHEAD**

- Steerable 6WD
- Rear-View Camera
- Remote or Manual Lift
- Side-Scan Ready
- Pitch/Roll Sensing
- Integral Sonde
- 12 Wheel Options
- 4" to 60" Capability
- Explosion Proof
- Lateral Launch

Evolution Of an Original.

It all started with ROVER, the crawler whose steerable 6-wheel drive proved that agility gets you further than brute force. It was a winning idea, and while the market played catch-up, we pursued new innovations.

EnviroSight crawlers were first with a rear-view camera and remote lift; first with integral pitch/roll sensors; first to offer add-on side scanning; and first with a modular design. Continuous innovation has earned our crawlers a reputation for advanced capability that's reliable and operator friendly.

20 years later, ROVER has the largest installed base of any crawler worldwide, while SuperVision sets a new paradigm for control, flexibility and range. Don't miss what's coming next; head to booth 1130 in Louisville and join the evolution.

Rapid Zoom Survey Tool

Shines Brighter, Sees Twice as Far.



New Controls

QuickView™ operators can now see as far as 300' down 18" lines, all while capturing excellent sidewall detail. QuickView™ delivers powerful zoom capability, plus lamp technology that's 65% brighter. Measurement tools and several recording options are available.

EnviroSight LLC
SPECIALISTS IN PIPELINE INSPECTION

(866) 936-8476 • (973) 252-6700 • www.envirosight.com

VACTOR **2100**
Plus



THE STRENGTH TO CLEAN. THE SMARTS TO SAVE.

PROOF THAT VACTOR® 2100 PLUS IS THE SMARTER PARTNER.*



More than just a powerful combination sewer cleaner, the new Vactor 2100 Plus is the all-around smart partner you want working for you. Thanks to exclusive industry-leading innovations, the Vactor 2100 Plus is now quieter, more powerful and more fuel-efficient, saving you up to \$13,500 every year in fuel costs. Add to that a dealer support system that rivals none other and more standard features than ever before, and it's clear that the Vactor 2100 Plus is more than just muscle. It's a smarter, more powerful partner.

To find a Vactor Dealer near you,
call **1-815-672-3171**.

VACTOR®

A Powerful Partner

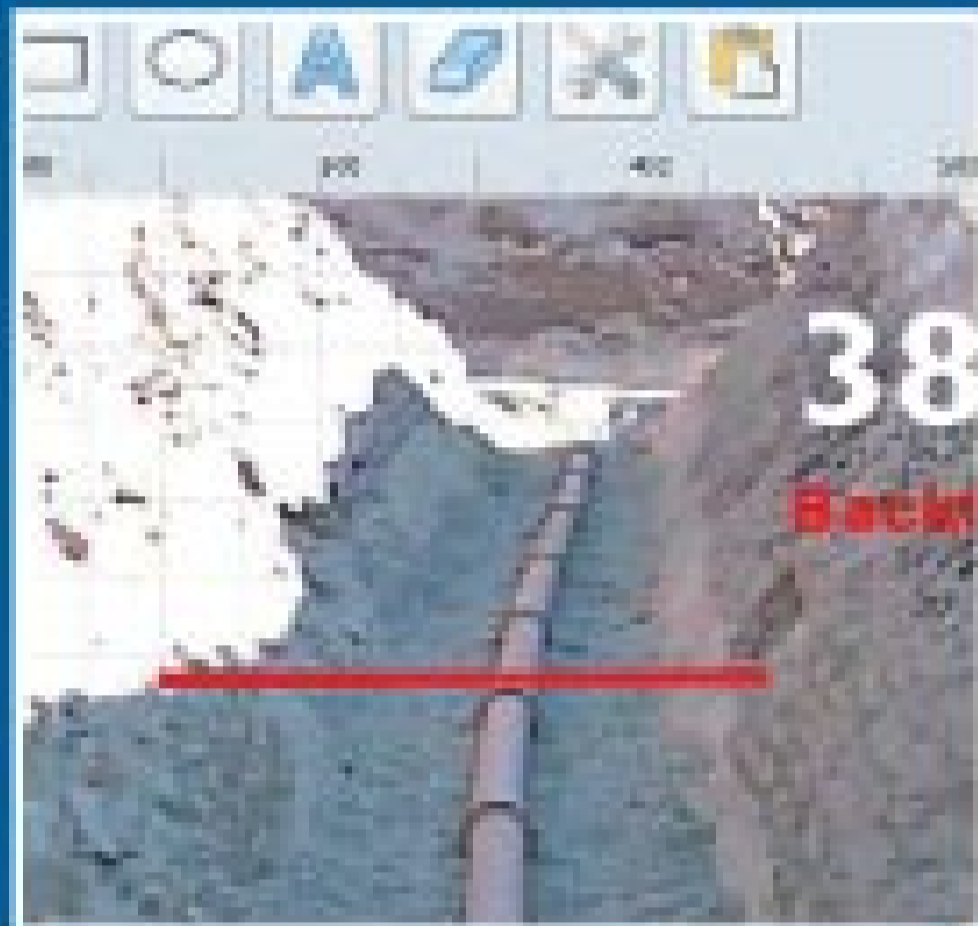
Visit us at
vactor.com.

©2009 Federal Signal Corporation. Listed in the NYSE by the symbol FSS.

*When compared to Vactor 2100 model. Source: Federal Signal engineering department. Fuel savings assumptions: 3 gallons/hour saved in combination mode (4" orifice at vacuum, 80 gpm @ 2500 psi), 1,500 hours per year at \$3.00/gallon.

INSIDE:

FLOW CONTROL AND MONITORING/
STORMWATER TREATMENT/
DEWATERING AND PRETREATMENT



COVER:

When is a wastewater collections department a school? When it's the Pure Waters Division of the Monroe County (N.Y.) Department of Environmental Services. Operators there go through a structured process to attain certification as collections system operators. Here, certified operators Rex DeValder, right, and Joe Bujak use a Vactor truck to flush and vacuum a 10-inch sanitary sewer main. (Photography by Trent Wellott)



COMING IN JUNE 2010

Special Issue: Pipe Inspection, Surveying and Mapping

- ◆ Sewer: Infrastructure management in two Midwest cities
- ◆ Water: Inspection and maintenance in Ames, Iowa
- ◆ Storm: Green initiatives in Kansas City, Mo.
- ◆ Human Side: Promoting diversity in the workforce

FEATURES

- 16 SEWER: The Bottom Line**
The City of Duluth battles unique hillside topography in a productive effort to stamp out sanitary sewer overflows and comply with a consent decree.
By Jim Force
- 22 SEWER: Badge of the Professional**
Wastewater collections system operators in Monroe County, N.Y., go to school to improve their skills and earn certification in their specialty.
By Jim Force
- 28 BETTER MOUSETRAPS: Two Becoming One**
A Wisconsin community makes a dewatering belt press do double duty for water treatment lime sludge and wastewater biosolids.
By Ted J. Rulseh
- 32 SEWER: Race to Zero**
St. Petersburg overcomes wet weather and nearly eliminates overflows with an award-winning collections system maintenance program.
By Jim Force
- 38 TECHNOLOGY TEST DRIVE: End to End**
Accela Asset Management lets government agencies and utilities manage multiple functions in a single, integrated software package.
By Ted J. Rulseh

COLUMNS

- 8 FROM THE EDITOR: Taking Care of Yourself**
Your own personal physical plant is just as important as your equipment. Spending time on fitness can mean better health and more energy at work.
By Ted J. Rulseh
- 26 Industry News**
- 36 Association News**
People, Learning Opportunities, Calendar
- 42 THE HUMAN SIDE: Building Diversity**
More minorities in the workplace add valuable new perspectives and ideas. Recruiting and retaining a diverse workforce takes a concerted effort.
By Ken Wysocky
- 44 NASSCO CORNER: Educating Our Publics**
Telling people about basic behaviors that affect sewer and stormwater systems can help mitigate a host of costly infrastructure problems.
By Irvin Gemora
- 46 Product News**
Product Spotlight: Camera Transporter Switches Between Wheels and Tracks
By Ken Wysocky

MAY 2010

MUNICIPAL
SEWER
&
WATER

Are **Budget Constraints** Reducing Your Pipe Flow Capacity?



Let RootX help save your budget during these uncertain economic times.

The Problem...



It's simple and fast.
It's effective and EPA accepted.
It is a proven solution.
It is guaranteed!

RootX turns your existing equipment into a root killing machine without negative impacts to the treatment plant or the surrounding environment.



The Solution...



Registered with the EPA to kill roots in Sanitary and Storm sewers (EPA Registration #68464), RootX can be applied with your sewer cleaning equipment or direct from the package. You can attack roots with a targeted foam spray from the RootX applicator or simply fill the pipe with a root killing foam. RootX packaging allows a city or contractor to treat both mainline sewers and residential service laterals for a complete root control program.

RootX provides generic Chemical Root Control specifications to cities that have root control contracts.

The Result.



**Simple.
Effective.
Proven.**




GET RID OF GREASE IN PIPELINES!
Call or email us to find out how you can get **FREE** grease removal today!



800-844-4974
www.rootx.com
rootx@rootx.com

ADVERTISER INDEX

COMPANY	PAGE
A	
ADS Environmental Services	25
Allan J. Coleman Co.	41
 American Highway Products, Ltd.	14
Applied Felts, Inc.	19
 Aries Industries, Inc.	21
Arizona Instrument, LLC	26
C	
Cam Spray	35
 Central Oklahoma Winnelson	30
 Chempace Corporation	35
 CUES, Inc.	27
E	
 Environmental Products & Access.	41
 Envirosight, LLC	2
Epoxytec	12
F	
Formadrain, Inc.	20
G	
GapVax, Inc.	15
Gorman-Rupp Company	11
H	
Hach Company	7
Hi-Vac Corporation/Aquatech	54
Hurco Technologies, Inc.	10
L	
 LMK Enterprises	55
M	
MAX-LIFE Mfg.	26
Mr. Manhole Systems	13
Municipal Pipe Tool Co., LLC	49
 Municipal Sales, Inc.	43

COMPANY	PAGE
N	
 NozzTeq, Inc.	45
P	
 Perma-Liner Industries, Inc.	9
Petersen Products Co.	13
Pipeline Analytics	13
PipeLogix, Inc.	43
 Prototek Corp.	10
R	
RedZone Robotics, Inc.	8
 Road Smoothie	30
RootX, Inc.	5
 RS Technical Services, Inc.	14
S	
Savatech Corp.	37
SERFILCO, Ltd.	20
Storm Water Systems Inc.	25
 Superior Signal Company LLC	26
T	
 T&T Tools, Inc.	45
U	
USABlueBook	12
USB-Sewer Equipment Corporation	37
V	
Vac-Con, Inc.	56
 Vactor Manufacturing	3, 20, 45
 Vaporooter	31
Classifieds	52
Marketplace	50
Truck Stop	53



FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

Published monthly by:



1720 Maple Lake Dam Rd., PO Box 220
Three Lakes WI 54562

www.mswmag.com

© Copyright 2010, COLE Publishing Inc.
No part may be reproduced without permission of publisher.

In U.S. or Canada call toll-free 800-257-7222

Elsewhere call 715-546-3346

E-mail: info@mswmag.com

Fax: 715-546-3786

Office hours Mon.-Fri., 7:30 a.m. - 5 p.m. CST

SUBSCRIPTIONS: A one year (12 issue) subscription to *Municipal Sewer & Water*™ in the United States and Canada is free to qualified subscribers. A qualified subscriber is any individual or company in the United States or Canada that maintains, manages, designs or installs municipal or commercial sewer, water and storm infrastructures. Subscriptions to all other foreign countries cost \$80 per year. Non-qualified subscriptions are available at a cost of \$60 per year in the United States and \$120 per year outside of the United States. To qualify, return the Free Subscription card attached to each issue, visit www.mswmag.com, or call 800-257-7222.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact Nicole at nicole@colepublishing.com.

CLASSIFIED ADVERTISING: Rate: \$1 per word, per month. Minimum of 20 words or \$20. All classified advertising must be paid in advance. DEADLINE: Classified ads must be received by the first of the month for insertion in the next month's edition. PHONE-IN ADS ARE NOT ACCEPTED. Fax to 715-546-3786 only if charging to MasterCard, VISA, Discover or AmEx. Include all credit card information and your phone number (with area code). Mail with check payable to COLE Publishing Inc. to the address above. CLASSIFIED ADVERTISING APPEARS NATIONWIDE AND ON THE INTERNET. Not responsible for errors beyond first insertion.

DISPLAY ADVERTISING: Contact one of our sales staff below at 800-994-7990. Publisher reserves the right to reject advertising which in its opinion is misleading, unfair or incompatible with the character of the publication.



Kim McGee Jim Flory Winnie May Kayla Wilkowski Jim Koshuta

EDITORIAL CORRESPONDENCE: Send to Editor, *Municipal Sewer & Water*, PO. Box 220, Three Lakes, WI, 54562 or e-mail editor@mswmag.com.

CIRCULATION: 2009 average circulation was 36,282 copies per month (U.S. and international distribution).



PUMPER & CLEANER ENVIRONMENTAL EXPO INTERNATIONAL

www.pumpershow.com

Education Day: March 2, 2011 ■ Exhibits Open: March 3-5, 2011

Kentucky Exposition Center, Louisville, Kentucky



A subscription to **Municipal Sewer & Water** is **FREE** to qualified industry professionals

To subscribe, return the attached Free Subscription card in this issue, subscribe online at www.mswmag.com or call 800-257-7222.

“CLIMBING DOWN MANHOLES IS BENEATH ME.”

“Besides, I’ve got better things
to do than maintain flow meters.”

Hach takes the drudgery out of flow meter installation, maintenance, and data collection. With Data Delivery Services (DDS), you can enjoy a revolutionary way to monitor sewer flow – from the comfort of the Internet, for one fixed monthly price.

- 24/7 access to unedited flow data – from any web browser
- Advanced data security
- 95% uptime guarantee or it’s free
- No flow meters to purchase or maintain

Learn how others like you are
already benefitting from DDS.

Visit www.hachflow.com/dds
or call 800.368.2723.



MARSH
McBIRNEY SIGMA

TAKING CARE OF YOURSELF

Your own personal physical plant is just as important as your equipment. Spending time on fitness can mean better health and more energy at work.

I used to stay in shape by playing basketball, and for years I could run up and down the court like a deer. Then I blew out my Achilles tendon at age 40 and decided to give that sport up.

I never became a couch potato. Depending on the season, I walked or bicycled vigorously, and regularly, for about 16 years. But it wasn't enough, and about six months ago I decided to up the ante and take up running.

Working on it slowly, I built up to where now I can run two miles with no walk breaks on a consistent basis and can sometimes do three or four. I felt the benefits during the recent Pumper & Cleaner Environmental Expo, where I spent long days walking the show floor, doing errands, and shuttling back and forth to seminar rooms.

Whereas at previous Expos my feet and legs were shot by one or two o'clock and I had to tough out the last few hours of the day, this year I had plenty of energy. I won't say I wasn't tired at five o'clock, but my feet weren't sore, my legs didn't ache, and I still had some spring in my step.

The biggest asset

I don't say all this by way of bragging. I say it because I'm surprised at how much and how directly my increased exercise has helped me, and I wonder how many readers my age and younger (or for that matter, older) could benefit from a fitness program.

Successful managers take great care of their equipment and often even better care of their people. But many don't take proper care of them-

Successful managers take great care of their equipment and often even better care of their people. But many don't take proper care of themselves. And after all, our bodies are the most important physical assets we have. Without health, we're nowhere.

selves. And after all, our bodies are the most important physical assets we have. Without health, we're nowhere. Are you as physically fit as you should be?

If you knew me a little better, I might be one of the last guys you'd picture as a jogger. I always hated running for its own sake. I'd gladly play basketball, softball, touch football, tennis — but to me running was a gigantic bore.

Back in my early 30s I wrote a newspaper column disguised as a chapter from a "book" called *The Non-Runner's Book of Running*. In it I enumerated the reasons not to become a runner, such as the fact that the fabled "runner's high" does in fact occur — from morphine-like substances released by the brain under extreme



FROM THE EDITOR

Ted J. Rulseh

stress. The healthy non-runner, I wrote, wants nothing to do with drug addiction.

Not for fun

And yet, there I am, on alternate days, jogging through the neighborhood. Do I like it? Not particularly. But I do like the way I feel after the workout, and so I carry on. I have no designs on running 10Ks or marathons. I'll be satisfied to get to where I can run three miles or so consistently. That was the goal I set at the start, and I'm almost there.

Do you have a fitness goal? It doesn't matter if you decide to jog, swim, bicycle, join a health club and exercise on the machines, or do something else altogether. What does matter is that you start looking after your physical well-being, if you're not doing so already. It's not necessarily easy. It takes time, of which you already may think you have too little. But if my experience can be relied upon, it is most worthwhile.

I know for a fact that I feel better. I also believe that in this day of ever-rising prices for medical care, being physically fit is the best "health insurance" one can get.

I'm not a prototype physical specimen. I'm not as religious about my exercise as I might be. I could eat healthier foods. There are about 20 pounds on me that it wouldn't hurt a bit to lose. But at least I feel as though I am on a good path.

How about you? Would regular physical activity be beneficial? It can be hard to get started, and at times even harder to stay with it. But if a dedicated non-runner like me can do it, maybe you can, too. ♦

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

20% of manholes were difficult to access...



RedZone[®]
R O B O T I C S

Not anymore!

Check out Solo E.A.S.E
at www.redzone.com

Worldwide Supplier of



Trenchless Lining Products



Turn-Key Trailers

PERMA-LINER™ SECTIONAL POINT REPAIR™ SYSTEM

Repairs 6" to 54" Diameter Pipelines

100% Solids Epoxy

Reinforced Materials With A PU Coated Finish

As Many As 7 Repairs In A Single Day

Exceeds ASTM F1216 Specifications

Manufactured In Kit Form, No Measuring Or Waste

INNERSEAL™ CONNECTION SYSTEM

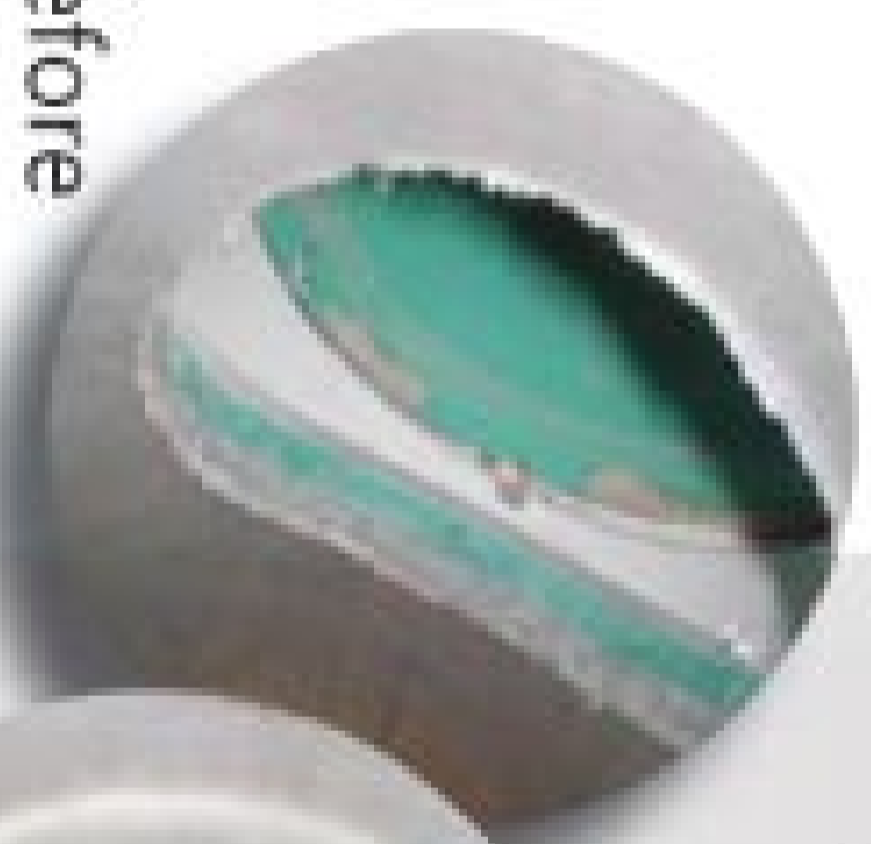
Tee & Wye connections from 6" x 4" to 36" x 12"

Lateral lengths available from 18 inches to 50 + feet

All materials have been third party tested to meet all the requirements of ASTM F-1216-07a

The InnerSeal System is covered by one or more of the following US Patents: Patent Nos. 5,108,533; 5,393,481; 5,624,629; 5,692,543; 5,706,861; 5,915,419; 5,927,341; 5,975,878; 6,001,212; 6,029,726; 6,044,867; 6,068,725; 6,146,491; 6,337,114; 6,520,719; and 6,899,832 and Patent Application No. SN 11/135,792.

before



after



CALL

(866) 336-2568 Toll Free

(727) 507-9749 Int'l

www.perma-liner.com



Valve & Hydrant Maintenance Systems



- Installs easily to any standard pickup hitch in minutes!
- Up to 800 ft. lbs. torque.
- From 0 to 60 RPM rotation speed.
- Easily reach valves and hydrants up to 13', or a cluster of valves without repositioning the vehicle.
- Virtually eliminates work injuries and fatigue.



Spin Doctor®



HURCO
TECHNOLOGIES, INC.®
1-800-888-1436
www.gethurco.com

(The Spin Doctor is covered by several US Patents and other Patents Pending.)

TAKE LOCATING TO A NEW DEPTH.



LF2200 RECEIVER PUTS DYNAMIC LOCATING POWER RIGHT IN YOUR HANDS!

- STRONG UNI-BODY HANDLE
- MORE SENSITIVE—WORKS DEEPER
- 3 SOURCES OF FEEDBACK: SCREEN, VIBRATING HANDLE AND SPEAKER
- LESS INTERFERENCE FROM POWER-LINE NOISE
- WORKS WITH ANY SONDE OR LINE EXCITER, FROM 16 HZ TO 100 KHZ
- MODULAR DESIGN FOR EASY UPDATES
- AUTOMATIC DEPTH READOUT—DEEPER THAN EVER BEFORE

OUR LMJ-6 TRANSMITTER PENETRATES LINES OF STEEL, DUCTILE IRON OR JUST ABOUT ANYTHING!

- MODULAR FITTINGS PERMIT ATTACHMENT TO PUSHRODS AND POWER SNAKES
- 16 HZ: LOW FREQUENCY MEANS LESS INTERFERENCE FROM POWER-LINE NOISE

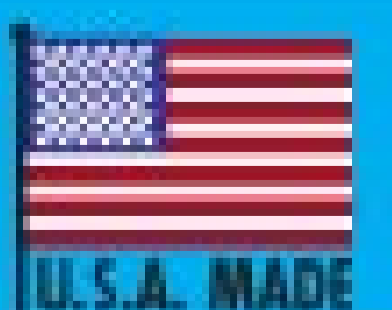


Prototek

800-541-9123

Web: www.prototek.net

Email: prototeksales@prototek.net



U.S.A. MADE



RELIASOURCE™

Total System Responsibility – What does it mean for you?

Since 1933, you've trusted Gorman-Rupp to manufacture the best-performing, most durable pumps in the industry. Easy to specify, purchase and install, ReliaSource™ systems come precisely engineered and completely tested by a company that has been building complete pumping stations for over 40 years.

Carefully inspected, they carry an industry-leading warranty. And, most importantly they carry the Gorman-Rupp name - giving you the confidence that your pumping system will stay on the job so you don't have to.

**VISIT US AT GRpumps.com
TO SEE OUR NEWEST RELIASOURCE PACKAGES!**



The Gorman-Rupp Company ■ P.O. Box 1217 ■ Mansfield, Ohio 44901-1217 ■ USA
Phone: 419.755.1011 ■ Fax: 419.755.1208 ■ email: grsales@gormanrupp.com ■ GRpumps.com

Specializing in forgiving, easy-to-use, and safe materials for in-house rehabilitation and protection.

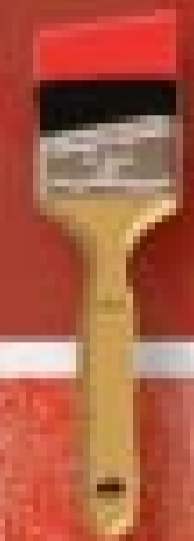
The ultimate and safe, 100% solid, forgiving and easy-to-apply coating for Wastewater Protection!

Epoxytec Uroflex™ is an excellent "Do-it-Yourself" (DIY) coating for projects in wastewater environments (protecting against H₂S, and other types of corrosion) in order to extend the life expectancy of sewer infrastructure by top coating steel and concrete.

- Chemical resistant, including H₂S
- Eliminates infiltration/exfiltration (sealed system, no porosity, no permeability)
- Easy-to-apply and forgiving
- Environmentally friendly, no VOCs, no solvents, no odor
- Repairable, ties back into itself indefinitely
- Flexible (tolerant to movement and vibration)
- High build (40 – 60 high build mils)



"Over 3-million square feet coated with Miami-Dade Water & Sewer"



Brush



Roller



Spray



Try our hassle-free EZ-Spray™ System!



Try it Today!!! 877.GO.EPOXY

info@epoxytec.com · epoxytec.com/products/Uroflex
epoxytec.com

"High performance products that work where others fail"

Apply 1-to-1 mix by



Control Grease—Before it Controls You!

Eliminate stoppages, bad odors & service interruptions in your collection system!

Jetfoam™, EHC-33™, Big Blue Bio Blocks and Formula 52 Odor-Eliminating Enzymes form a powerful solution for system-wide grease and odor control. Together these products keep your lines running clean and odor-free to full capacity.

Now, for a limited time, USABlueBook offers a **10%** introductory discount on this grease control system. Just call 1-800-548-1234 and mention **Promo Offer CMW** when placing your order. Offer ends October 16, 2010.

DESCRIPTION	STOCK #	REG. PRICE	PROMO PRICE
Jetfoam Emulsifier, 5-Gal Pail	MS-48163	\$ 124.95	\$ 121.46
EHC-33 Bioenzyme, 25-lb Pail	MS-48165	300.95	359.96
Big Blue Bio Block, 5-lb	MS-49828	99.95	89.96
Big Blue Bio Block, 10-lb	MS-49829	199.95	179.96
Big Blue Bio Block, 30-lb	MS-49831	309.95	359.96
Formula 52, 1-Gal Jug	MS-64702	36.95	33.26
Formula 52, 5-Gal Jug	MS-64703	176.95	159.26

EHC-33 Bioenzyme comes in convenient drop-in packets!



Jetfoam



Big BlueBio Block for Lift Stations



USABlueBook Formula 52 Odor-Eliminating Enzymes

Learn more; request your free DVD/Video!

For more information on Jetfoam Emulsifier, USABlueBook offers a free training DVD/Video. Just call and request **Item # DVD** to get your personal copy today.



The industry's most complete line of grease control products

USABlueBook is your one-stop shop for all of your collection system needs. We offer the equipment and supplies you need to not only clear current blockages, but to prevent future blockages from occurring. With over 27,000 items in stock, we have what you need, when you need it.

Call 1-800-548-1234 today to request your NEW Master Catalog 121



FREE!

USABlueBook®

1-800-548-1234
www.usabluebook.com

SIX SHOOTER



**REMOVES MANHOLE
FRAMES FAST**

See What Phil Says

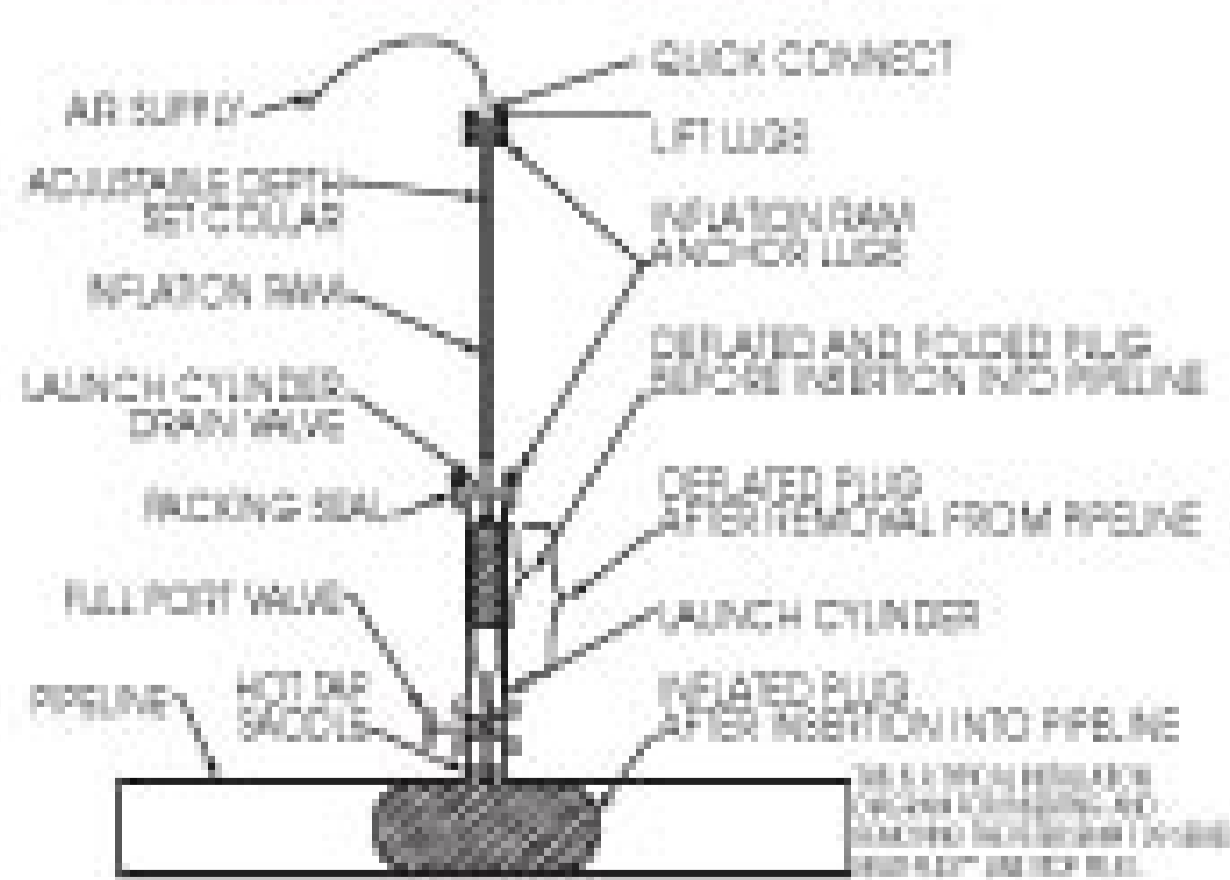
www.manholeweapon.com



Petersen® Pipe Plugging Systems



Economical Hot Tap Plugging Systems



Pipe Plugs and Packers for all your Pressure, Chemical, and Temperature Requirements. Call us to quickly customize a pipe plug or plugging system for your specific application.

www.pipeplug.com

Petersen PRODUCTS COMPANY
Serving Professionals Since 1916

PHONE 800.926.1926 OR 262.692.2416
FAX 800.669.1434 OR 262.692.2418

WinCan™ Value Bundles

PACP v4.4
CERTIFIED



The industry leader has never been more affordable.

Save up to 60% on the pipe inspection software municipalities and contractors trust more than any other. WinCan Value Bundles deliver industry-leading performance at exceptional value, proving affordability doesn't have to cut corners.



Pipeline Analytics™

WinCan
North American
Sales & Support

pipelineanalytics.com • wincan@pipelineanalytics.com



WinCan continually evolves to implement new functionality and harness new hardware capability. A **WinCan Infinity** subscription entitles you to every version upgrade and maintenance update, plus unlimited support and special pricing on new modules—all for a low annual percentage of your purchase price.



FROM LATERALS TO MAINLINES TO STORM DRAINS. . .

There's so much more you can do when
your crews are running RST systems.

- Interchangeable cameras, tractors and crawlers to perform fast, accurate inspections in lines 4" to 200" in diameter and up to 3,000 feet in length
- Cameras feature high intensity white LED lights
- 40:1 Zoom with automatic iris and focus available
- Portable, truck and trailer mount configurations



GET MORE. DO MORE. RST.

Call today for more info about our custom-fit inspection
tools for municipalities and sewer service contractors.

VEHICLES | CAMERA SYSTEMS | SOFTWARE

800 767 1974

www.rstechserv.com

RS Technical Services Inc.
Design and Manufacture of Video Pipeline Inspection Systems

AMERICAN HIGHWAY PRODUCTS LTD.

RAISING AMERICA, ONE INCH AT A TIME

the PIVOTED TURNBUCKLE Manhole Riser



The Most Efficient
and Powerful Expanding
Riser on the Market.

Made in
the USA



Riser Heights $\frac{3}{4}$ "
and up in
All diameters.
1" diametric
variance and
DOT approved
in most states.

RUBBER ADJUSTING RING

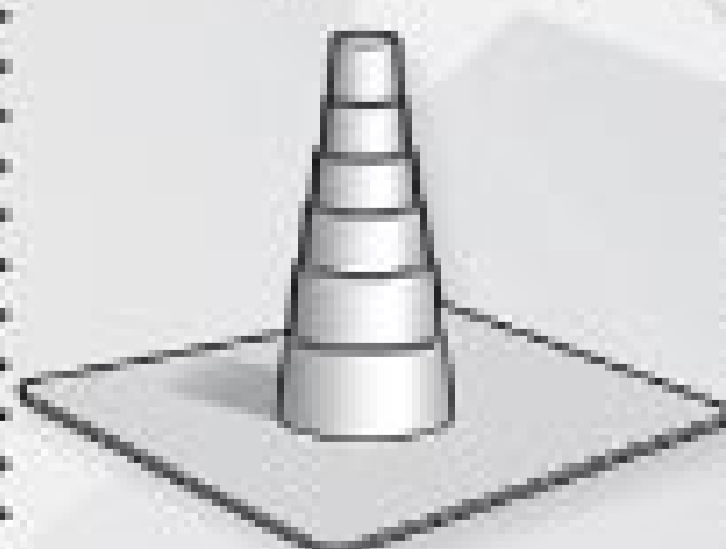
Revolutionary product!
Protects substructure.
Stops noise and vibration.
Watertight seal prevents
moisture penetration.
Quick, easy installation.
Sloped sizes available.



**Catch Basin &
Valve Box Risers**
reduce costs and
streamline adjustments



I.D. Locator allows
for easy location of
common utilities
and aids in
identifying striping



Sewer Lid Seal Kit
eliminates
lid vibration and
reduces moisture
penetration



**Manhole Safety
Ramp** protects
raised manholes.
Allows safe driving
during projects.



EZ Lift will unseat,
lift, and set down a
manhole cover in
one smooth
motion



Toll Free 1-888-272-2397 • www.ahp1.com • e-mail: sales@ahp1.com • Free DVD/CD ROM

Hungry for success?



Manufacturing custom vacuum equipment for the past 20 years



888-442-7829
Call GapVax® today!



Hydro-excavators, Combination JetVacs,
Industrial Vacuum Loaders and more!

www.gapvax.com





Overflow storage facilities like this one are vital to Duluth's effort to combat SSOs. (Photo by Jim Force)

FOCUS: SEWER

THE BOTTOM LINE

The City of Duluth battles unique hillside topography in a productive effort to stamp out sanitary sewer overflows and comply with a consent decree

By Jim Force

The City of Duluth is taking a top-to-bottom approach to eliminating sanitary sewer overflows (SSOs). In fact, it has to.

For one thing, the Minnesota city's steep hillside location along Lake Superior means everything flows downhill — fast. For another, Duluth is under an EPA consent decree to halt all SSOs into the lake by the end of 2016.

"We have seven years to clean up our act, period," says John Center, project coordinator for the city's SSO control initiative. "The clock started ticking last October." In response, the city has launched a comprehensive, leading-edge program to fix the problems:

- Finding and remediating all clear-water drain connections and leaks in the hillside neighborhoods at the top of the system.

- Building overflow storage capacity at the bottom of the system along the lakeshore.

TV inspection, continuous flow monitoring, and innovative "sewer-shed" modeling are among the tools Duluth is using to achieve total compliance by the EPA deadline.

Topography lesson

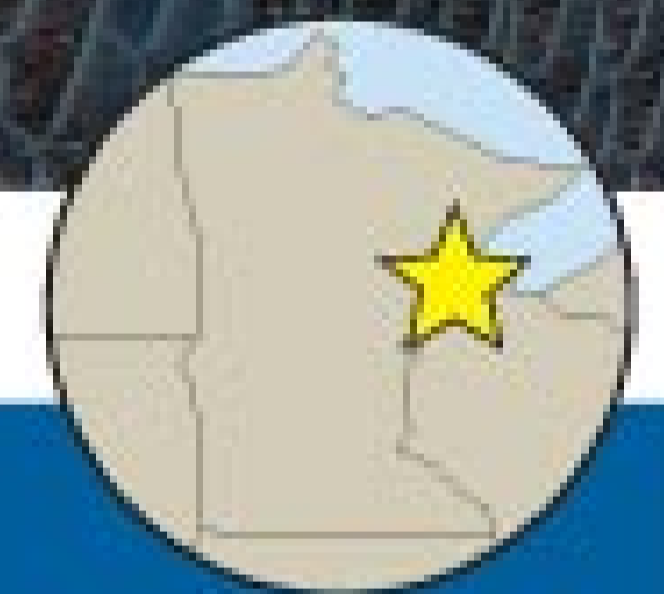
Duluth's "vertical topography" and the sheer age of its infrastructure are formidable challenges. With a population of about 86,000, the city stretches in a long, narrow band along the shoreline. Homes and businesses occupy a steep bluffside that drops some 800 feet to lake level.

"Our sewer lines come straight down the hill to our interceptors," explains Center. "It's 40 mile-per-hour water hitting a T connection." Center has seen situations where dataloggers in manholes have simply been washed away.

The interceptors lead to the wastewater treatment plant owned and operated by the Western Lake Superior Sanitary District (WLSSD) and serving Duluth and several suburban communities. Duluth's contribution is about 11 mgd. Many laterals and connecting sewers are old. Some date to the late 1800s and are 6-inch clay pipe.

These factors combined to create serious infiltration and inflow problems and SSOs, which the city and regulatory agencies have attempted to address for more than 30 years. The WLSSD was created in 1971 and began treating wastewater under an NPDES permit to clean up the heavily polluted St. Louis River.

In 1974, the district and Duluth were issued a new permit to stop SSOs. "But nothing really happened," explains Center. Another attempt by regulators to stop overflows in 2004 ultimately led to a lawsuit and



PROFILE:
Collections Division,
Department of Public
Works and Utilities,
Duluth, Minn.

POPULATION SERVED:
86,000

AREA:
87 square miles

INFRASTRUCTURE:
400 miles of sewer mains,
43 lift stations, 300 miles
of storm sewers, 100 miles
of storm ditches

STAFF:
45

ANNUAL BUDGET:
\$4.2 million

WEB SITE:
www.duluthmn.gov

the current consent decree.

The situation was serious. Todd Carlson, water quality specialist and part of the Duluth SSO management team, points out that between 1995 and 2004, the city recorded 250 overflows amounting to 47 million gallons. "We averaged nearly 30 overflows a year, a lot of them right downtown near the hotels and major businesses," he says.

Getting serious

Says Center, "We don't need any more sewage flowing down Superior St. (the main drag)." Duluth's commitment to improvement is equally as serious. Sitting around the conference room table in the utility's headquarters building on Garfield Ave., Center and his team are passionate as they describe the SSO elimination program.

Duluth uses Isco 4150 series flow loggers and 2100 series flow modules.



To begin with, the team has followed a watershed approach to water management and has defined the Duluth system as a sewershed consisting of 30 basins. Then sub-basins are identified within each basin, and the most critical are targeted for action first.

Steve Lipinski, manager of utility operations, is a strong advocate of sewershed modeling, explaining that it breaks down a problem like SSOs into manageable tasks while

"We have seven years to clean up our act, period."

John Center

maintaining a holistic view of the system. "With our unique topography, the sewershed modeling approach makes a lot of sense," he says. "In some cities, overflows are the result of plugged lines or oil and grease, but here it's infiltration and inflow. We have more than 15,000 drains and lines connected to the system, and a lot of them are leaking."

Once the critical sub-basins are identified, Duluth uses a methodical, continuous program of flow monitoring and TV inspection to identify and eliminate the upstream sources of I&I. Flow monitoring is critical, not only to identify problem areas, but to show progress as the system is tightened up.

The data is vital to the accurate



Flow monitoring helps the city get a handle on areas where I&I control is most needed. Operator Loren Salmi is shown at a monitoring site. (Photos courtesy of the City of Duluth)



Steve Lipinski

INFRASTRUCTURE ACCORDING TO STEVE LIPINSKI

If Steve Lipinski had his way, he'd take politicians and policy-makers with him when he does the rounds of Duluth's collections system. That way, they'd see first-hand the underground infrastructure problems that concern him.

And he believes they'd better understand his idea that public funds should be made available to private property owners because their lines and laterals are just as much a part of a municipality's collections system as the sewers under the street.

"Policy-makers need to see it," says Lipinski, manager of utility operations for Duluth. "There are some ticking time bombs out there." Lipinski knows what he's talking about. He's been in this business his whole career, starting with the Duluth sewer department as a temporary worker after his service in the military.

The utility eventually hired him full-time, and he has moved up through the ranks over the last 33 years. He's done just about everything from cleaning sewers and lift station wet wells and conducting smoke-testing, dye-testing and wet-weather CCTV, to leading Duluth's effort to get state laws changed to help private property owners pay for sewer remediation with public funds.

"On average, 60 percent of a collections system is on private property," he says. "If it breaks and causes an overflow or a basement backup, it's a public problem. Yet homeowners have no funds available to replace a pipe that fails. At \$4,000 or more, that's a significant hit."

Lipinski is a strong advocate of a holistic approach to managing infrastructure. "It enables us to look at the system basin by basin," he says. "Then we can subdivide the basins and pinpoint leaks."

Lipinski also believes in training and professionalism. He is just now stepping down as chair of the Minnesota Water and Wastewater Operations Association collections system committee, but during his tenure, he instituted training sessions at different sites on a regular basis all over the state.

"We target various collections system topics and see what kind of equipment the different cities use to maintain their collections systems," he says. "Operators receive state-approved training hours for re-certification. It's been really successful."



Members of the City of Duluth I&I team are, from left, Todd Carlson, John Center, Greg Guaro, and Mark Guisfredi.

“The numbers indicate we’ve already cut our average dry-weather flow to the treatment plant from 18 to 20 mgd to around 10 to 11 mgd, and our average wet-weather peak flows from more than 100 mgd to around 36 mgd.”

Todd Carlson

design of the overflow storage facilities. “Flow monitoring enables us to target where we need to remove water,” says Carlson. “It helps us build the road map. It’s essential that we establish an accurate dry-weather flow base.”

As Center puts it, “It’s expensive to build these storage tanks, but we need adequate capacity. So, we really have to get our numbers right.”

For that reason, flow monitoring runs 24/7/365, using 30 flow measurement stations monitored by a dedicated two-person crew. “We have one full-time monitoring team, working closely with me,” explains Carlson. “This team is familiar with the territory. They know the history of each site and when to move the flowmeters.”

Duluth uses ISCO 4150 series flow loggers and 2100 series flow modules. The team likes the older 4150 units because the crews are familiar with them. “They’re simple, easy to use, and they work,” says Carlson.

The newer 2100 modules, however, have a temperature-reading feature that enables the team to measure runoff from the spring snowmelt by temperature change of the water. “We’re proud of our data collection,” says Center. “Working

with our consultant (CDM — Minneapolis office), we’re achieving about a 98 percent confidence level in our numbers.”

Center says the accurate data also helps the utility communicate both the problems and the successes of the program to local policy-makers. Adds, Lipinski, “Sewershed modeling allows us to constantly evaluate what’s happening in our system, and it shows how well we’re doing. Flow monitoring will forever be part of our preventive maintenance program.”

Drain disconnect

Through previous smoke- and dye-testing, Duluth has disconnected about 98 percent of its roof drains, but footing drains remain an issue. The goal is to identify and disconnect 630 of these drains a year. As an incentive to property owners, the city makes up to \$2,150 available as a grant for removing the footing drain and house trap and installing a sump pump to re-route the water outside to a storm drain.

The money comes from a city-wide sewer rate increase enacted specifically for the SSO program.

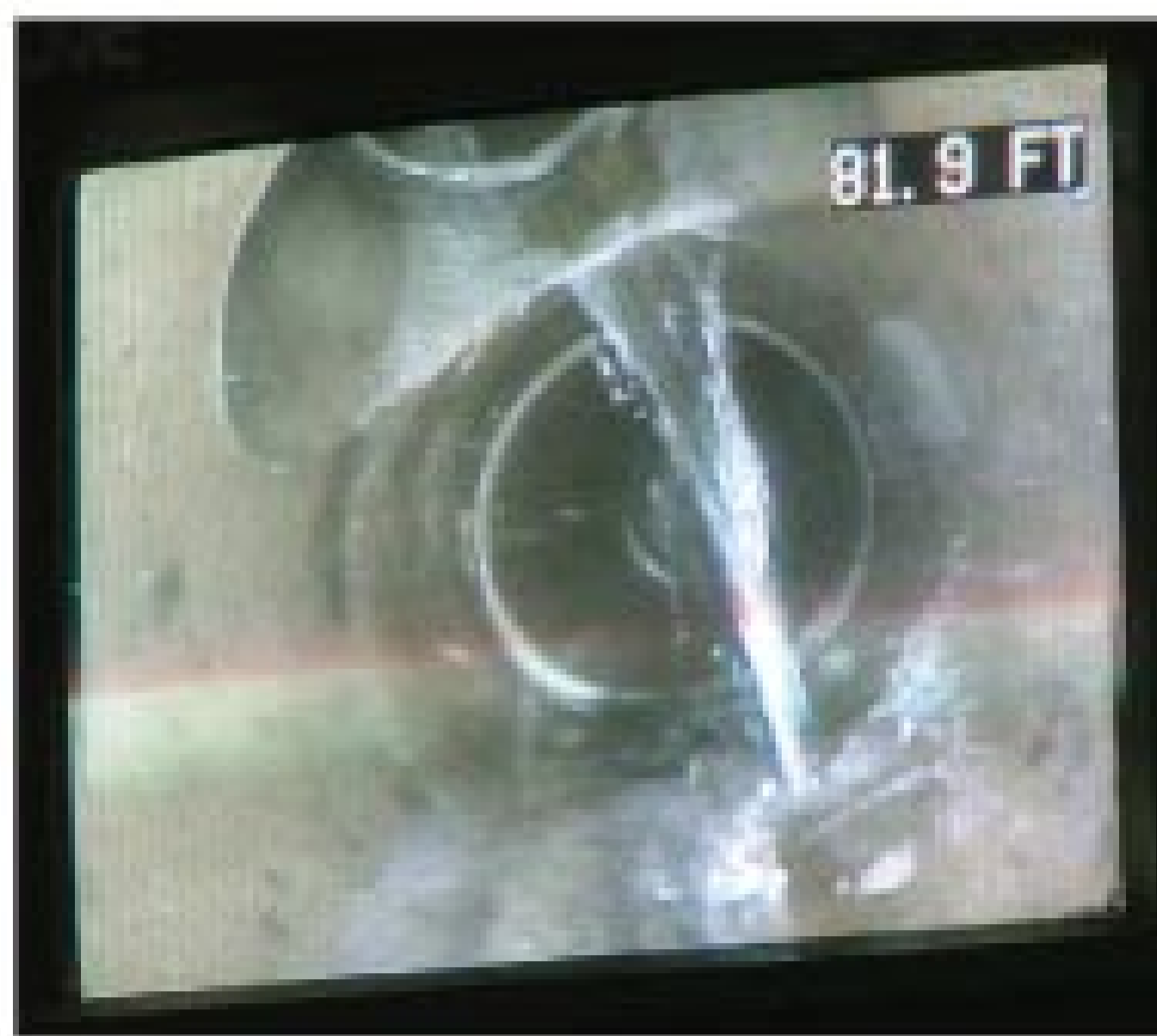
The funding required a change in state law, which previously prohibited public funds for use on private property. Duluth led the campaign for change, and now public dollars can be spent on private-property projects that improve the overall sewer system.

Leaking laterals are another target of Duluth’s program to reduce flow at the source. In the beginning, the team reports, the public was convinced that wet-weather intrusion was a problem with city mains, not private lines. But the acceptance of shared responsibility came after a citizens’ I&I task force looked into the issue.

Storage tanks are being constructed along Lake Superior as the low point of the sewer system.



Storage facilities are attractively landscaped in the interest of preserving the aesthetics of the lakeshore. (Photo by Jim Force)



Leaking laterals, as shown on this video inspection screen, can contribute significantly to clear-water infiltration in Duluth.

Duluth initiated a demonstration program showing how laterals could be slip-lined with CIPP technology instead of open cuts. And property owners have a cash incentive to correct their problems. From its surcharge fund, the city will pay 80 percent of the first \$5,000 required to replace a failing lateral. The city will also pay a flat \$3,000 to property owners remediating laterals upstream of a targeted sub-basin.

Using an Explorer mainline pan-and-tilt camera from UEMSI, the city performs extensive TV

inspection on a block-by-block basis during wet weather to pinpoint clear-water inflow. The videos serve as convincing evidence to property owners whose lines need to be repaired or replaced.

"TV inspection has been a great tool for us," says Carlson. Once a leaky lateral is identified, the property owner has 90 days to replace it and it must pass a city inspection. Failure to do so can result in a hefty surcharge on the owner's sewer and water bill. But the city tries to facilitate a solution. Says Sandy Mass, project coordinator, "We meet one-on-one with the property owner and bring a list of licensed contractors to contact for the replacement."

Center explains that in order to comply with the consent decree, Duluth must get 175 laterals replaced every year through 2016.

Bottom line

At the other end of the system — along the lakeshore — cranes and dozers are busy digging excavations for the latest in a series of overflow storage tanks. When the project is complete, Duluth will

have six tanks, from 300,000 to more than 8 million gallons, producing a combined storage capacity of about 15 million gallons. After a storm event, the contents of the tanks are bled back into the sewer system.

"We need the tanks because of the deadline we face," explains Center. "Once our system is tight and we reach compliance, the tanks will serve as a safety net and will also allow us to control the level of flow we deliver to the WLSSD treatment plant."

Designers have blended the tanks beautifully with their surroundings. The lakeshore is the site of expensive condominium and marina developments, and landscaped parkways wind among them. So, to avoid degrading property values or scenic views, the tanks are belowground and landscaped on top. They are essentially unnoticeable. The lift stations are specially equipped to prevent solids buildup and counter odors.

"We'll spend about \$37 million on the storage tanks," says Center. Federal grants, stimulus money, and city bonding are being used to

cover the costs. While 2016 is still a ways off, the Duluth SSO team expresses confidence they'll meet their objectives. In fact, they're already seeing results.

Observes Carlson, "The numbers indicate we've already cut our average dry-weather flow to the treatment plant from 18 to 20 mgd to around 10 to 11 mgd, and our average wet-weather peak flows from more than 100 mgd to around 36 mgd."

And, he reports that during 2009, the city experienced only one serious overflow. "We're keeping clear water out of the system and preventing overflows from getting into Lake Superior," Carlson says. "That's the bottom line." ♦

MORE INFO:

CDM

617/452-6000
www.cdm.com

Teledyne Isco Inc.

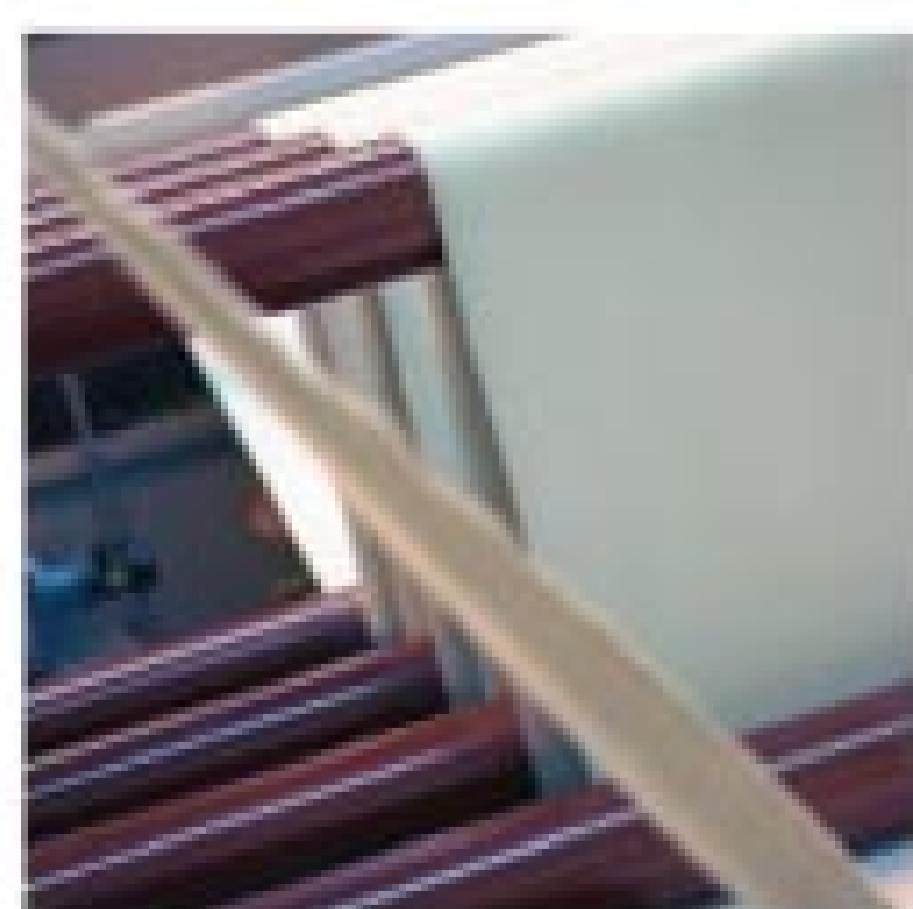
402/464-0231
www.isco.com

UEMSI

800/666-0766
www.uemsi.com



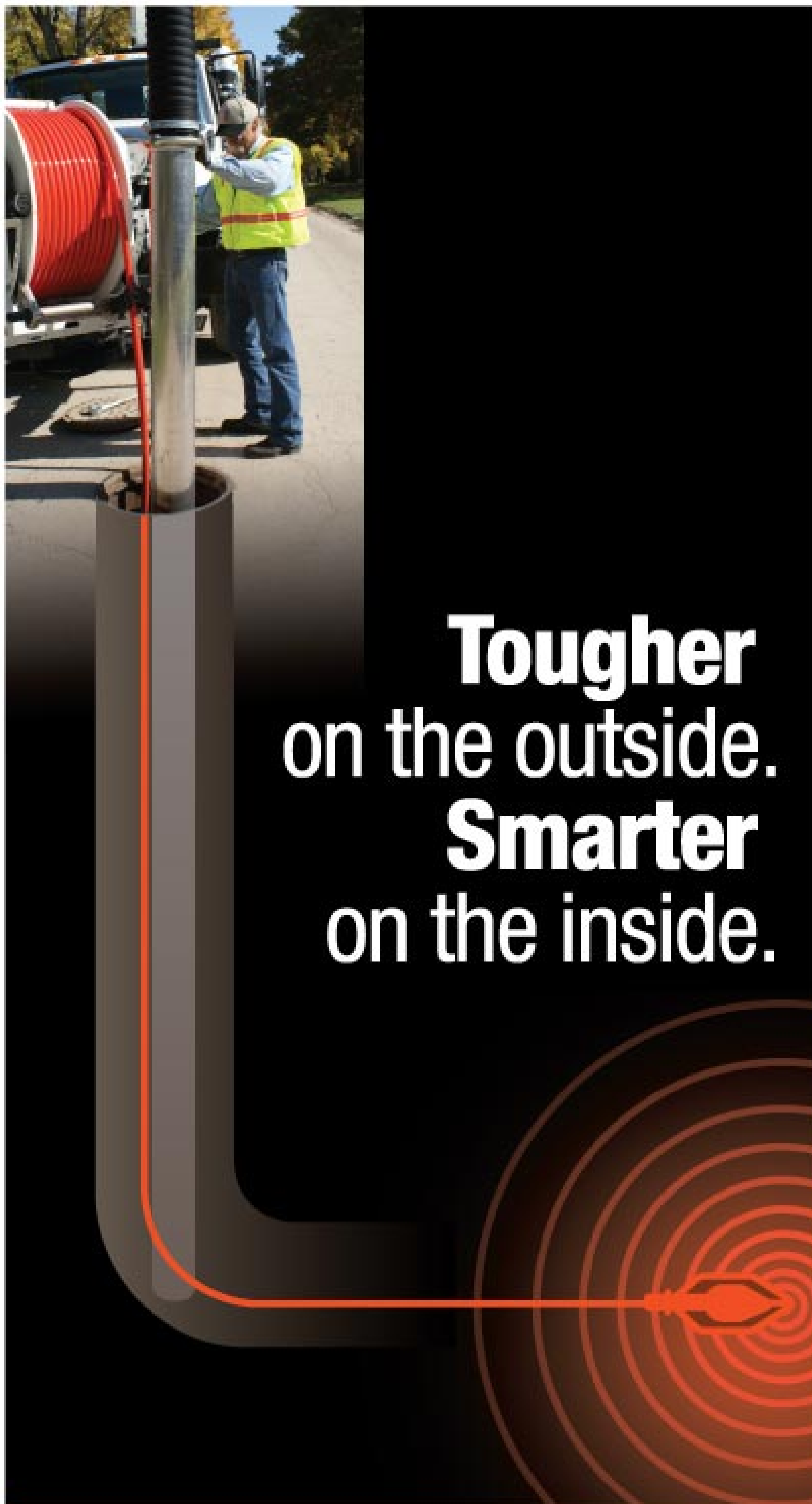
NOBODY
DEALS YOU
A BETTER
HAND.



When you combine our high-performance cured in-place pipe (CIPP) liners with our world-class customer service, you have what it takes to go all in. A global leader with unrivaled 24/7 technical support, Applied Felts provides industry expertise, guidance in the field, and custom CIPP liners designed to your unique specifications—wherever in the world your installation may be. Play to win with Applied Felts, the industry's leading independent manufacturer of quality CIPP liners.



◆ APPLIEDFELTS.COM ◆



**Tougher
on the outside.
Smarter
on the inside.**

**Introducing the new Armor Belt Beacon –
with Integrated Tracking Wire.**

Vector, the gold standard in for durability and reliability, now has a sewer cleaning hose that can upgrade its legendary performance. The Armor Belt Beacon Hose not only lasts three times longer – it's technologically smarter. That's because it's the only sewer hose with a built-in tracking beacon to locate broken lines, obstructions and defects. To learn how to bring long-lasting productivity to your business, visit us online.

VACTOR
Subsidiary of Federal Signal Corporation

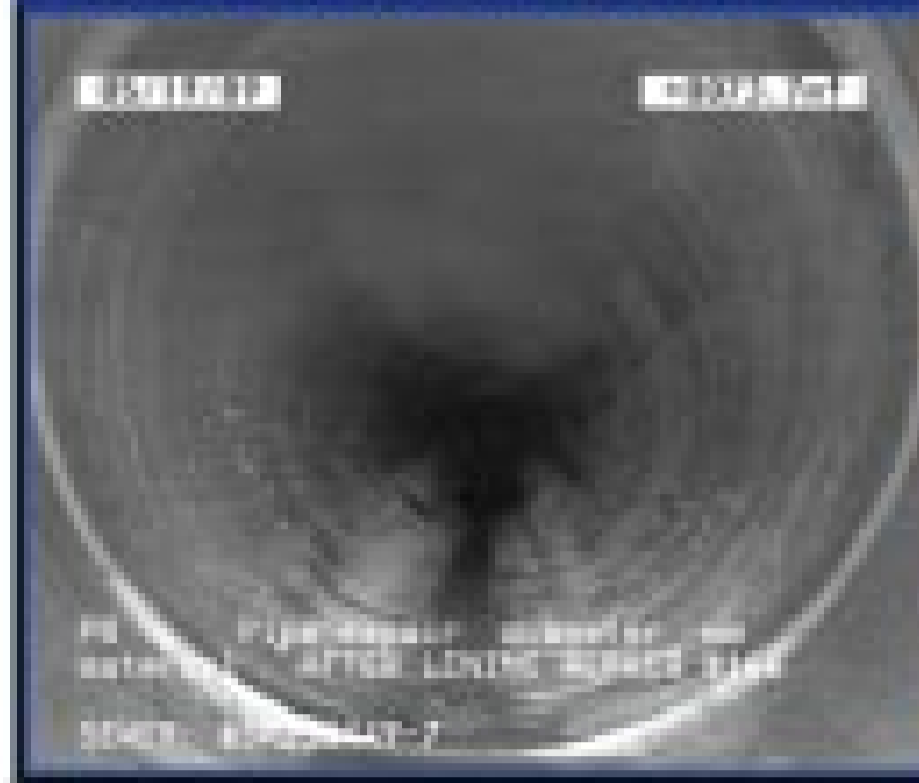
www.vactor.com 815.672.3171



HOSE PRODUCTS, INC.

**“Who Else Wants To Know About
The True All In One Lining System
That Is Competitively Priced?”**

CIPP cured in 1 Hour!



- ▶ Proven since 1994!
- ▶ Will last 50 years or more!
- ▶ Steam Curing: more control less risk!
- ▶ Fiberglass composite is 5X stronger!
- ▶ Completely No-Dig system!
- ▶ High client satisfaction!
- ▶ Five systems for the price of one!

**It's Five Systems In One!
It Would Cost Much More To Get All This:**

- | | |
|-------------------------|---|
| 1. Lateral Lining | 4. Tee & Wye Lateral-Main-Connection (LMC) Liners |
| 2. Lateral Spot Repair | 5. Industrial applications |
| 3. Mainline Spot Repair | |



Find Out and Decide For Yourself!

Call Andy Sherwin at (888) 337-6764
Email andy@formadrain.com or visit Formadrain.com

**SERVICE,
INNOVATION AND
RELIABILITY SINCE 1961**

Huge selection of

CORROSION RESISTANT

- Filters
- Pumps
- Systems
- Accessories



*See Our website for Special Offers
Request FREE Product Catalog
Call for application assistance*



www.serfilco.com

800-323-5431 FAX: 847-559-1995

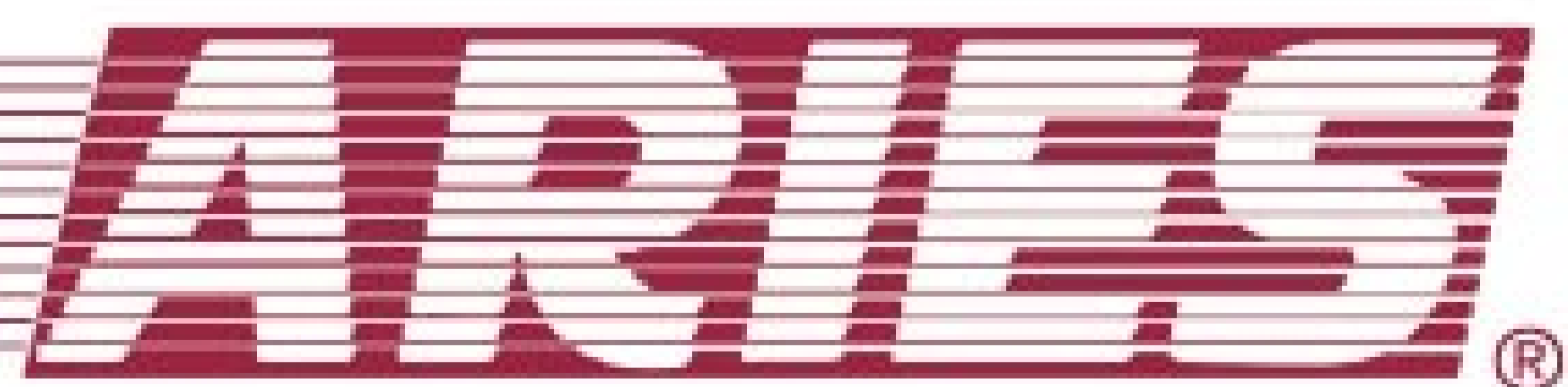


STOP INFILTRATION

AND GROW WITH GROUT

It's simple. Chemical grouting is extremely effective at stopping infiltration, and Aries Industries offers the industry's premier chemical grouting technology and equipment. A partnership with Aries Industries provides you with decades of grouting experience, training from real experts and full service support.

Aries makes it easy. Make the move, grow your business and deliver added value to your customers. Learn more at AriesIndustries.com and get started today by contacting your Aries sales representative.



BADGE OF THE PROFESSIONAL

Wastewater collections system operators in Monroe County, N.Y., go to school to improve their skills and earn certification in their specialty

By Jim Force

When is a wastewater collections department a school? When it's the Pure Waters Division of the Monroe County (N.Y.) Department of Environmental Services.

The division's management and staff have developed a collections system certification curriculum that allows employees to advance toward meeting voluntary Grade 1 through 4 certification requirements as set by the state Department of Environmental Conservation (DEC) and the New York Water Environment Association (NYWEA).

The program is unique in the state, and one of just a few nation-

Certified televising crew members Mike Quayle (right) and Scott English lower a crawler-mounted camera into a mainline sewer for an inspection.

wide. The coursework takes five months to complete and is taught by volunteers from the division's diverse staff. "We receive many benefits from it," says Bill Putt, collections system manager. "We've certified 47 employees since 2005, and we've seen how the program encourages pride and professionalism among our staff."

Service to 200,000

Monroe County's Pure Waters Division consists of 120 employees, organized into sections that operate and support wastewater collection and treatment systems serving sewer districts in the city of Rochester and surrounding suburbs.

The division's collections system includes more than 1,200 miles of sewers and serves a population of about 200,000. Putt's team also cares for 57 remote pump stations and about 30 miles of deep rock tunnels drilled in the 1970s to store combined sewage and storm-water during rain events. Two wastewater treatment plants — North West Quadrant and Frank E. Van Lare — accept, clean and discharge an average of 150 mgd into Lake Ontario.



Monroe County uses a mobile GIS vehicle for field mapping of collections system features. (Photography by Trent Wellott)





Monroe County's certified collections system operators include, front row, from left: George McAvinney, Bill Burgio, Tom O'Brien, Jeff Scheuch, Mike Quayle, Mike Burkett, Dan Cavallaro, Laurie Doyle, Bob Cialini, Mark Delavak, Dan Ross, Bill Putt. Second row: Mary Jo Healy, Joe Saurini, Rich Bianchi, Tom Birdsall, Alan Boekhout, Chris Maier, Eric LaMendola, Scott English, Matt James. Third row: Steve Stratton, Erin Magee, Rob Tyndall, Andy Sansone, Brian Gotham, Elias Sierra, Pat Slattery, Mike Weber, Tony Morelli. Fourth row: Steve Reiter, Chris Tatar, Glenn Kaiser, Rex DeValder, Darl Drennon, Paul Delvecchio, Chris Fiutko, Bob Borelli. Missing from the photo were John Palermo, Jo Guarino, Kevin Quinn and Dale Adams.



PROFILE:

Monroe County, N.Y., Pure Waters Division

POPULATION SERVED:
200,000

SERVICE AREA:
Monroe County, including
City of Rochester

WASTEWATER FLOW:
150 mgd

INFRASTRUCTURE:
1,200 miles of sewers,
30 miles of deep tunnels,
57 pump stations, two
treatment plants

STAFF:
120

ANNUAL BUDGET:
\$70 million

WEB SITE:
www.monroecounty.gov

Impetus for the training program came from Mary Jo Healy, safety and training analyst, who had experience as a certified collections system operator during previous employment in Wyoming. Previously, the division sent a small group of operators to the state certification program, conducted jointly by the NYWEA and the DEC. But operators came away feeling the process didn't prepare them as well as it could have. "We did well, but we felt we needed additional training in order to prepare our employees for the exam," Putt says.

Soon after, Healy and Putt began putting their own curriculum together, and by the fall of 2004, the program was up and running, enrolling its first class of collections system employees.

The program was built off the highly successful *Operation and Maintenance of Wastewater Collection Systems, Volumes 1 and 2*, from the California State University at Sacramento Office of Water Programs. Monroe County complemented the manuals with a rich program of practical training based on the



PROGRESS IS EVIDENT

Monroe County surveys its collections system operator certification students regularly to get their feedback to the coursework and monitor progress. If last year's statistics are any indication, the program works.

Of the 11 students in training, eight said they felt their knowledge and understanding was "good" before the training, and three said it was "fair." After the training, one student's knowledge and understanding level changed to "excellent" and six to "very good." Three said their level was "good" and only one ranked it as "fair."

They ranked application of the learned skills to their jobs even higher: three said the application was "excellent," five "very good," two "good," and just one "fair."

A crew of certified operators used a Mercedes-Benz Unimog vehicle to access the 16-foot-diameter Culver-Goodman deep rock tunnel system during an annual inspection. The tunnel, for combined sewer overflow abatement, lies more than 100 feet below the streets of Rochester, N.Y.

expertise already held by the division's employees.

"The manuals are excellent for test preparation, but the exam includes questions on day-to-day operations," says Healy. "We have many dedicated employees who also have experience and expertise they can share with others. Most are already certified. They readily volunteer, and we rarely have to twist anybody's arm. What's more fun than talking about your job?"

Rob Tyndall, assistant sewer collections supervisor, is a good example. On the Monroe County staff for nearly 11 years, with a background in hydraulics and pump stations, he has been a willing instructor. "We pooled our thoughts and said, 'Hey, we have our own talent base to work from,'" he says.

"We have many dedicated employees who also have experience and expertise they can share with others. Most are already certified. They readily volunteer, and we rarely have to twist anybody's arm. What's more fun than talking about your job?"

Mary Jo Healy

He observes that instructors get positive feedback, and that employees enjoy exchanging knowledge with their co-workers.

Four-part curriculum

The Monroe County training program prepares students for all four grades of certification. In Grade 1, employees learn where everything is and where everything goes — collections system basics. Grade 2 covers operations, and students deal with topics from proper operation of jetter-vacuum units, to pipe specifications, to pumping stations, to sewer rehabilitation.



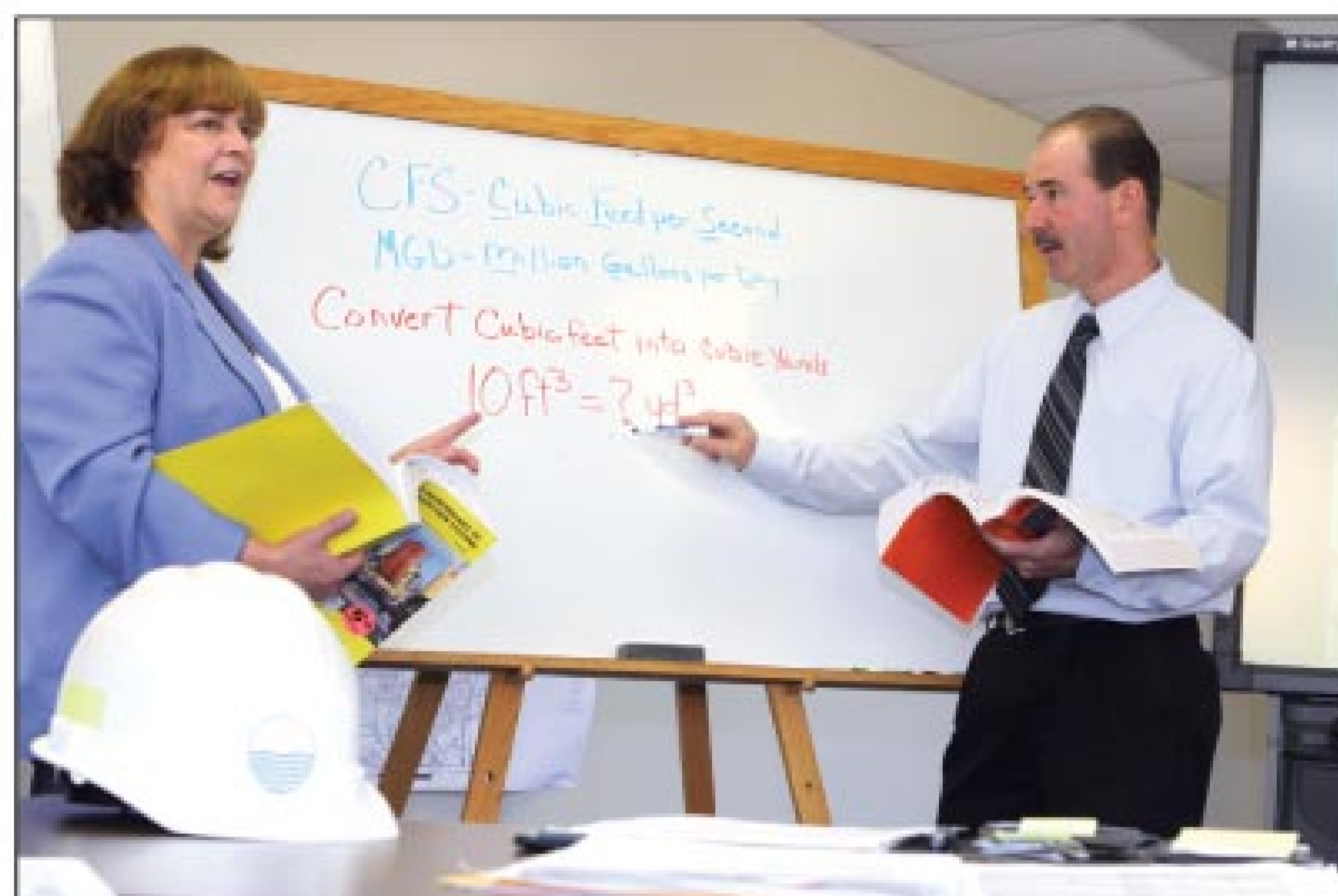
Grade 3 is devoted to troubleshooting, and Grade 4 emphasizes management skills, such as budgeting and planning.

The classes begin in fall and consist of 23 sessions, each taking two to two-and-a-half hours a week. After a break for the winter holidays, the schedule resumes, and it finishes up with certification testing in April. The division allows the training to occur on work time and pays for the cost of training and certification.

The training is rigorous: As in a school or college, the program sets out expectations for those taking the classes. They are expected to be on time and prepared for class, to complete weekly homework assignments on time, to study on their own, and to participate in class. No more than two absences are allowed, and those who miss sessions must make up the class work tests within seven days.

"When we began, it seemed like everybody wanted to go directly to Grade 4, but we insisted they start at Grade 1," says Healy. "We wanted to ensure they had a solid foundation to understand collections system operation. Plus, we wanted everyone to have a chance to succeed. It's really all about success."

Each year's class contains eight to 12 students, and Healy and Putt



Mary Jo Healy, safety and training analyst, and Bill Putt, collections system manager, give instruction on wastewater collections system principles to a class of certification candidates.

are proud that the groups are diverse. "Diversity is a key," Putt says. "We have collections system operators, mechanics, heavy equipment operators, pipe layers, and technicians — including industrial waste control and permit review — all in the same class. With this format, they share their experiences, create camaraderie, and educate each other.

"For example, some of collections system personnel have limited experience with pumps, but our mechanics work with pumps daily. Cross-training is critical. We exchange

knowledge by sharing stories and experiences."

Breeding success

The approach appeals to the students. George McAvinney, collections supervisor, has taken all four certification exams and is proud that he passed each level on the first try. "It's been very successful," McAvinney says. "Although I had limited actual field experience, taking the classes along with other employees gave me the opportunity to meet a lot of different people and become familiar

“Regardless of the course, everyone in the class brings different skill sets to the scene. That allows us, as instructors, to keep the class fresh. It builds ownership. Those who have taken the course are the ones doing the training now.”

George McAvinney

with different processes.

“In a large department like ours, an employee can get pigeon-holed doing the same thing. So this was a great opportunity to get a better understanding and appreciation for all the different skills needed to operate a collections system.”

Trainer Tyndall says the students add a lot to the teaching experience. “Regardless of the course, everyone in the class brings different skill sets to the scene. That allows us, as instructors, to keep the class fresh. It builds ownership. Those who have taken the course are the ones doing the training now.”

Tyndall also likes the format because it allows the instructors to tailor the coursework to students’ needs and strengths. He describes one situation where he was able to conduct some special tutoring for

students who needed help in math. In another case, he organized a tour to a pumping station so students could see the practical application of what they were learning. “We’ve all learned what works and what doesn’t as we’ve gone along,” he says.

Putt believes the entire department benefits from the program — not just the employees. As students complete the coursework and pass the certification test, their certificates are posted at the division on what Putt calls “The Wall of Fame.”

Employees pay keen attention to the wall, and they enjoy seeing it change as new certifications are achieved. “Ultimately,” says Putt, “our goal is to give all eligible employees an opportunity to become certified.” ♦



stormwatersystems

The Visible Choice for Clean Water!



Bandalong Litter Trap™

Storm Water Systems
Cleveland, GA
888.730.5819

www.stormwatersystems.com

About that article,
would you like a copy?

A poster to display in your office?

An electronic file to post on your web site?

Reprints to hand out or mail to potential customers?



Just let us know!

View articles, options and pricing at www.mswmag.com/editorial

To order, e-mail jeffl@colepublishing.com or call COLE Publishing at 800-257-7222

MUNICIPAL
SEWER
&
WATER

ADS
Water Loss Control Products
powered by
Primayer



Yellow + Blue = Green

Proven in the U.K. Available now in the U.S. through ADS LLC.

ADS Water Loss Control Products for water management reduce unaccounted for water saving you money and invaluable water resources.

Choose ADS LLC for Leak Detection Services and Products Including Flow Measurement & Data Logging:

- Proven European Technology
- U.S. Based Responsive Service
- Cost Efficient Products
- 2 Year Hassle-Free Warranty
- Single Point Accountability



ADS LLC
An IDEX Water & Wastewater Business

Visit us at AWWA-ACE 2010 Booth #765 www.adsenv.com/leakdetection 800.633.7246

McElroy Adds Build and Price Internet Feature

McElroy has added a build and price feature to its Web site, www.mcelroy.com. The feature enables users to build and price fusion machines and pipe-lining accessories, as well as choose the cylinder force desired. Information can then be sent to the distributor of choice for a quote.



Sewage, Wastewater Construction at Record Levels

Sewage and wastewater construction is expected to remain at historically high levels, according to FMI's Construction Outlook: Fourth Quarter 2009 Report. The market has more than doubled in size in the past decade, from \$10.1 billion in 1999 to \$25.7 billion in 2009. Slow, steady growth will push the market to \$32.1 billion in 2013. Driving the projections are Environmental Protection Agency estimates that the nation needs to invest \$202.5 billion to update and improve wastewater systems and funding from the American Recovery and Reinvestment Act that will award the EPA \$4 billion to construct wastewater infrastructure. The greatest areas of need are the rehabilitation of sewer networks and wastewater treatment plant upgrades. To view the report, go to www.fminet.com/assets/FMI2009Q3Outlook.pdf.

ADS Acquires StormTech LLC

Advanced Drainage Systems LLC has completed acquisition of the remaining 50 percent interest in StormTech LLC. StormTech was created as a 50/50 joint venture between ADS and Infiltrator Systems Inc. to engineer and manufacture chambers for use in underground stormwater retention/detention systems.



Nolan Blalock

SPIR STAR Promotes Blalock to Outside Sales Rep

SPIR STAR Ltd. has promoted Nolan Blalock to outside sales representative. He will be responsible for assisting in the development of the company's sales strategies, promoting the SAMI Instruments high-pressure valve line and helping maximize customer satisfaction. Blalock brings several years of sales experience to his position. ♦

THE HOME OF JEROME®

INDUSTRY STANDARD FOR H₂S MONITORING



Jerome® 631 and 651 Portable & Remote H₂S Analyzers

- Remote and Portable Monitoring Solutions for:**
- Scrubber Efficiency
 - EPA Regulatory Compliance
 - Nuisance Odor Monitoring
 - H₂S Source Detection

- Provides Detection For:**
- Landfills
 - Odor Control
 - Plant Parameter/Monitoring
 - Wastewater Treatment Plants

www.azic.com • 800.528.7411 • sales@azic.com



Superior® SMOKE

**Classic
or Fluid**

Only Superior offers Both

Maximizing your Smoke Testing results for over 45 Years!

www.SuperiorSignal.com 1-800-945-TEST

MADE IN THE USA

MAX-LIFE

Municipal Sewer Cleaning Equipment

NEW ITEM

Vacuum and Discharge

DEBRIS NOT WATER!

SAVES TIME AND MONEY

*All Vac tube sizes available
Traps for all pipe diameters*

Patent Pending!

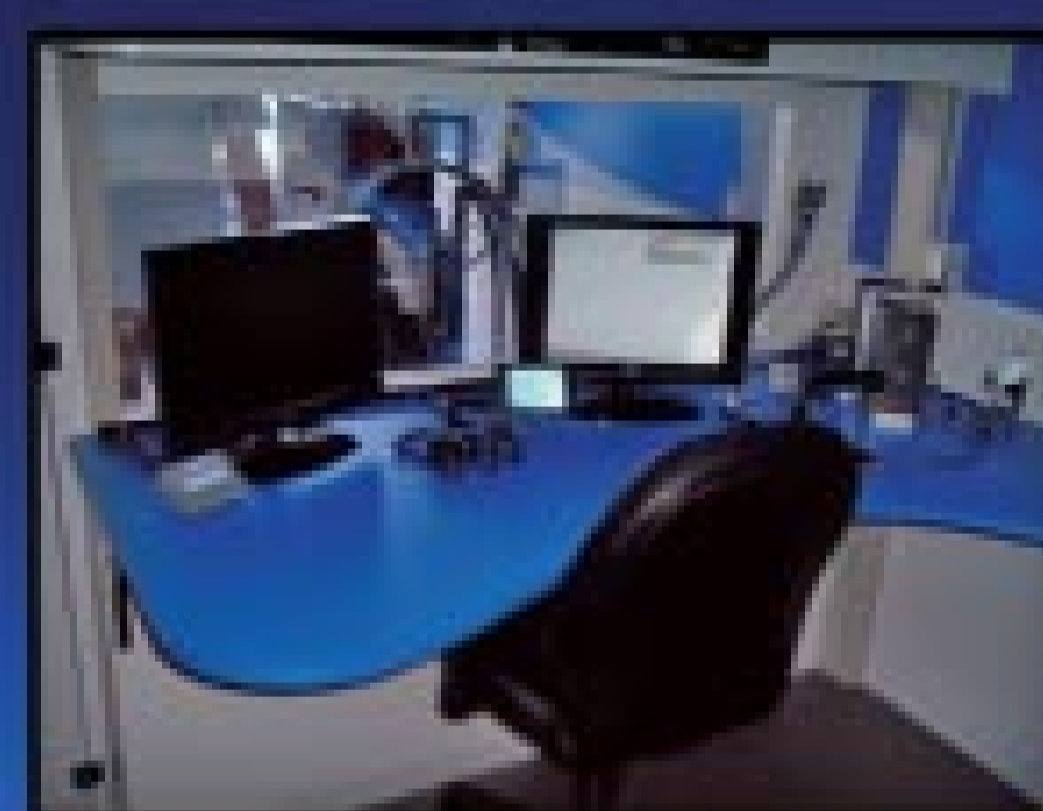
*Install Vac-Trap on the end of your Vacuum tube, wait for the trap to fill with debris while water flows by!
Vacuum debris into debris tank!!!*

11580 Seaboard Circle
Stanton, CA 90680
Phone: (714) 898 4862
Fax: (714) 897 2810
dhp@flexmax.com

CUES Custom CCTV Inspection Systems -
Truck Mounted and Portable

Your 1-Stop Shop

Video Pipeline Inspection Equipment & Condition Assessment



Pole-mounted Video
Inspection Cameras

Configure an inspection vehicle with the equipment you need!

Laser & Sonar
Pipe Profilers



Lateral
Reinstatement Cutters



TV Seal / Grout Trucks
and Equipment



Cameras &
Transporters



Push
Systems



"The Standard of the Industry"



CUES provides CCTV pipeline inspection solutions by combining industry know-how, top-of-the-line equipment, and the most responsive customer service in the industry. All CUES systems are proudly made in America! CUES offers a one-stop shop for all of your pipeline inspection, rehabilitation, condition assessment software, and pipe profiling needs. Contact CUES for a discussion and demonstration!

800.327.7791

www.cuesinc.com

salesinfo@cuesinc.com

PROUDLY MADE IN THE USA 



The belt filter press gravity deck in operation. (Photos courtesy of Bright Technologies)

BETTER MOUSETRAPS

PRODUCT:
1.7 meter belt filter press

APPLICATION:
Dewatering water treatment lime sludge and wastewater biosolids

BENEFITS:
Efficient and reliable dewatering, cost reduction

USER:
City of Beaver Dam (Wis.) water and wastewater utilities

MANUFACTURER:
Bright Technologies
269/793-7183
www.brightbeltpress.com

TWO BECOMING ONE

A Wisconsin community makes a dewatering belt press do double duty for water treatment lime sludge and wastewater biosolids

By Ted J. Rulseh

“The new press really benefits both the water and wastewater utilities. In the past, the two utilities have operated essentially as separate entities. With the management structure we have in place now, we operate more as one utility. The belt press delivers efficiencies and cost savings that help both sides in the long run.”

Rob Minnema

The City of Beaver Dam (Wis.) water and wastewater utilities are pulling closer together, in part thanks to a dewatering system that now handles lime slurry from the water treatment plant but will eventually handle wastewater biosolids, too.

In July 2008, a 1.7-meter skid-mounted belt filter press from Bright Technologies, a division of Sebright, went to work at the wastewater treatment plant, dewatering lime slurry trucked over from the water plant across town, about one mile away.

The press has already driven down the water utility's lime slurry handling costs by producing cake at greater than 60 percent solids

for land application as a soil amendment on two local farms.

Thrown a curveball

Beaver Dam, a city of about 15,000 in south central Wisconsin, operates separate water and wastewater utilities. The activated sludge wastewater treatment plant handles average flows of 4.3 mgd. The 5.8 mgd water treatment plant uses lime softening, the source of the lime slurry, produced at 1.5 million gallons per year.

For years the water utility wasted lime slurry from the water plant clarifiers, held it in storage tanks, and hired a contractor to haul it to farm fields for land application. In early May 2008, the state Department

of Natural Resources (DNR) determined that the lime slurry could no longer be land-applied under regulations that applied to wastewater biosolids and instead had to be treated as solid waste and landfilled.

However, the city could not landfill its lime slurry because, in its liquid state, the material could not pass the filter test needed to prove that landfilled material contains no free liquid. That meant the city's contractor had to haul the material to its own storage facility and mix it with other sludges before landfilling. That more than tripled the handling cost from about 3 cents per gallon for the land application program to more than 9 cents per gallon.

Acting quickly

Meanwhile, the water plant was producing about 7,000 gpd of lime slurry. The existing belt filter press at the wastewater plant had been in service for 25 years and was not sized to handle the additional volume.

To solve the problem, utility director Don Quarford and utility foreman Rob Minnema quickly went to work on a dewatering system with the help of Tom Stebbins, operations and process specialist with Bright Technologies. In the third week of May, Stebbins organized and completed an onsite pilot test showing that a belt filter press could take lime slurry at 15 to 20 percent solids and produce a cake containing more than 60 percent

solids that would pass the filter test for landfilling.

After a successful pilot test, the city decided to acquire a belt filter press from Bright Technologies. The skid-mounted belt press system was manufactured, installed and operational at the wastewater treatment plant in a temporary installation in less than 60 days. Then, with the assistance of Bright Technologies the city designed and built a permanent facility for the press, completed in December 2008.

"Right now, we're using the press to dewater the lime slurry, but we have used it to dewater wastewater biosolids at times when we're behind in processing the material on our existing dewater-

1,350 dry tons per year, and the lime slurry output is 1,600 dry tons per year.

Attractive cost

Initially, the city dewatered and landfilled the lime slurry material at a cost of nearly 8 cents per gallon. Then Stebbins used his 20-year background as a contractor in the liquid and solid waste recycling industry to work with the DNR and help the city get a variance for two farmers to land-apply the dewatered lime cake for beneficial reuse.

Therefore, the city has discontinued landfilling. In some cases, the city mixes lime slurry with biosolids to produce a more beneficial soil amendment, according to Minnema.

The city bought the press on a five-year lease-purchase plan that allows the utility to include its capital and operating costs in the same budget category that covered the hauling of liquid slurry. The water utility now pays farmers \$6 per cubic yard to haul and land-apply the lime slurry cake.

"We are paying a lot less to handle it now," says Minnema. "We just have to haul it across town and press it. Our total cost is about 3.25 to 3.3 cents per gallon, counting our lease cost, operations, chemicals and transport. When the lease payments end in five years, that's when we'll really see the savings."

Smooth process

The lime slurry process is simple and automated. Lime transported from the water treatment plant is received in an 18,000-gallon nurse tank. The material is drawn onto the press by a Boerger rotary-lobe pump mounted on the press skid. Cationic polymer is added to flocculate the lime, and the mixture is introduced to the gravity section of the press, where primary drainage occurs.

From there the material enters the radius wedge section of the press. The radius wedge brings the material into contact with both belts sooner than in a typical linear wedge section and applies pressure

over a greater area. The large radius of the wedge simulates a large-diameter roll and promotes rapid drainage.

The material then enters the high-pressure section of the press, with a series of eight pressure rollers. The first roller is a wing roll with 50 percent open area that further aids in dewatering. The radius wedge and open wing roller design increases useful dewatering space within the press, making the process more efficient and giving the press a smaller footprint, according to Stebbins. The finished cake exits onto a belt conveyor that carries it to a storage building next door.

A Siemens touchscreen control panel will be tied into the plant SCADA system, enabling the staff to monitor and operate the press from anywhere in the facility.

Looking ahead

Minnema notes that the wastewater treatment plant has received \$20 million in federal government stimulus funds, half as a grant and half as loan. The city will use part of the money for equipment upgrades throughout the plant that will make the belt filter press a more integral part of the facility.

"The new press really benefits both the water and wastewater utilities," says Minnema. "In the past, the two utilities have operated essentially as separate entities. With the management structure we have in place now, we operate more as one utility. The belt press delivers efficiencies and cost savings that help both sides in the long run." ♦



The 1.7-meter belt filter press from Bright Technologies has driven down water treatment plant lime slurry handling costs and is also used at times to dewater wastewater biosolids.

ing press," says Minnema. "Eventually, we will waste biosolids directly from digester to the press and regularly use it to batch process either biosolids or lime slurry." The existing belt filter press will eventually be used as a backup while the new press will be the primary press for both utilities.

The latest analysis showed the press delivering biosolids cake at 22 to 25 percent from liquid material coming from the digesters at 2.5 to 3 percent solids. The plant's biosolids are land-applied. The city's total biosolids output is about



City of Beaver Dam utility foreman Rob Minnema and operator Greg Goodrich review the touchscreen controls on the skid-mounted belt filter press from Bright Technologies. The press serves both the water and wastewater sides of utility operations.

MORE INFO:

Boerger LLC

877/726-3743

www.boerger-pumps.com

Bright Technologies

269/793-7183

www.brightbeltpress.com

Siemens Water Technologies

866/926-8420

www.water.siemens.com

CENTRAL OKLAHOMA

Winnelson
COMPANY

**YOUR SOURCE FOR
RIDGID**

6% ONE YEAR FINANCING AVAILABLE!
Longer lease rates also available. Call Keith for details.

microEXPLORER™ Digital
Inspection Camera



MINIPak Monitor

BUYING A SEESNAKE?

**CALL US FOR
GREAT PRICING &
FREE SHIPPING!**

**WE
WILL NOT BE
UNDERSOLD**



microDrain Reel



LCDPak Monitor

DVDPak

**- Call Us Evenings and Weekends -
Keith: 405-602-9155 & Jim: 405-205-3974**

**CALL
TOLL FREE: 888-947-8761**

5037 NW 10th
Oklahoma City, OK 73127

www.centralwinnelson.com



Where the Rubber Raises the Road

Road Smoothie

The Simple, Long-Lasting Solution to fixing Below Grade Manholes

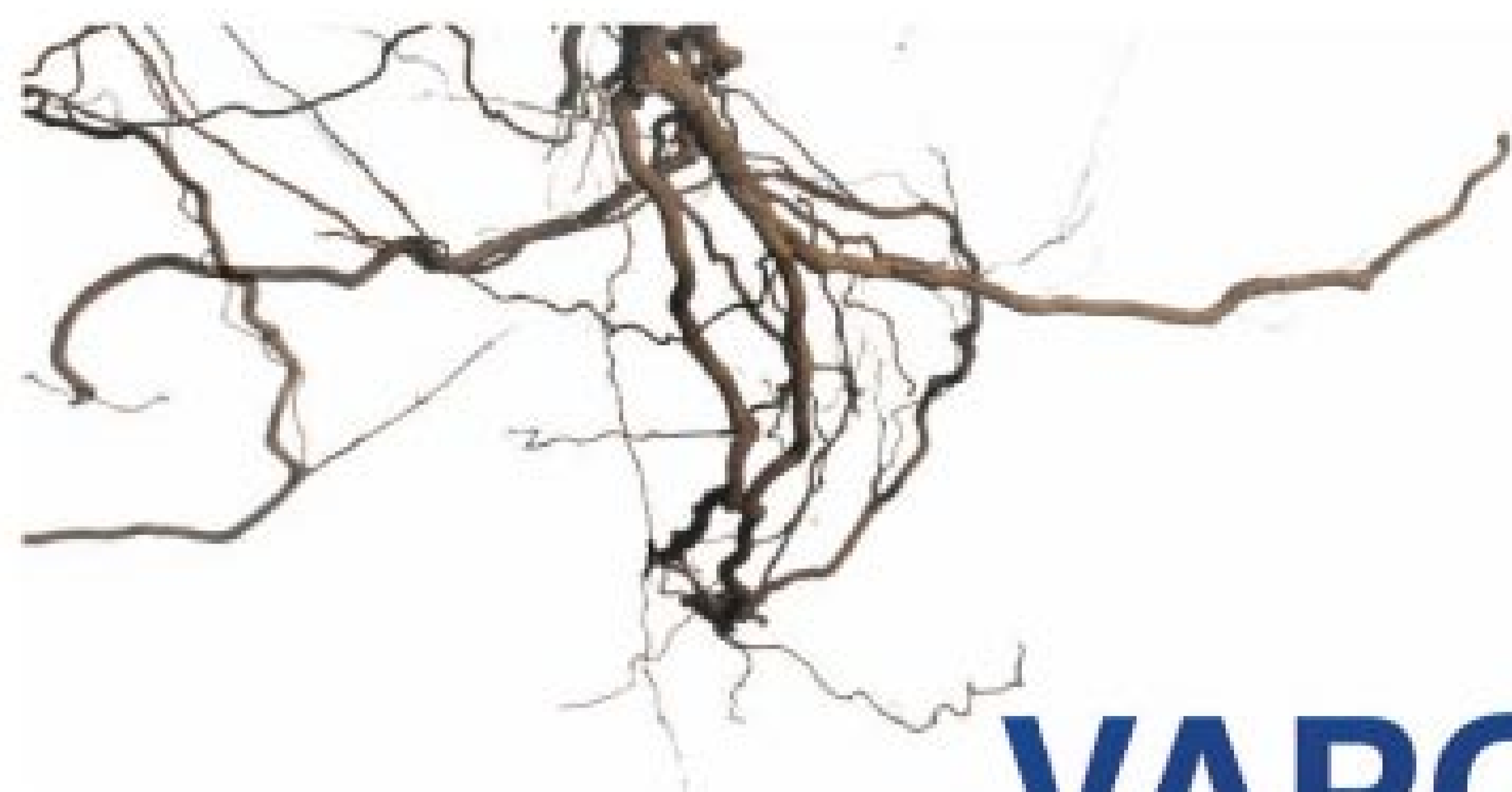
- Attaches to the manhole lid in minutes with adhesive or stainless steel bolts
- Great for Overlay Projects: Reduces costs, Time, Liability, Risk and Road Closure Time
- Top layer made with long-lasting neoprene rubber (same type used in hockey pucks)
- Bottom layer is environmentally friendly and is made with recycled tire rubber
- Road Smoothies can be cut to any shape, size or depth required to bring a project to street level without compromising the full-function of the manhole lid
- Road Smoothies are snowplow, street sweeper, chemical safe and are temperature rated from -40° to 180° F
- Available in traditional black with an identifying stamp for water or sewer, logos for cities and companies, local environmental campaign efforts or area sports teams
- DOT tested & approved and comes with a 5 year guarantee

Don't get Collared into using the same old solution to Raise a Manhole



So easy a suit could install it.

Call 1-801-414-3220 or Visit RoadSmoothie.com



VAPOROOTER®

Kills Roots. Period.



No other chemical root control product works better.

The Proven Solution for Cities

Cities have proven to themselves that Vaporooter is the real solution for eliminating costly overflows and emergency call outs by ridding their sewers of roots and preventing root blockages for three years...guaranteed.

The One-Two Punch

Vaporooter is the only chemical root control that has two modes of action. First, it is a non-systemic herbicide that effectively kills roots. Then, it contains a root growth inhibitor to prevent re-growth for up to three years. The product is delivered in a dense foam which penetrates grease and root mass ensuring full chemical contact to all roots and pipe surfaces. Bottom line? No other chemical root control product is as effective as Vaporooter.

It's Easy to Get Started

Starting a chemical root control program is easy and cost effective. A simple modification to your existing jetting system is available from Vaporooter. Plus, we will supply you with all the technical assistance you need to start and maintain a successful program.

Guaranteed

Vaporooter is so effective that it is guaranteed to kill roots on contact and prevent costly root blockages for up to three years. Even more important than any guarantee to re-treat the pipe is the proven success of using Vaporooter to eliminate root related back-ups.



Find Out More Today

Start solving your root problems today. Don't want to handle applications yourself? Contact us for the name of the nearest Vaporooter contractor. Call toll-free or e-mail us at info@VAPOROOTER.com.

1-800-841-1444 • E-Mail: info@vaporooter.com • Website: www.vaporooter.com

Senefoam Vaporooter II is a restricted use pesticide. Vaporooter is a product of Douglas Products & Packaging, LLC.



VAPOROOTER®

1550 East Old 210 Highway • Liberty, MO 64068

RACE TO ZERO

St. Petersburg overcomes wet weather and nearly eliminates overflows with an award-winning collections system maintenance program

By Jim Force

When it rains in St. Petersburg, it pours. But the sewer system no longer overflows the way it used to, and manhole geysers are a thing of the past.

That's the result of an award-winning collections system maintenance program implemented over the last few years by Lane Longley, manager of the Wastewater Collection System Maintenance Division, and his staff in this Florida city of 300,000.

"The results have been dramatic," says Longley. "We've had no major overflows in the last few years, and our treatment plants are operating well within their maximum capacities, even after heavy rains."

The city has progressed from overflows totaling millions of gallons a year in the late 1990s to less than 5,000 gallons a year today in overflows, spills and other discharges reaching the surface. "We're operating at a good comfort level now," Longley reports.

Such significant strides caught

the attention of the Florida Water Environment Association, which honored the St. Petersburg collections system maintenance program in 2007, naming it the best in the state for systems with more than 50,000 customers.

Zero discharge

St. Petersburg operates four wastewater treatment plants, with a total design capacity of 68 mgd. All perform to "zero discharge" levels, meaning all effluent is pumped into the city's reclaimed water distribu-

tion system for landscape irrigation, or injected deep underground during rainy periods. None is discharged into Tampa Bay or the Gulf of Mexico, which essentially surround the city.

That requires the city to keep its sewers clean and tight — no small challenge for a system that includes 920 miles of gravity mains, 450 miles of laterals, 56 miles of force mains, 83 lift stations, 96,000 lateral connections, and 19,500 man-

A St. Petersburg crew uses an Aquatech combination truck from Hi-Vac Corp. to clean the sewer system as part of the city's ongoing maintenance program. (Photos by Graham Photography)



PROFILE:
City of St. Petersburg,
Fla., Water Resources
Department,
Wastewater
Collections Division

POPULATION SERVED:
300,000

SERVICE AREA:
St. Petersburg and surrounding
communities in Pinellas County

STAFF:
52

INFRASTRUCTURE:
1,400 miles of sewers;
83 lift stations; 96,000 lateral
connections

ANNUAL BUDGET:
\$6.8 million (operations)

WEB SITE:
www.stpete.org



Before Longley and his team tightened their focus on collections system maintenance, wastewater overflows had become a major issue. The problem began during heavy rains in 1995 and became chronic during prolonged El Niño rains of 1998.

With enforcement action by the U.S. EPA and the Florida Department of Environmental Protection (FDEP), the city entered a consent order with the state in 2000. "That was a strong mandate that we had to do something," says Longley, who arrived in 1998 after working 17 years for the City of Tampa Sanitary Sewer Department.

Further impetus came from participation in the EPA Region IV CMOM program. In 2005, St.



Above, the Quick Television crew from the city's Preventive Maintenance Section uses a pole camera to inspect sewers. Operating the camera is wastewater technician DiMario McKenzie. Right, wastewater technician John Martin cleans a line as wastewater collections system maintenance division manager Lane Longley observes.



"The results have been dramatic. We've had no major overflows in the last few years, and our treatment plants are operating well within their maximum capacities, even after heavy rains."

Lane Longley

Petersburg became one of the first two utilities in the state to complete a CMOM program.

No more scrambling

Longley remembers that the division's approach to maintenance had been primarily reactive, crews often scrambling like emergency medical technicians. So one of his first measures was to reorganize the maintenance staff into three sections:

- Preventive, coordinated by John Stanton, and responsible for cleaning and inspecting lines.
- Corrective, supervised by John Turner, whose four construction crews repair sewers in each of the treatment plant's operating collections areas.
- Emergency response, coordinated by Paulette Wright, responsible for citywide response to service interruptions, manhole overflows, and broken lines. The target response time is two hours or less.

St. Petersburg's is not a typical

collections system. It's an old and very flat network of pipes, some dating from the late 1800s, others from the 1930s, 1950s and 1960s. The system was designed to store wastewater during wet weather, in addition to transporting it to the treatment facilities.

"There wasn't much grade in the large trunk lines, and we had a lot of debris collecting in those pipes," Longley explains. "The soil throughout the area is mainly sand, which easily infiltrates into the system and settles out, reducing pipeline capacity. Further, with a number of beach communities feeding into the network, the problems with sand are augmented by saltwater intrusion and high-chloride levels, which create issues in the treatment processes."

Methodical approach

So, besides reorganizing, St. Petersburg has taken a number of steps to make its system more functional and reliable, and keep it out of trouble during wet weather.

To clean the system, the utility employs a fleet of five Aquatech high-velocity jetter-vacuum combi-

TRAINING FOR PERFECTION

There are no "walk-ons" on the St. Petersburg collections system maintenance team. All new staff members take part in a four-year apprenticeship program that leads to certification by the Florida Water and Pollution Control Operators Association.

The apprenticeship involves classroom study and some 8,000 hours of on-the-job training before an apprentice can be promoted to technician.

"We're at about 70 percent certified right now, and our goal is to make it to 100 percent," says Lane Longley, manager of the Wastewater Collections System Maintenance Division.

Each apprentice must complete field training in construction, inspection, line cleaning, and a miscellaneous category that includes such areas as force mains, plug-ups, and root control. Testing is coordinated with the Florida Department of Education.

"It's nationally recognized, and one of the most complete programs I've seen for municipal agencies," he says. One of the biggest benefits to the students is that they graduate as union-recognized wastewater pipe fitters, and that's a certification they can take with them anywhere in the country.



Lane Longley

nation units (Hi-Vac Corp.). To increase flow across the system and eliminate quiescent zones, the department made changes to the headworks at its treatment plants. These projects were to improve the hydraulics of the trunk lines by lowering the wet wells and pumping to elevated headworks, enabling the treatment facilities to take advantage of gravity flow.

A two-man team uses an arsenal of pigs and swabs to clean the force mains and perform scheduled valve exercising and inspections, greatly reducing problems with those lines. Another team uses a modified Aquatech jetter truck (Hi-Vac Corp., modifications by Municipal Sales Inc.) to treat gravity lines with Vaporooter foaming root-control chemicals (Douglas Products).

The treated roots are later removed by the Aquatech trucks equipped with root-cutting heads: Lumberjack cutters from NozzTeq for most applications and Root Rat cutters from ChemPure Products Corp. in smaller lines. NozzTeq also provides most of the general

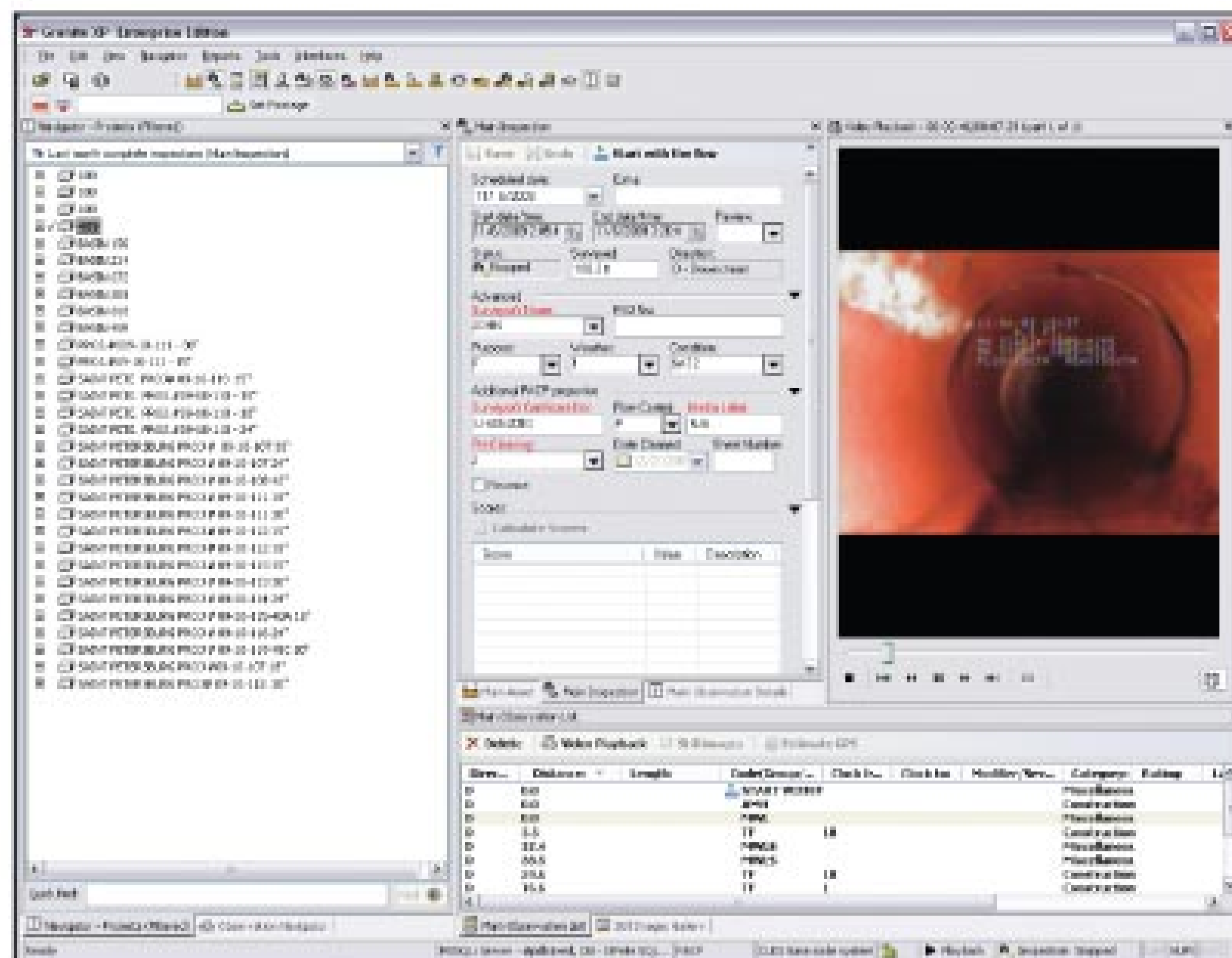
“I can’t say enough about our field staff. When we started out, the task here seemed daunting, and we wondered if we’d ever get there. It’s taken awhile, but now we have a really good feeling about our accomplishments.”

Lane Longley

cleaning heads used by the division’s pipe-cleaning crews.

Working with the city’s Engineering Department, the Collection Division has conducted extensive infiltration and inflow (I&I) investigations throughout the system. That includes smoke-testing shallow pipes and manholes. Manholes have been fitted with gasketed covers and inflow dishes. Longley credits the Engineering Department’s David Abbaspour and Scott Murray along with Water Resources engineer Matt Wilson, with helping to coordinate these strategies.

Oil and grease had been



The city uses Granite XP pipe survey software from CUES Inc. in recording pipe inspections and noting defects.

another major issue. The city’s tourist-attracting beach areas are filled with restaurants, and the city has a flourishing food-processing industry. Still, the collections system maintenance program has reversed the trend of grease accumulation in sewer lines.

“The CMOM program mandated that we develop a sound oil and grease-reduction program, and we did just that,” says Longley. Strong city ordinances now prohibit dumping of oil and grease, largely through the work of Dr. John Parnell (now retired) and current program supervisor Paul Zimmerman. The city’s Web site contains an extensive list of tips on grease disposal. It advises residents not to dump grease down the drain, but solidify it in a can for reuse or disposal with garbage.

“Grease used to be one of our biggest challenges,” says Longley. “The oil and grease-reduction program has been a huge help.”

Lighting the way

To accomplish repairs, Longley’s team establishes priorities, concentrating on the most troublesome spots within the system. While some utilities conduct cleaning and TV inspections of all lines on a sequential basis, his team uses a “Quick TV” approach to find the 10 or 15 percent of the lines that really need attention.

“Several years ago, and using our own shop, we mounted high-

intensity lamps and cameras on telescoping poles, and then we began lamping sections of lines from one manhole to the next,”



The Corrective Maintenance Repair crew uses a mini-track hoe to excavate a problem line and install a new section of PVC pipe.

Longley says. “This gives us a quick look. If we can see a clear path in the section we’ve lamped, we’re pretty sure there are no issues there, and we move onto the next section. This allows us to focus on those pipes that need cleaning the most. We’re currently on a five-year cycle to QTV all our lines.”

CALL THE PLUMBER

The St. Petersburg Wastewater Collections Division considers the community’s plumbers as part of the team.

“We work hard to maintain good communications and relationships with our plumbers,” says Lane Longley, division manager. “We work hard to keep them up-to-date on rules and regulations. And we keep a database on the accuracy of their work and their overall performance.”

The city’s Web site contains advice and guidance homeowners can follow when hiring a plumber. It also lists operating rules for plumbers working in the community.

interest in this approach from other utilities around the country," he says.

Not that St. Pete rejects conventional CCTV. The collections maintenance team uses three CCTV vehicles from CUES Inc. to inspect manholes and to assess pipelines. Crew members find and rank pipe defects using NASSCO Pipeline Assessment and Certification Program (PACP) standards. The inspection program is coupled with data management based on an Oracle utility and asset management system and Granite XP software from CUES.

"This allows us to transfer data from our TV trucks into a digital database in the PACP format," Longley says. "We used to use videotapes and CDs and DVDs but we had problems going back through old stuff. Now we can view everything graphically and pull up the latest video of the line. It's been a huge help."

Longley acknowledges computer systems coordinator Robert Labrie, who pulled the various system components together.

Making fixes

The St. Petersburg strategy uses several methods to rehabilitate faulty sewers. "We have been using Insituform Technologies Inc. and Reynolds Inliner CIPP (cured-in-place pipe) to rehab a lot of our larger-diameter pipe," says Longley. "We also slip-line some sections, especially the larger trunk lines, using the HOBAS method of fiberglass push pipe." He notes that this technique has been especially helpful where "pump-arounds" are not possible and an active flow must be maintained on the line.

The city has also taken advan-

tage of pipe bursting, horizontal directional boring, and even micro-tunneling in some situations.

"We're always open to new ideas," Longley says. The progress in St. Pete would not be possible without good people, a factor Longley points to time and again. "I can't say enough about our field staff," he says. "When we started out, the task here seemed daunting, and we wondered if we'd ever get there. It's taken awhile, but now we have a really good feeling about our accomplishments."

"To me, the reductions we've seen in overflows and incidents are really indicative of the job our people are doing every day." ♦

MORE INFO:

ChemPure Products Corp.
800/288-7873
www.chempure.com

CUES Inc.
800/327-7791
www.cuesinc.com

Hi-Vac Corp./Aquatech
800/800-1016
www.hi-vac.com

HOBAS Pipe USA
800/856-7473
www.hobaspipe.com

Insituform Technologies Inc.
800/234-2992
www.insituform.com

NozzTeq Inc.
866/620-5915
www.nozzteq.com

Reynolds Inliner
812/865-3232
www.reynoldsinliner.com

Vaporooter
800/841-1444
www.vaporooter.com

chempace
corporation
www.chempace.com

Serving the Industry for Over 40 Years!

One-Stop-Solutions For MUNICIPALITIES!

CALL FOR FREE DVD! **BUYING DIRECT ALWAYS EQUALS COST SAVINGS!**

CALL FOR ADDITIONAL PRODUCTS AVAILABLE!

ECONOMICAL SEWER MAINTENANCE!

SEWER FOAM \$62.00 (Per Pail)
Dual-action, foaming cleaner with long-lasting bacterial treatment, reduces sewer line solids and eliminates hydrogen sulfide odors!

bioFORCE LIFT STATION BLOCK \$40 EA (4 Per Case)
Designed to last in high flow stations, provides continuous bacterial treatment, controls odors & reduces grease accumulation

FR2 DEODORANT BLOCK \$50.00
Activated charcoal "draws" in malodors & neutralizes them anywhere

bioFORCE PACKETS
grease control maintenance for lift stations & sewer lines

A WELL KNOWN FACT:
Our Industry faces "unique" problems-Chempace is recognized internationally as the "Solution People" when it comes to removing unpleasant odors!

BUY DIRECT CALL 800-423-5350

MUNICIPAL SEWER & WATER

Have you seen the E-Zine?

Go to **mswmag.com** to view the e-zine.

Working well under pressure!

CAM SPRAY

The New Model SK4018DT

4000 psi, 18 gpm Hydraulic Reel 66 h.p. Diesel

See our complete lineup including Hot Water models, van mounts, portables and more on the web at:

www.camspray.com 800-648-5011

PEOPLE

Steve Wear of Morrilton, Ark., was elected to the Executive Board of the National Rural Water Association National Board of Directors.

LEARNING OPPORTUNITIES

APWA

The American Public Works Association is offering these audio/Web broadcasts:

- May 20 – Utility Coordination for Municipal Capital Improvement Projects
 - June 3 – A New Vision for Public Works Management
 - June 9 – Stormwater Manager Certification Study Guide Part 1
 - June 16 – Stormwater Manager Certification Study Guide Part 2
 - June 23 – Stormwater Manager Certification Study Guide Part 3
- Visit www.apwa.net.

AWWA

The American Water Works Association offers these courses in Waltham, Mass.:

- May 19 – Introduction to Laboratory Automation (Management Version)
 - May 20 – Lab Automation for IT Professionals
 - June 23 – Introduction to Laboratory Automation (Management Version)
 - June 24 – Lab Automation for IT Professionals
- Visit www.awwa.org.

Florida

The Florida Stormwater Association is offering these courses:

- May 12-13 – Stormwater Operator Certification Level 2, Lauderdale-by-the-Sea
 - May 17-18 – Stormwater Operator Certification Level 2, Tampa
- Visit www.florida-stormwater.org.

Kansas

The Kansas Water Environment Association is offering these courses:

- May 11 – Safety, Syracuse
 - May 13 – Small Water Systems, Liberal
 - May 18-21 – Cross Connection Control and Backflow Prevention, Fort Scott
 - May 25 – Special Environmental Topics, Kinsley
 - June 8 – Environmental Ethics, Kinsley
 - June 15 – Small Water Systems, Dodge City
 - June 22 – Plant Safety, Garden City
 - June 29 – Ethics, Dodge City
- Visit www.kwea.net.

Wisconsin

The Wisconsin Department of Natural Resources is offering these courses:

- May 3-4 – Iron, Zeolite & VOC, MPTC-Fond du Lac
 - May 4 – System Operations O&M, Waupun
 - May 11-12 – Utility Management, Sun Prairie
 - May 19 – Confined Space Entry, Sun Prairie
- Visit www.dnr.state.wi.us/org/es/science/opcert/training.htm.

University of Wisconsin

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

- May 3-5 – Mastering the Fundamentals of HEC-RAS
 - May 25-26 – Meeting Stormwater Requirements: Using WinSLAMM to Assess Quality and Volume Controls
- Visit <http://epdweb.engr.wisc.edu>. ♦

CALENDAR

May 2-4

International Symposium on Waterborne Pathogens, Manhattan Beach Marriott Hotel, Manhattan Beach, Calif. Call 800/926-7337 or visit www.awwa.org.

May 16-20

World Environment & Water Resources Congress 2010, Providence, Rhode Island. Visit www.asce.org.

May 16-21

Association of State Floodplain Managers, Cox Business Services Convention Center, Oklahoma City, Okla. Visit www.floods.org.

May 17-19

National Utility Contractors Association 2010 Washington Summit, Hyatt Regency Capitol Hill, Washington, D.C. Call 703/358-9300 or visit www.nuca.com.

June 6-9

Membrane Applications 2010, Hilton Anaheim, Anaheim, Calif. Call 703/684-2441 or visit www.wef.org.

June 8-10

Sustainability in Public Works Conference, Hilton Minneapolis. Call 612/376-1000 or visit www.apwa.net.

June 9-11

Florida Stormwater Association Annual Conference, Sanibel Harbour, Ft. Meyers. Visit www.florida-stormwater.org.

June 13-16

Collection Systems 2010, Phoenix Convention Center. Call 703/684-2441 or visit www.wef.org.

June 15-18

Canadian Water Resources Association National Conference, Vancouver, B.C. Visit www.awra.org.

June 20-23

American Society of Agricultural and Biological Engineers Annual International Meeting, David L. Lawrence Convention Center, Pittsburgh, Pa. Visit www.asabe.org.

June 20-24

ACE 10 American Water Works Association Annual Conference and Expo, McCormick Place, Chicago, Ill. Call 303/347-6132 or visit www.awwa.org.

Every day
is Earth Day.™

"We're met with a new challenge each day. Whether it's the sewer or water department, we're all cross-trained, and that means we can rely on each other for just about everything. We take our jobs very seriously, and the key thing is knowing that we're in compliance and not polluting our waters."

Jeff Chartier
An Original Environmentalist
Superintendent, Town of Bristol (N.H.)
Sewer and Water Department

Read about original environmentalists like Jeff each month in *Treatment Plant Operator*.

tpo

Free subscription at tpomag.com

COLE PUBLISHING INC.

*Proudly Serving
the Environmental
Service Industry
Since 1979*

Come In
We're

OPEN 24/7

www.mswmag.com

USB - SEC

TURBO CHAIN CUTTERS

NEW

Adjusts Continuously From
8"-16" And With
Expansion Kit Up To 24"

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits from 8"-16" sewer lines. When used in conjunction with the extension kit the chain cutter can expand up to 24". The Turbo S400 can easily be converted to a barrel cutter to remove protruding laterals. Offsets? No problem, the Turbo S400 has a continuously adjustable guide skid. The Turbo S400 requires no lubrication-low maintenance. This cutter can be used with recycled water.



USB-Sewer Equipment Corporation

1700 Enterprise Way • Suite 116 • Marietta, GA 30067

TOLL FREE 866-408-2814

PHONE 770-984-8880 • FAX 770-984-2802

USB - SEC EMAIL info@usbsec.com • WEB www.usbsec.com



Sawa



PIPE PLUGS - LINE ACCEPTANCE TEST

SAVATECH CORP - PORT ORANGE - FLORIDA - 888-436-9778 - 386-760-0706
WWW.SAVATECH.COM SAME DAY SHIPPING - WORLDWIDE



TANKS

LIFTING BAGS

MULTI-SIZE PIPE PLUGS



COMPUTERIZED TESTING SYSTEM
USING PRESSURE, VACUUM OR WATER
WITH ACCEPTANCE REPORT PRINTOUT

HEAVY-DUTY REINFORCED RUBBER

PILLOW PLUGS UP TO 108"

TEST TO ASTM STANDARDS



PIPE PLUG KITS



BYPASS PLUGS

END TO END

Accela Asset Management lets government agencies and utilities manage multiple functions in a single, integrated software package

By Ted J. Rulseh

Digital information greatly simplifies and streamlines management of municipal and utility infrastructure. But sometimes the challenge is to integrate all the different kinds of data that have gone digital: pipe surveys, GIS mapping, GPS information, documents, work orders, reports and more.

Accela Inc., an 11-year-old company that specializes in Web-based solutions for government agencies, tackles that challenge with its Accela Asset Management module.

It is part of an Accela Automation package containing modules to support permitting, community development and planning, code enforcement and other functions. The asset management module is designed to help users track and manage all facets of an agency's assets: water, wastewater, fleet, streets parks and recreation, and others — within a single application. It automates functions that include maintenance, investigations, inspections, costing and inventory.

Figure 2. Accela Asset Management provides a complete "map drawer" for quick access to maps and detailed asset data. This map shows sewer mains in the neighborhood specified in the sample citizen request used for the demonstration.

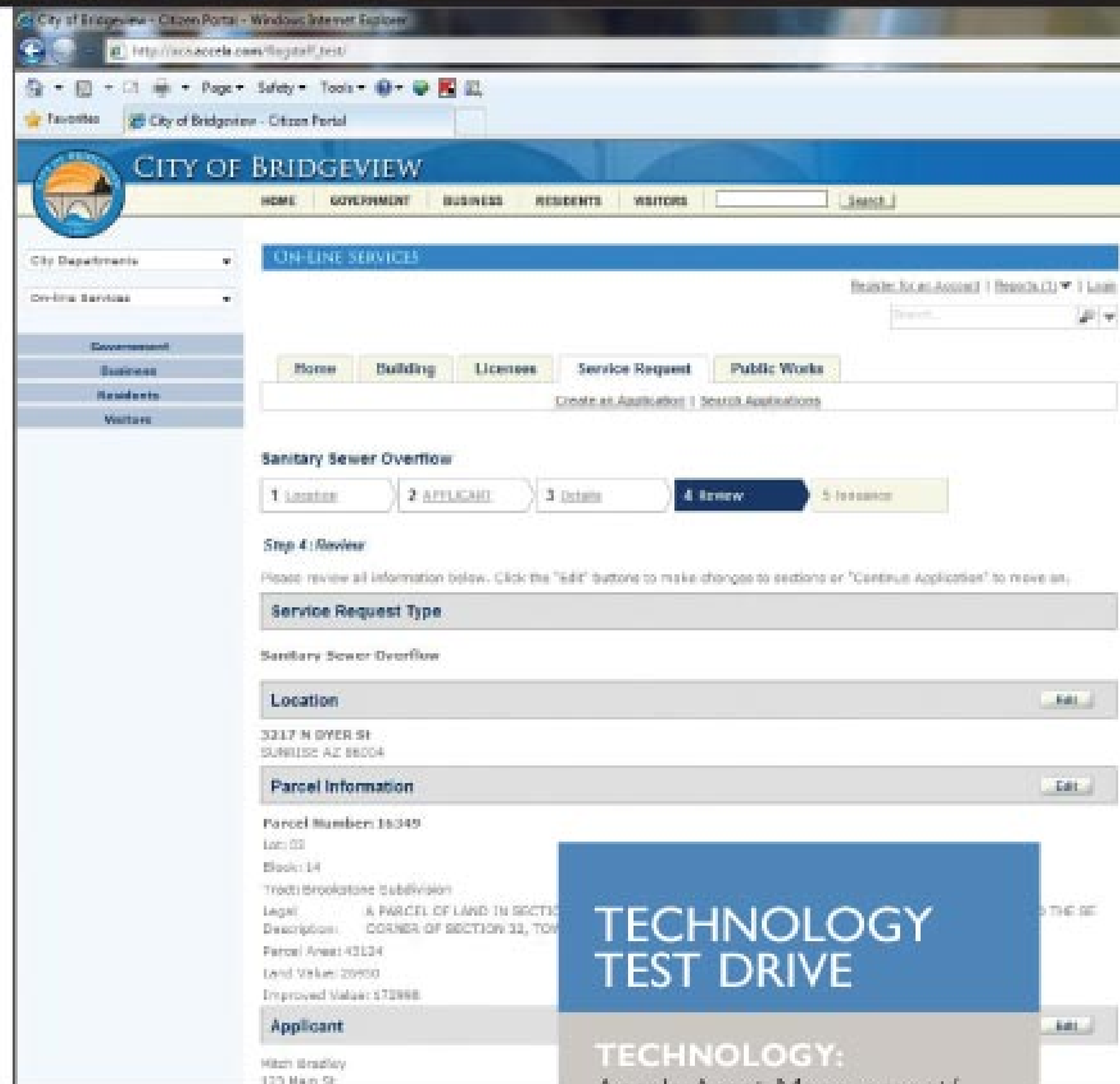
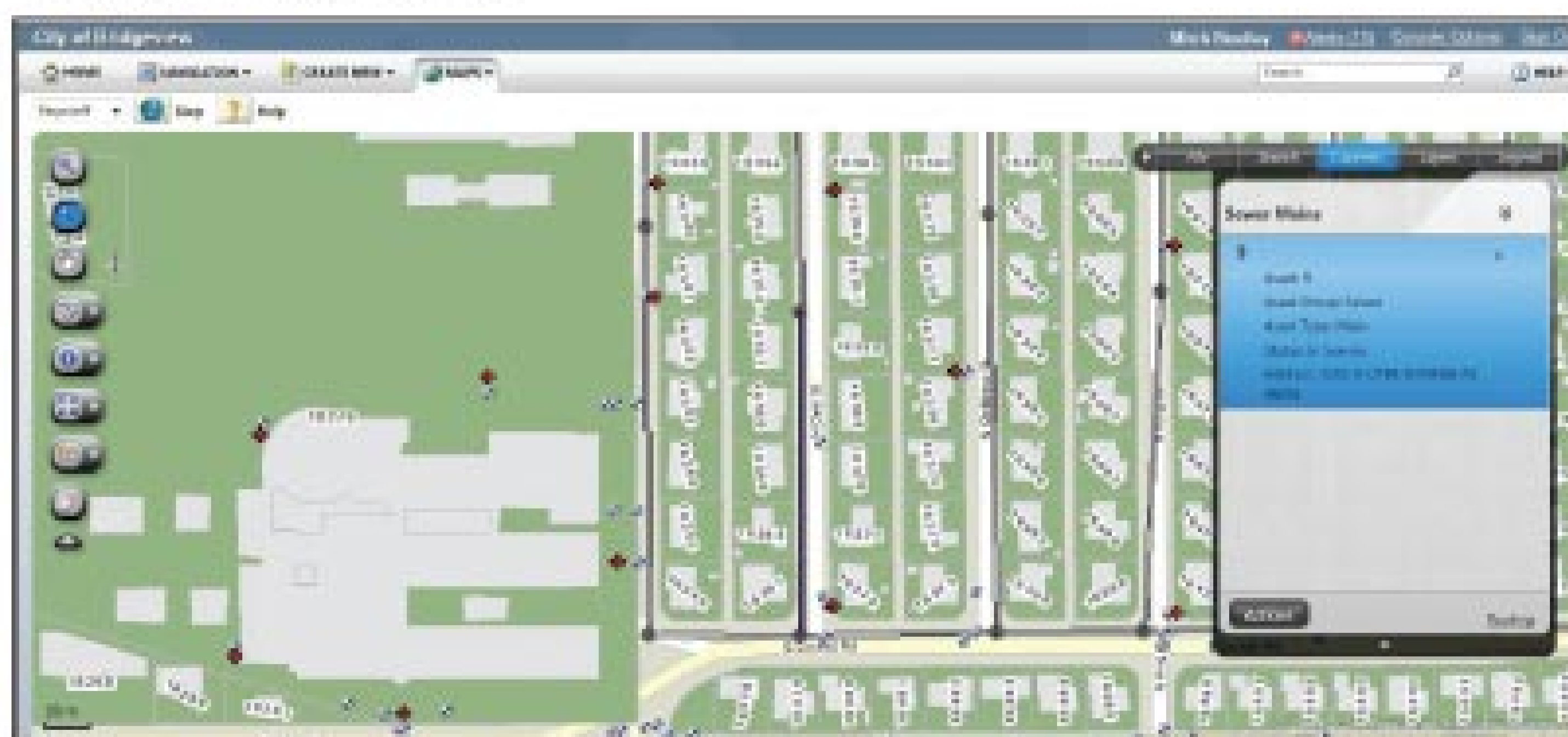


Figure 1. The citizen access portion of the program shows a service request before submittal. The numbered arrows at top guide the citizen or business user through the steps of submitting a request.

Among its attributes, the program is designed to integrate with GIS and SCADA systems to analyze data on assets in a way that is highly visible and supports sound decision-making, as when an agency needs to evaluate the condition of an asset and decide whether repairs are necessary.

Mitch Bradley, director of asset management solutions, demonstrated Accela Asset Management Version 7.0, along with the related Accela Mobile Office product, in a Web-based presentation on Feb. 4.

Walk-around

The Accela Asset Management program is designed to operate within the look and feel of an agency's internal Web site. Some communities and utilities also choose to make some of its functionality available to residents and customers — such as for reporting system events and service concerns.

TECHNOLOGY TEST DRIVE

TECHNOLOGY:
Accela Asset Management/
Accela Mobile Office

PROVIDER:
Accela Inc., San Ramon, Calif.

LOCATION OF DEMO:
Via Internet

DEMONSTRATED BY:
Mitch Bradley, director of asset
management solutions

LIST PRICE:
Accela Automation server
software is priced at \$54,995
for the first five users.

Prices for additional users and add-on products (such as Accela Mobile Office) vary based on the number of licenses or jurisdiction population.

Driving forces in its development, according to Bradley, include:

- **Transparency:** Making information visible to citizens, employees, and contractors alike.
- **Immediacy:** Enabling quick transfer of information and fast response.
- **Usability:** Making it easy to use for employees at all levels, including field crews and maintenance workers who may not have expert computing skills.

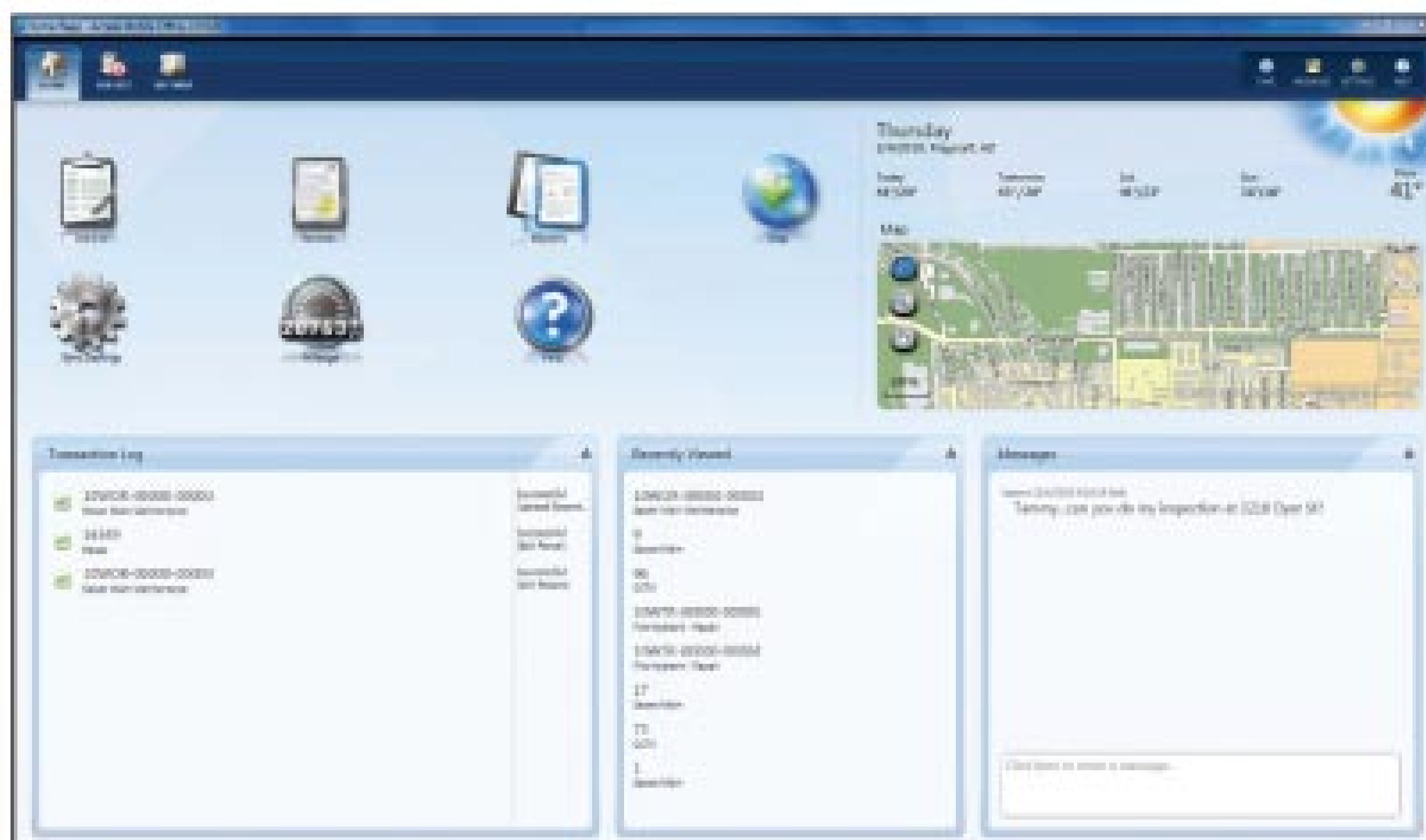


Figure 3. Accela Mobile Office application home screen showing the large-button format that enables touchscreen usage. The transaction log at the left shows verification (green checkmarks) that finished work orders have been submitted successfully.

The application has simple user interfaces that allow the different classes of users to access the various functions.

The application includes Accela GIS, which can import ESRI GIS server data. The company has also licensed a Bing map base layer from Microsoft Corp., giving users free basic mapping capability whether or not they have GIS capability.

Accela Mobile Office, meanwhile, lets work crews carry the full functionality of the program into the field. They can access the central database remotely via wireless or Internet connection, or operate disconnected, synchronizing data with the central system at the start and end of the workday.

The package also uses Microsoft

Silverlight technology, designed to help integrate functions across platforms and support multimedia, graphics, animation, and interactivity in a single interface, all to make workflow easy for users.

The mobile module makes navigation in the system intuitive and simple, providing immediate access to all areas of the application from the home screen. Large buttons and menus provide an easy-to-use interface for agencies that use touchscreen-enabled hardware.

Operation

Bradley demonstrated the two applications by following a sample citizen-reported event from the time of reporting by way of a public Web site all the way through generation of a work order, resolu-

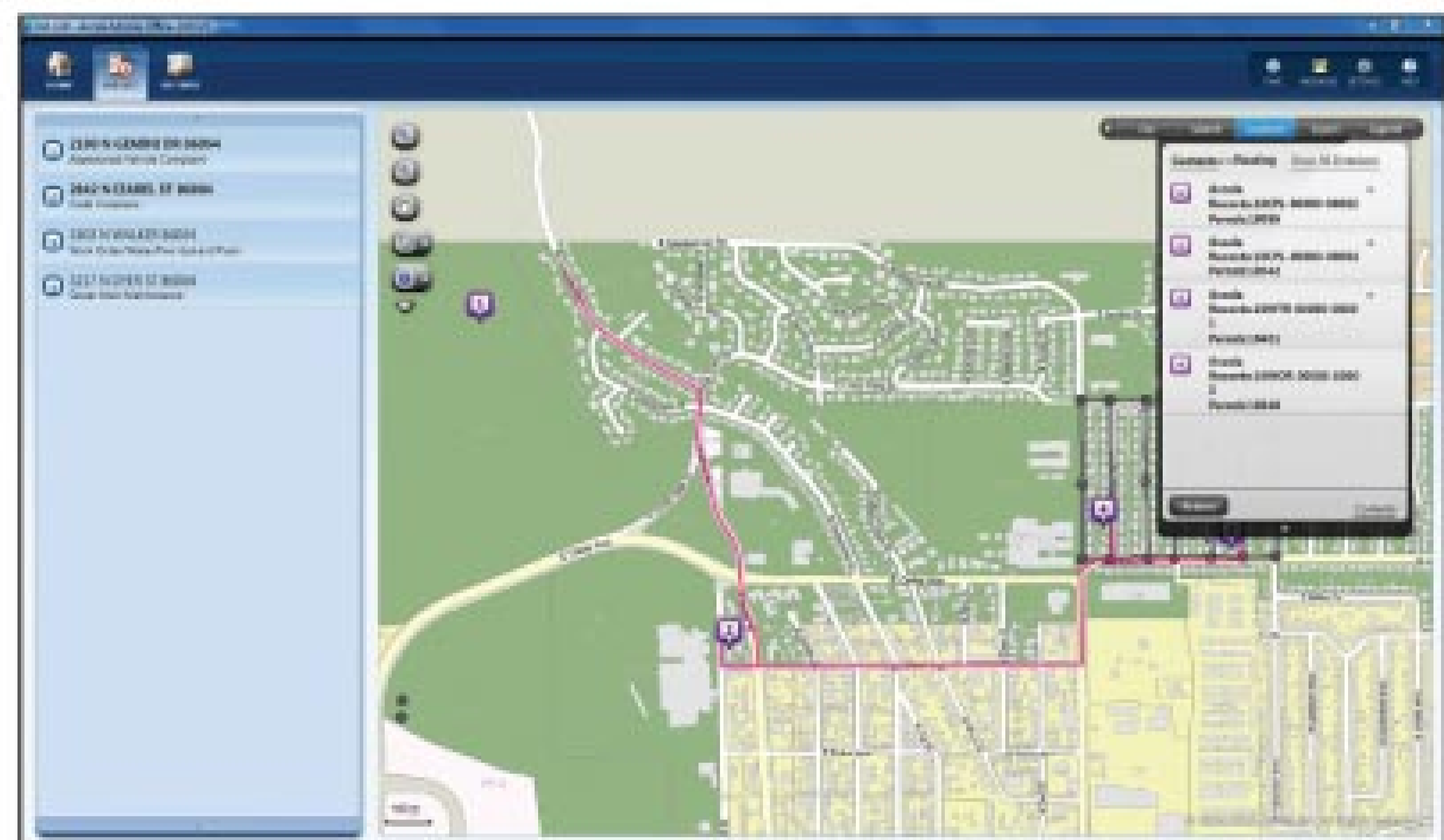


Figure 4. An automatically generated map in Accela Mobile Office shows the route (red line) from one work site to the next, helping a crew plan daily stops.

tion of the issue in the field, and reporting of the result back to management.

The demonstration began at the Citizen Access section of a Web page for the fictional City of Bridgeview. Here, Bradley played the role of a citizen working from the public Web site to report an event near his home at 3217 Dyer Street.

Selecting Service Request from a menu, he chose Sanitary Sewer Overflow and filled out basic information, including the citizen's address and the time of the observation (Figure 1). Bradley noted that each type of service request brings up a template customized by agency managers for that specific purpose.

A click on Continue sent the information to the back office side of the application. The system assigned a reference number to the service request in case the citizen would want to check on progress later.

Leaving the public site, Bradley logged into Accela Automation in the role of a supervisor within the water and sewer department. He

The asset management module is designed to help users track and manage all facets of an agency's assets: water, wastewater, fleet, streets parks and recreation, and others — within a single application. It automates functions that include maintenance, investigations, inspections, costing and inventory.

clicked on an Assets tab and accessed a Service Requests page, where the request just entered now appeared at the top of a list, sorted by time of submission.

A click on that item brought up summary information entered by the citizen as well as blank fields for more information to be added by city workers during the process of investigating and resolving the problem.

Bradley then launched the GIS module, bringing up a map of the neighborhood indicating the Dyer Street address. On that map he zoomed in and out, and then turned on a GIS layer showing sewer lines and manholes (Figure 2). A click on the sewer main in Dyer Street brought up information about that specific pipe.



Figure 5. A municipal or utility worker's image and markups for a project, created in Accela Mobile Office. The image can be attached to a completed work order to show actual work done.

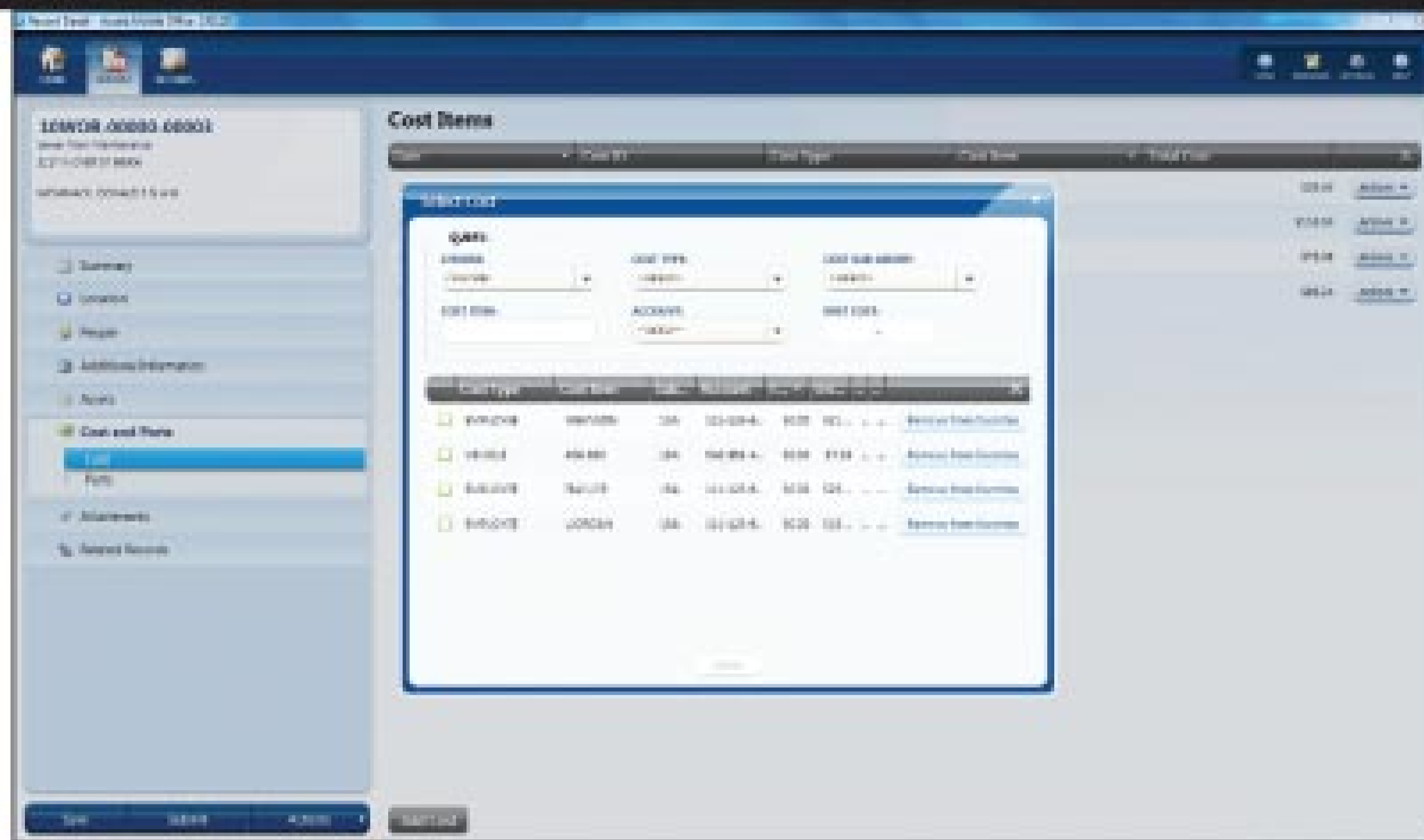


Figure 6. Accela Mobile Office lets work crews enter work order costs in the field, including labor and vehicle time and parts or materials expenses.

He also demonstrated a search using the 3217 Dyer address. When the search returned the result, he used the mouse to drag-and-drop the address into the map, which then highlighted the precise location.

From the Service Requests page, Bradley was able to launch a work order process. When he selected line cleaning from a task menu, the system brought up a work order form calling for information specific to that task. He filled in the form including instructions (“Reported SSO, please flush the line”) and submitted the form.

He then clicked on Work Orders, and the newly created order appeared at the top of a list. He selected that work order and, by way of an Asset tab at the top of the form, was able to access complete information about the sewer line to be cleaned, including:

- Work history (e.g. recent cleanings).
- Pictures and video from past inspections.
- Contract documents.

Bradley then switched to the Accela Mobile Office application to simulate how field crews interact with the asset management program. This application is client-installed, rather than Web-based, so that it can function without a connection back to the central office. This allows for the possibility of “dead spots” in wireless connectivity and accommodates communities that prefer not to invest in wireless capability.

Typically, a field crew supervisor would dock his or her laptop in the central system at the start of the day and synchronize it with the latest data. Synchronization throughout the day is possible for communities with wireless connections.

The mobile application uses a large-button format built with touchscreen devices in mind (Figure 3). “Field workers typically have gloves

“Once I tell the system what I’m doing, that drives what the work order form looks like. The form displays only the information that the agency has decided is relevant. That way, if many departments are using this asset management solution, they’re not having to agree on what the work order form should include.”

Mitch Bradley

on and prefer not to work with a mouse or keyboard,” Bradley says.

Bradley navigated into a list of work orders assigned to the crew. The application automatically created a map (Figure 4) showing the route with job locations marked and with driving directions from one job site to the next. (The user can choose routing based on shortest distances or shortest travel times). On the list on the right side of the screen, Bradley dragged the bottom item to the top, and the program redrew the route. He also showed tools for:

- Determining distances and calculating area.
- Uploading images, such as digital photos, from the field.

- Creating simple drawings and entering instructions on images (Figure 5).
- Reviewing historical records on the asset, including video footage.
- Entering job costs for labor, vehicle and parts/supplies (Figure 6).

Bradley entered information required for completion of the work order and clicked submit. Once the mobile system is resynchronized, office staff members have access to the complete record of the job and its completion. He then returned to the Accela Automation program to show that the report filed from the field had been delivered to the system.

A summary page showed the job cost and breakdown; a document tab enabled viewing of the annotated image created in the field.

Observer comments

The Accela applications demonstrated appear to make a great deal

in customization and training that would pay off in high productivity when the technology is deployed and used from day to day.

Manufacturer comments

Bradley noted that Accela Automation gives municipalities or utilities flexibility to tailor the system to their needs, such as by customizing forms to collect information specific to a given type of service request or work order.

“Then once I tell the system what I’m doing, that drives the content of the work order,” says Bradley. “The form displays only the information that the agency has decided is relevant to each task. That way, if many departments are using this asset management solution, they’re not having to agree on what the work order form should include. The fleet, parks, sewer and other departments all can get their own custom applications within one commercial software package.”

Furthermore, the system enables work orders to be shared among departments and allows more than one group to review and work on a document simultaneously. For example, if a sewer-repair work order requires a pavement cut, the street department may need to be involved. “The workflow within this application accommodates the need for different departments to come in at different times,” says Bradley. “They can all be working off the same work order. And the workflow brings all the information back together once all groups have done what they need to.”

Bradley notes that the Accela applications are internationalized and at present support language packs in English, Arabic, Spanish, Australian English and traditional Chinese. ♦

MORE INFO:

Accela Inc. 888/722-2352
www.accela.com

ESRI 800/447-9778
www.esri.com

OLDEST NAME IN THE BUSINESS

— Over 100 YEARS OLD —

New Ridgid
Calendar **FREE**
With \$500
Purchase

RIDGID



**SeekTech
SR-60™**

**IN
STOCK**

RIDGID's new line of locating equipment meets the most demanding needs of the locating professional. Built to make even difficult locates easy, SeekTech is the only line locator that uses omni-directional antennas, guidance arrows and an easy to read mapping display to lead you quickly and accurately to the target line.

**SeekTech®
ST-33Q™**



Introducing the SeekTech® ST-33Q Transmitter from RIDGID® — engineered to take your locating business farther than ever before. In induction mode, the ST-33Q puts more than 8 times the traditional current on lines at 8kHz or 33kHz. That means you'll be able to trace at least 50% farther, even under the toughest locating scenarios.



**StoneAge™
Warthog™
Nozzles**

WD-1 1/4"
(8-36" lines)

WG-1"
(8-36" lines)

**WH-1/2
& 3/4"**
(6-18" lines)

WT-3/8"
(3-6" lines)

WS-1/2"
(4-8" lines)

WV-1/4"
(2-4" lines)

Allan J. Coleman Co., Since 1905 - Call us today! 773-728-2400

"THESE PRODUCTS ARE SO GOOD, WE GIVE YOU OUR ADDRESS!"

5725 North Ravenswood Avenue • Chicago, IL 60660 • www.allanjcoleman.com

PHCC MEMBER



One Stop

for all your

Jetting & Vacuum Parts

**BUY
ONLINE!**

EPA

ENVIRONMENTAL
PRODUCTS &
ACCESSORIES

**FREE
CATALOG**

with **PRICES!!**



Your Trucks.

Our Parts.

WWW.EPASALES.COM
866-448-5547

INFO@EPASALES.COM
Chattanooga, Tennessee

BUILDING DIVERSITY

More minorities in the workplace add valuable new perspectives and ideas. Recruiting and retaining a diverse workforce takes a concerted effort.

By Ken Wysocky

With the “silver tsunami” retirement wave sweeping through, utilities and other public sector organizations face a golden opportunity to increase employee diversity. But whether they succeed in transforming their workforces depends largely on how they go about recruiting, managing and retaining minorities.

“This is an unprecedented opportunity,” says Jim Bonilla, an associate professor of conflict studies at the Hamline University School of Business in St. Paul, Minn. and co-director of the school’s Race, Gender and Beyond faculty development project. “There’s great potential there. But if they do things the same way they always have, organizations will end up with the same kind of workforce they’ve always had.”

Demographics changing

Diversity is important to public-sector organizations because in many cases their customer demographics are changing dramatically. Bonilla relates an instance where sewer inspectors in New Jersey found it difficult to troubleshoot in the field because they couldn’t communicate with a growing Hispanic population.

“So, if you’re trying to educate people about water conservation, and there are a lot of new people in a community, you can’t use the same communication methods,” he notes. “Or you might be aware

that the audience has changed, but you may not know how to shift the message so that you’re reaching the people you want to reach.”

Internally, diversity is critical because it ensures the emergence of new and different ideas. That’s a dynamic that some organizations — especially those that are more bureaucratic and set in their ways — have been slow to embrace.

“Fortune 500 companies have been doing it for decades,” Bonilla says. “They see that the ability to solve problems innovatively is based on bringing different perspectives to the table. They’re not doing it because it’s socially just or an ideal. They see it as a business imperative. They understand they can’t compete in an increasingly global market without diverse teams. It’s the clash of ideas that creates innovation.

“How do you provide the best possible service for citizens who are significantly different than the population you served 20 years ago? Clearly, the new employees coming in will need a set of cultural competencies that the people they’re replacing didn’t require. And the people who stay will also need those competencies to effectively problem-solve and communicate across different cultures.”

Breaking down barriers

So how do organizations do more than just pay lip service to ethnic and gender diversity? First, it helps to understand the stages

that organizations typically go through in becoming more diverse.

“In the first stage, there are very few women and people of color,” Bonilla says. “Then you reach a point where you might have, say, 20 percent people of color, but mostly in entry-level positions. Next, minorities have equity in positions throughout the organization. And last, organizations start to look beyond race and gender.”

To chart a course for more diversity, organizations must first assess where they are: determine what works well and what must change. That includes shedding old mindsets and debunking myths that set up barriers. For instance,

“When managers see things like financial incentives in place, they think, ‘Hmmm, they’re really serious about this.’ Over time, this shifts the overall culture of an organization. Then you’re no longer talking the talk when it comes to diversity — you’re walking the walk.”

Jim Bonilla

some managers believe minorities aren’t interested in public-sector careers because private-sector jobs pay more — yet research shows students of all races have the same salary expectations.

“You have to recognize organizational patterns that exclude people of color and create a self-fulfilling prophecy,” Bonilla says. For instance, some managers only refuse to recruit minorities or do

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.

so half-heartedly because they believe a long-standing myth that minorities aren’t interested in their field. “Then, at the end of the job search, they say, ‘See? There’s nobody out there,’” Bonilla notes.

Same old, same old

Another pitfall involves using the same recruiting methods and resources. An example is the hiring manager who always sends out letters to the same professional colleagues or to their colleges when searching for recommendations. Instead, managers should search for professional networking groups that cater to minorities, and advertise in publications that minorities read.

“Traditional managers often are clueless about them and don’t reach out to these groups,” Bonilla says. “You’ve got to get them thinking out of their boxes.”

Managers should also make a point of meeting minorities at trade shows, seminars and conferences. By networking ahead of time, they won’t find themselves behind the eight ball when it’s time to fill a new position. And

after establishing new relationships, managers can ask those people to suggest even more contacts.

"The most effective search committees start with people of color," Bonilla says. "By establishing networks that cultivate even broader networks, you can bring in a larger pool of candidates."

Mentoring is key

After bringing minorities on board, it's critical to go the extra yard and provide mentors. Minorities often feel as though they're living in a fishbowl and need someone they can rely on for support and guidance. "If you go to all the trouble of recruiting minorities, but don't create a climate where they can succeed, with things like mentoring, you're guaranteed to fail," Bonilla warns.

Mentors must be sensitive to the needs of minorities. They need to walk a fine line between being critical yet constructive. One common concern is managers who avoid criticizing for fear of being called racist. It helps if a woman can mentor a woman or a Latino can mentor a Latino, but if this peer mentoring isn't possible, managers should be trained how to mentor people of color, Bonilla says.

"Peer mentors are important because they can take feedback and communicate up," Bonilla says. "They can tell management about certain issues that a minority employee may not feel comfortable doing." In addition, organiza-

tions should go beyond traditional peer mentoring between a manager and an employee and create subculture support groups where minorities of similar backgrounds can meet, compare notes and exchange ideas.

Hold managers accountable

To demonstrate that management is serious about diversity, upper management and line managers should receive diversity training. "When people see top management going to training, it's a very powerful symbol," Bonilla says. "You can't just push it down to the line managers."

Top management also needs to give line managers incentives to embrace diversity by rewarding them financially and making diversity a part of their annual goals and performance reviews. For instance, managers and supervisors could be graded on how well they work with diverse groups or attract and retain minorities. This emphasis can extend to hiring managers who have experience working with diverse populations or are bilingual, Bonilla notes.

"When managers see things like financial incentives in place, they think, 'Hmmm, they're really serious about this,'" Bonilla says. "Over time, this shifts the overall culture of an organization. Then you're no longer talking the talk when it comes to diversity — you're walking the walk." ♦



IT'S A Bag Full

mswmag.com 

- > Classifieds
- > Used Equipment
- > E-zines
- > Product Categories



MUNICIPAL SALES
A Root & Grease Control Company

We Put the Control in Root Control



Vaporooter

518.747.2044
fax: 518.747.5490
mark@municipalsales.net
www.municipalsales.net

He tried reaching a support person

this doesn't have to be you.



Get Real Time Tech Support by Real Live Tech People

flexidata Tech Support is a real person on the other end of the phone that talks you through your problem and gets you working as quickly as possible.

Your real time issues deserve real time answers. Call today to learn more about the industry's best after-sales support program for pipe survey pros.

866.299.3150 | 760.779.1700
www.flexi-data.com

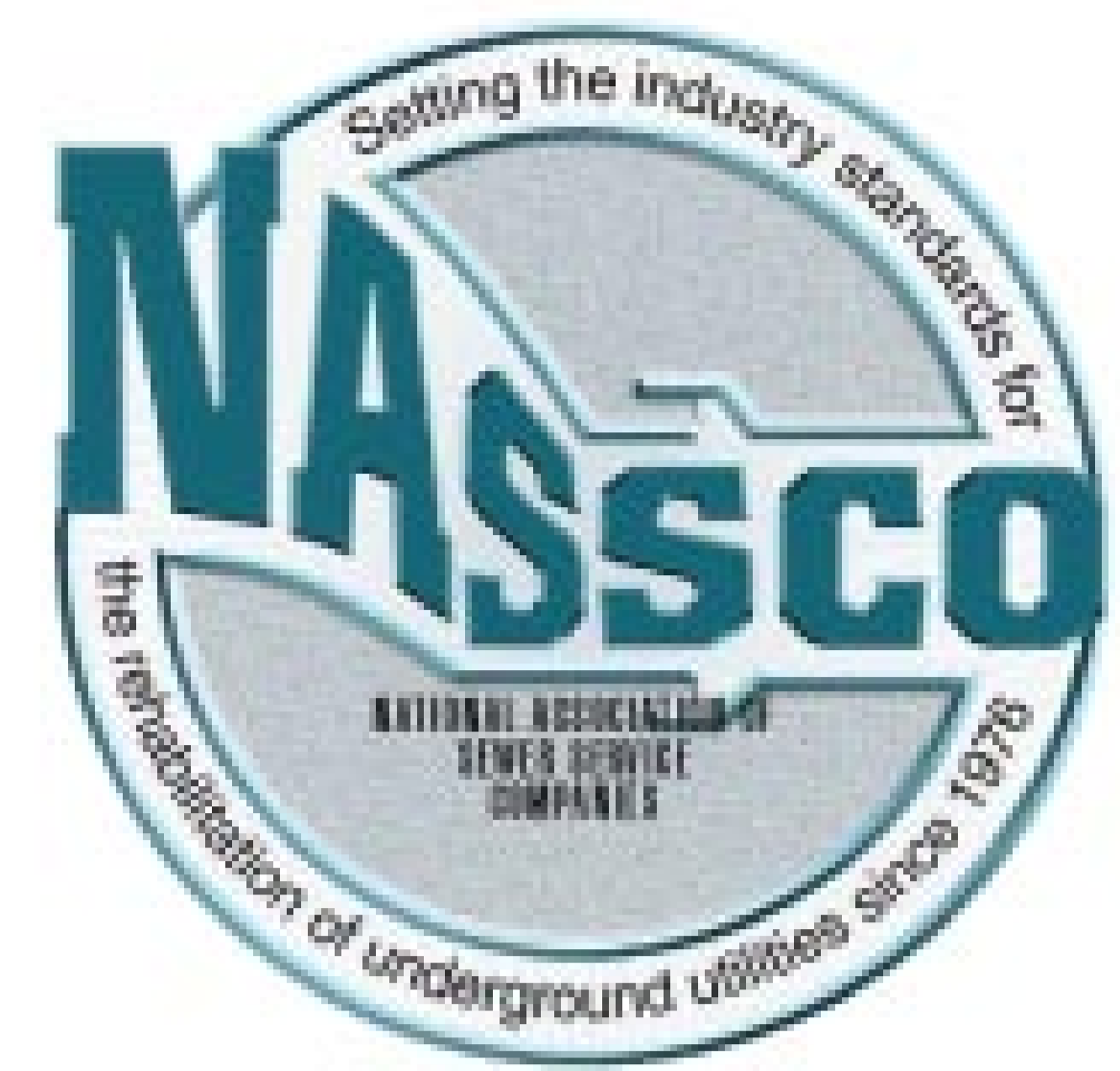


Trademarks provided under license from DSP

EDUCATING OUR PUBLICS

Telling people about basic behaviors that affect sewer and stormwater systems can help mitigate a host of costly infrastructure problems

By Irvin Gemora



Anyone in the sewer industry knows that sewer systems are designed to handle three things: water, human waste, and toilet paper. When an overflow occurs, it's usually because improper materials were put down the drain.

These improper materials include fats, oils and grease; solids such as meat bones, fruit and vegetable rinds, potato peels and corn cobs; paper goods such as paper towels, newspapers, handy wipes, diapers, napkins, and tampons; and hair from shower drains and basins.

All this "stuff" helps cause about 40,000 sewer overflows and thousands of combined sewer overflows each year, according to EPA estimates. The overflows occur as a result of pipe blockages and breaks, infiltration and inflow, equipment failure, or system overload.

The untreated sewage and wastewater contaminates our waters supplies and causes backups in

basements, property damage, and threats to public health. In addition, sewer overflows can increase water and sewer fees and affect taxes.

Because most sewer backups occur between the house and the city sewer main, where the homeowner is responsible for the problem, blockages can result in costly plumbing bills.

What can we in the industry do about this problem? We can take steps to educate our general public — how what seems like a harmless activity of tossing a few eggshells in the garbage disposal can lead to a big plumbing bill later. Use all your communication channels to reach out to your community. Here are a few ideas:

- **Use the municipality Web site.** Post information on how to care for the pipes and what to do in case of an emergency or if something goes wrong.
- **Leverage the Internet.** Consider creating and posting a YouTube video on how to tackle fats, oils and grease.

- **Contact the media.** Options for engaging the press include issuing a news release or news advisory or sending a letter to the editor. Radio stations will run public service announcements for free if they feel they are of interest to listeners.
- **Submit articles.** Include notices in bill stuffers and municipality newsletters. Contact homeowner associations and submit articles for inclusion in the newsletters.
- **Present at schools.** Classroom

surized, so tree roots and other outside destructive forces can easily cause damage. Roots will creep toward a sewer pipe, trying to find water. A root the size of a strand of hair can do damage if not treated properly. Unless they are disturbed, roots will continue growing and eventually form root masses that catch grease, paper, and other debris and cause a blockage.

Tell people that stormwater runoff packs a double punch. It can create a system overload and contribute to a sewer backup.

Be sure your communication explains that the pipes beneath the ground are in desperate need of repair: Many are more than 100 years old and beyond their designed lifespan.

presentations convey the message not only to students but also to their parents. Engage students by promoting a poster contest.

- **Go to the mall.** Many shopping malls host health and safety fairs where organizations can participate to promote their business or cause. Apply for a booth at the next fair.
- **Get personal.** Tell your neighbors, relatives and friends.

Be sure your communication explains that the pipes beneath the ground are in desperate need of repair: Many are more than 100 years old and beyond their designed lifespan. Tell your audience that there are certain wastes that should never be put down the drain because the high-acid content erodes concrete and accelerates wear and tear on the pipes.

These wastes include cleaning fluids, antifreeze, thinners, paints, solvents; flammable, reactive, explosive, corrosive, or radioactive substances; medical or infectious wastes; and toxic substances and pollutants that can emit hazardous gases.

Explain that pipes are not pres-

Flowing off of pavements, yards, driveways, and roofs, it carries pollutants and debris that can harm or block pipes. Behaviors that contribute to harmful runoff are littering, applying excessive lawn fertilizer, washing cars or changing motor oil on driveways, and failing to pick up after pets.

While these reminders may seem basic for us in the trenchless technology industry, they come as a surprise to many homeowners. As experts, we have a responsibility to make the public aware of and concerned about the significance of their behavior. NASSCO encourages industry professionals to spread success stories and educate their publics.

It takes proper practices to protect the pipes. Wise use of the sewer system and performance of simple preventive maintenance will help safeguard the system and reduce costs for everyone. Let's help get the word out today. ♦

Irvin Gemora is executive director of NASSCO. He can be reached at director@nassco.org. The NASSCO headquarters is at 11521 Cronridge Dr., Suite J, Owings Mills, MD 21117.

STEP UP

Take a stand for better and higher quality CIPP installations.

Complete Nassco's two-day Inspector Training Certification Program (ITCP) and expand your knowledge of CIPP technology, the fastest-growing method for sewer pipeline rehabilitation.

Why is this training important? Because it's critical to everyone involved in CIPP design and inspection. Consulting engineers know their reputation depends on successful installations, and municipalities can relax when they hire an ITCP-trained expert, knowing the job will be properly inspected. But most importantly, with NASSCO's ITCP, the industry's most rigorous and well-respected training programs, everyone wins by improving standards for higher quality CIPP installations.

Please call or visit our website for training dates and registration information.



NASSCO, Inc. (410) 486-3500 www.nassco.org

BACK BY POPULAR DEMAND!

Factory Authorized Rebuild Program



For a limited time, Vactor Manufacturing in conjunction with their North American Dealer Network is offering their Factory Authorized Rebuild Program complete with:



- FREE all point inspection
- Genuine OEM replacement parts
- Repairs made by factory trained technicians
- 1 year warranty on dealer installed parts
- Good for 2100 Fan and PD, 2103, Ramjet Jetter
- A 10% discount on parts*

Contact your Vactor dealer for details or visit www.vactor.com for a dealer near you

*Subject to dealer participation. ©Vactor Manufacturing, 2009



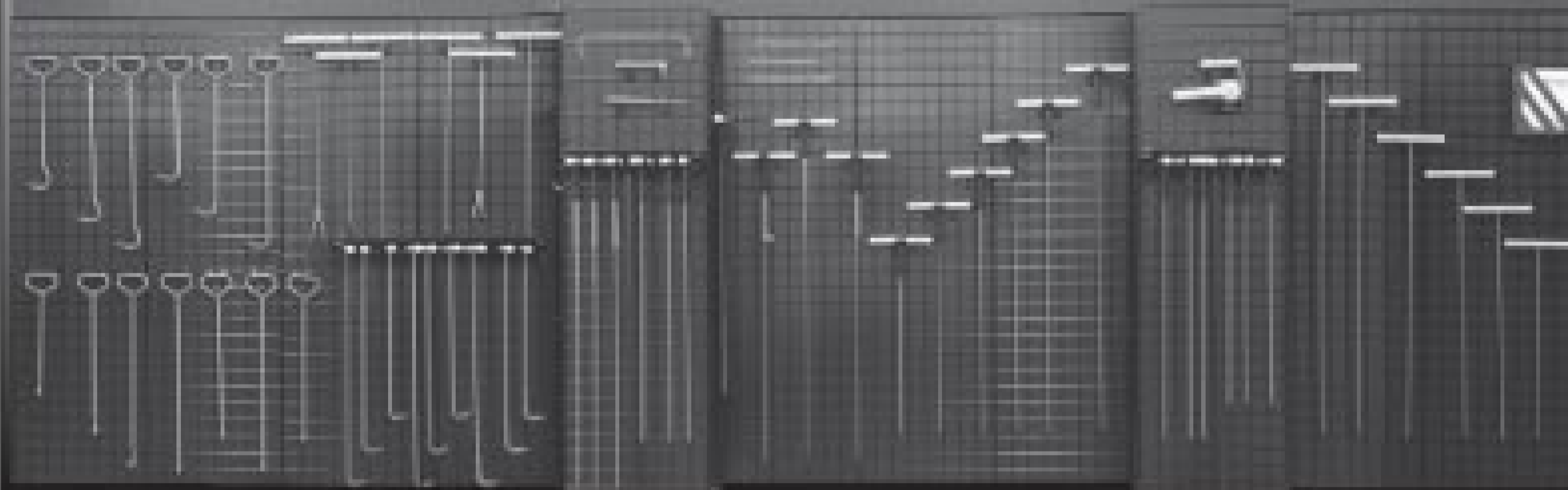
T&T Tools, Inc.

800.521.6893

Probes & Hooks

T&T Tools, Inc.

Probes & Hooks



Hooks...

- Heat treated for long life
- Manhole Cover Hooks
- Septic Tank Lid Hooks
- Many styles available
- "T" handles for two hands or compact "D" handles

Probes...

- Insulated, Standard and Specialty
- Metal shafts: 3/8 round or hex
- Replaceable hardened tips
- Optional "slide" available to make your probe a mini-slide hammer

Call for a FREE Catalog

Email: sales@tandttools.com

Fax: 800.521.3260



Paikert™



Jaws™
10-Year Limited Warranty



C-Ray™ 400



Orca™



Spinner™



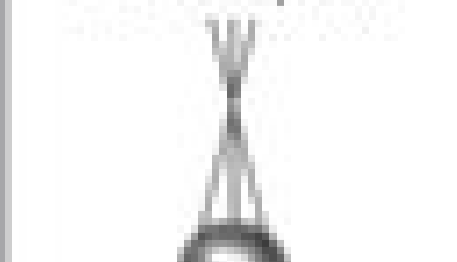
Hammerhead™
5-Year Limited Warranty



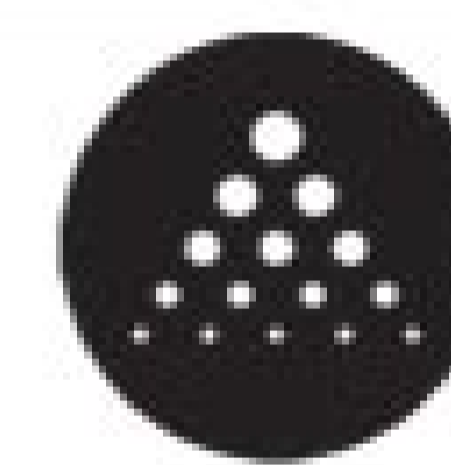
C-Ray™ 800



BL Swiper™



IceBear™



NozzTeq®

Taking Science to the Sewer!™



Lumberjack®

Equipment Engineered for Long Lasting Performance.™

Rental and Leasing Services Available!

Call For FREE DVD

www.nozzteq.com

Phone: 1.866.620.5915 Fax: 603.413.6744

Product Spotlight

Camera Transporter Switches Between Wheels and Tracks

By Ken Wysocky

The WTR III transformer transporter inspection camera from CUES Inc. can quickly change between wheels and optional high-traction tracks, allowing it to navigate a variety of conditions in 6- to 30-inch pipes.

"In clean or new pipe, tracks work great," explains Paul Stenzler, vice president of sales. "But in pipes with debris or sand, wheels tend to perform better. Because our customers encounter all kinds of conditions, we designed a transporter that offers the best of both worlds, so they don't have to own two machines."

The unit's base configuration has wheels in various sizes to adapt to pipe conditions. A single-point removal system means changing sizes takes only a few minutes. "You don't have to loosen, say, six things to take off the wheels," Stenzler says. "There's just one tool and one turn, and the wheel comes off." Converting from wheels to tracks takes 10 to 15 minutes.

The unit uses two different transmission assemblies to generate sufficient torque to maintain traction with the various-sized wheels and the tracks. "Larger tires provide greater speed, but less torque, unless you compensate for it with gear reduction," Stenzler points out. "You also have to compensate for the slower speed when you use the tracks."

Weighted adapters help increase traction and raise the unit higher, increasing bottom clearance and keeping the camera head optically centered in different-sized pipes. "With more bottom clearance, the transporter can traverse debris, instead of pushing it along like a bulldozer," Stenzler says. "And having the camera centered in the pipe optimizes light output and keeps it high enough to clear most flows."

The unit accommodates the CUES OZ III pan-and-tilt zoom camera and OZ III Nite Lite pan-and-tilt camera. The camera fits snugly into a docking bay with a mating connector built into the transporter carriage. That eliminates external cables, which can get tangled in debris and get stressed during insertion and retrieval, Stenzler says.

"The unit is very compact," he says. "It can accommodate almost any kind of pipe condition and provide optimal setup for efficiency, distance and clearance in various pipe conditions encountered in sanitary and storm sewer systems." **For more information: 800/327-7791; www.cuesinc.com.**



WTR III transformer transporter inspection camera from CUES Inc.



General Offers Gen-Eye Spectra Video System

The Gen-Eye Spectra video inspection system from General Pipe Cleaners features a 160 GB hard drive, DVD recorder and 15-inch LCD color monitor and self-leveling camera.

The system can record up to 290 hours of video directly onto the hard drive and copy sections to the DVD-R recorder for customers. Designed for inspection of 2-inch through 10-inch lines, the system also has a built-in AC/DC converter, onscreen distance counter, titler, built-in voice-over unit and Kevlar fiberglass core pushrod in 200-, 300- or 400-foot lengths. **877/273-7246; www.drainbrain.com.**

Perma-Liner Releases Pull-In-Place CIPP

Pull-In-Place CIPP from Perma-Liner Industries Inc. features 100 percent solids epoxy and 3-hour cure time with ambient resin (hot water and steam cure can be completed with cure times of less than one hour). Designed for 3-inch through 36-inch diameter pipes, 4-inch through 6-inch transitions are available in any length. The system nearly doubles the ASTM F1216 Specification on the minimum design life of 50 years and allows for multiple installations per day with either ambient or heat-assisted curing. **866/336-2568; www.perma-liner.com.**

Gateway Offers Two Styles of Eye Protection

Scorpion MAG and StarLite MAG bifocal eye protection from Gateway Safety are available in four diopter strengths: 1.0, 1.5, 2.0 and 2.5. Designed for aging workers, the Scorpion features an adjustable length, ratcheting temples and comes in either clear or gray lenses. The StarLite comes in clear, anti-fog or gray. **800/822-5347; www.gateway-safety.com.**

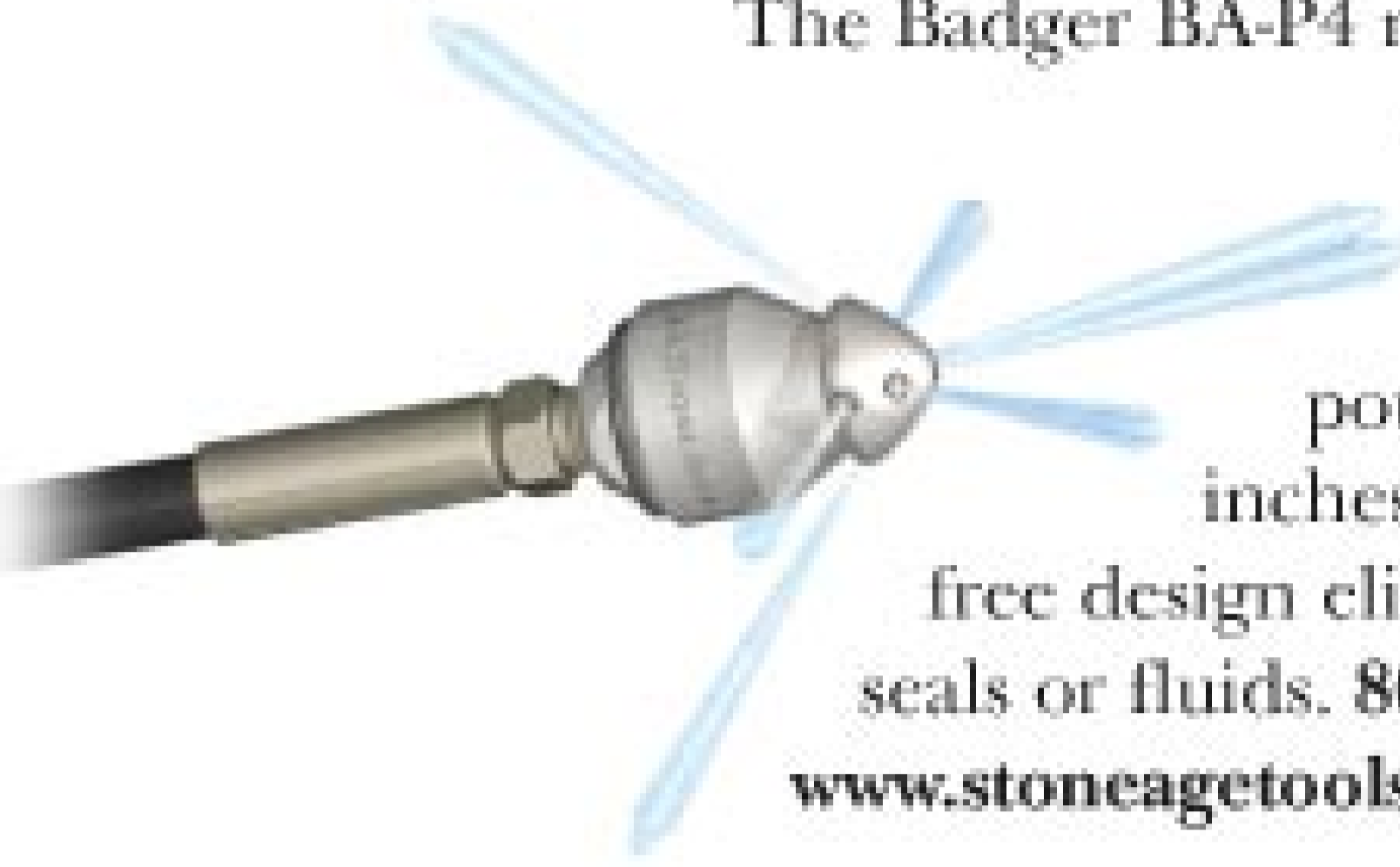


NLB Offers 325 Series Convertible Waterjet Pump

The 325 Series convertible waterjet pump from NLB Corp. offers an operating pressure range up to 40,000 psi. Units can be converted to operate at 8,000 psi, 10,000 psi, 12,000 psi, 15,000 psi, 20,000 psi, 24,000 psi or 40,000 psi. The unit offers flows from 12 to 74 gpm and 365 or 400 hp diesel. An update kit for earlier 325 models is available. **248/624-5555; www.nlbcorp.com.**

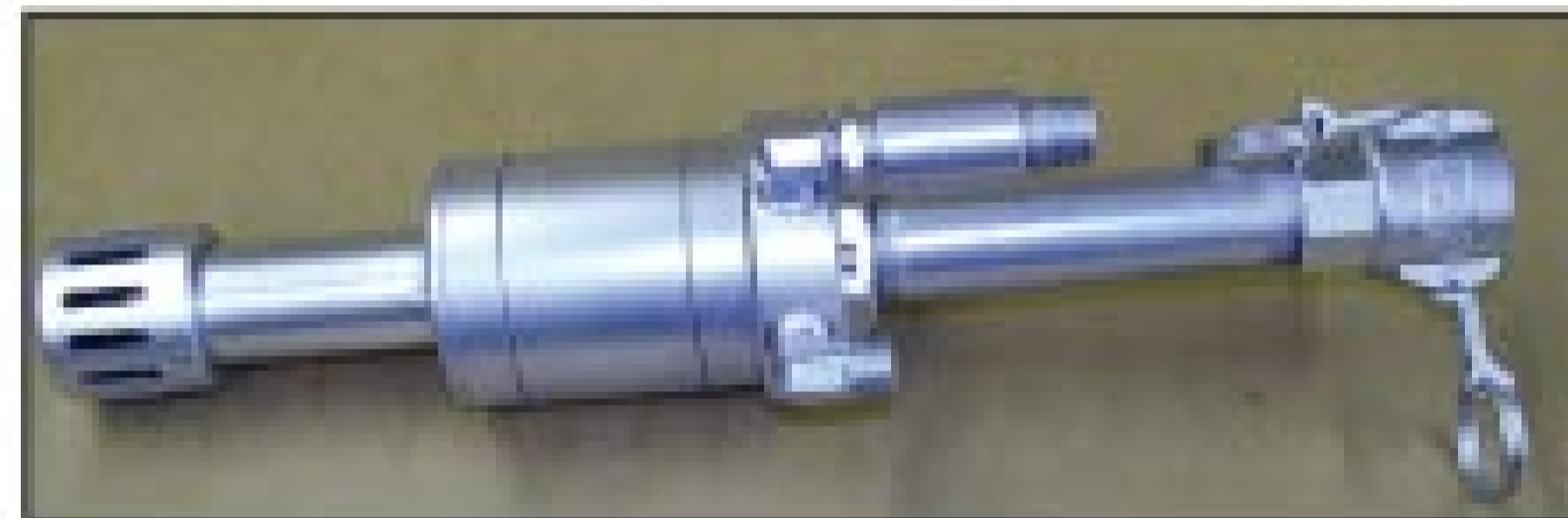
StoneAge Introduces Badger BA-P4 Nozzle

The Badger BA-P4 nozzle from StoneAge Tools is designed to handle 2-inch pipes with long sweep elbows. The nozzle weighs less than 1/5 pound, is 2 inches long and 1/3 inches in diameter. Its maintenance-free design eliminates the need for bearings, seals or fluids. **866/795-1586;** www.stoneagetools.com.



MSA Offers Workman Tripod

The Workman tripod from MSA is designed for confined-space entry and features an internal leg-locking mechanism, maximum height indicator on the legs, cut-resistant leg pin retention chains, reduced weight and integral carrying strap. **877/672-2222;** www.msanet.com.

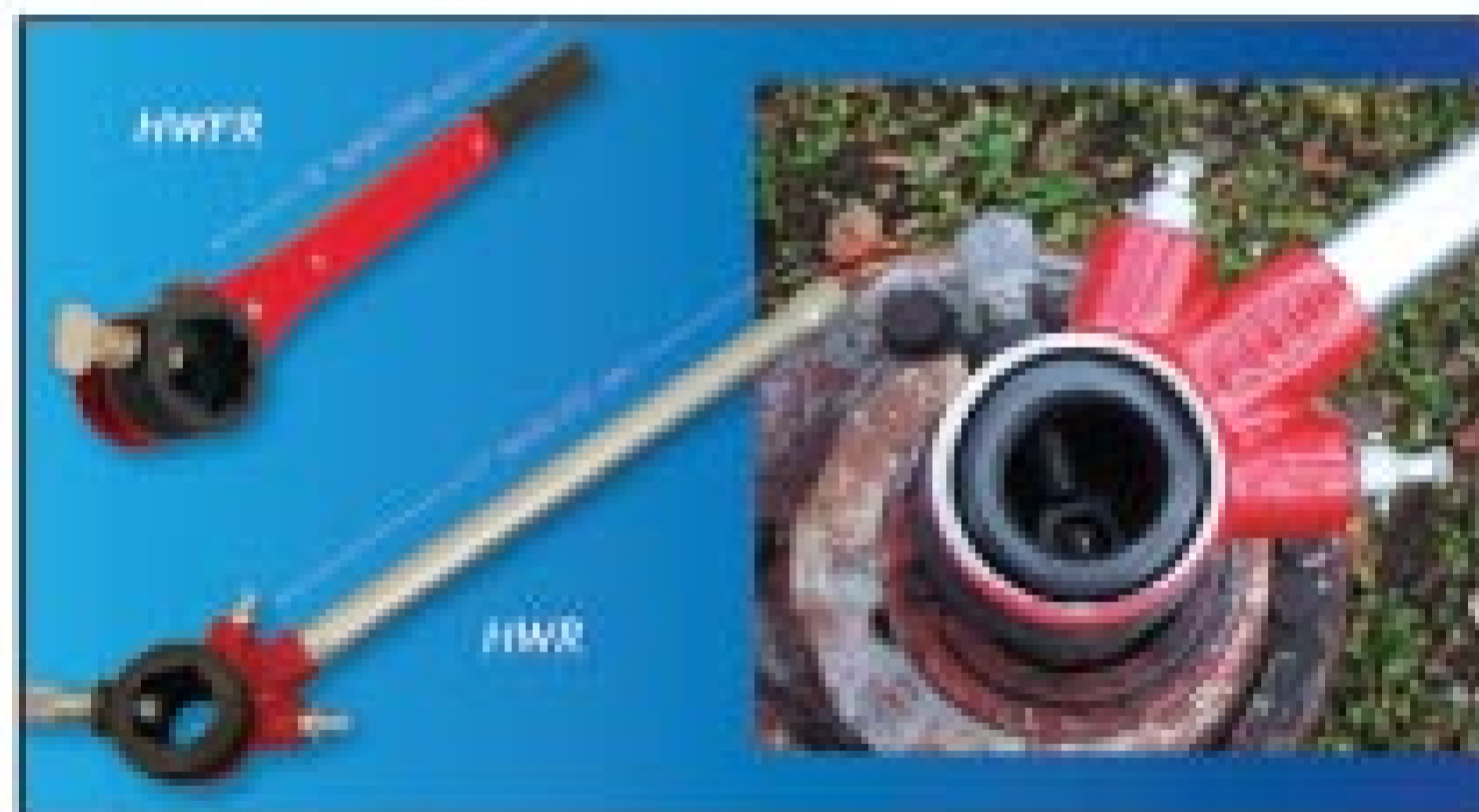


RFI Construction Introduces High-Speed Spinning Nozzle

The SPN high-speed spinning nozzle from RFI Construction Products is designed for applying wet shotcrete mortars, grouts and epoxies to circular surfaces, such as pipe, manholes and wet walls. The nozzle can line 4- to 120-inch diameter areas. Linings can range from 1/8 to 4 inches thick. The spray head is powered by its own, operator-controlled motor. Nozzles range from 1/2 to 2 inches in diameter and can handle fibers and aggregate up to 3/8 inches in diameter. **631/752-8899;** www.rficonstructionproducts.com.

Reed Introduces Ratcheting Hydrant Wrenches

Ratcheting hydrant wrenches from Reed Manufacturing Co. feature a long handle and adjustable, snug-fitting socket for tackling up to 1 7/8-inch pentagon nuts or 1 1/4-inch square nuts. Sockets adjust using a thumb screw. **800/666-3691;** www.reedmfgco.com.



ENECON Introduces DuraWrap Pipe, Tank Repair

DuraWrap pipe and tank repair from ENECON Corp. is a polymer/carbon fiber reinforced composite made for repairing and rebuilding aging and severely deteriorating

piping and tanks. The wrap can be applied to the interior or exterior of piping and equipment to both seal and strengthen. **888/436-3266;** www.enecon.com.

FCS Offers PermaNet Leak Detection

The permanent wireless network from Fluid Conservation Systems, a division of Halma Water Management, delivers regular leak detection reports while eliminating the need for municipal utility crews to perform site visits and drive-by patrols. The system works with FCS Permalog leak noise loggers — wireless devices that attach magnetically to pipes and “listen” for noises caused by water leakage. The system also can be configured to send an alert whenever a logger detects a potential leak. **800/531-5465;** www.fluidconservation.com.



Hurco Offers Fire Flow Pro Testing System

The Fire Flow Pro testing system from Hurco Technologies Inc. is designed to provide precise data collection of hydrant flow capacities. The system is GPS compatible with the ability to enter an address. Wireless radio frequency enables one-person operation. A hydrant nozzle cap with wireless sensor installs on the hydrant. A fire hose connects to the Hose Monster or Pitotless Nozzle with wireless sensor. When the hydrant is opened, the system records pitot pressure, residual pressure, gpm, gallons used and elapsed time. TrackOne software creates a master hydrant report and determines NFPA classifications. **800/888-1436;** www.gethurco.com.

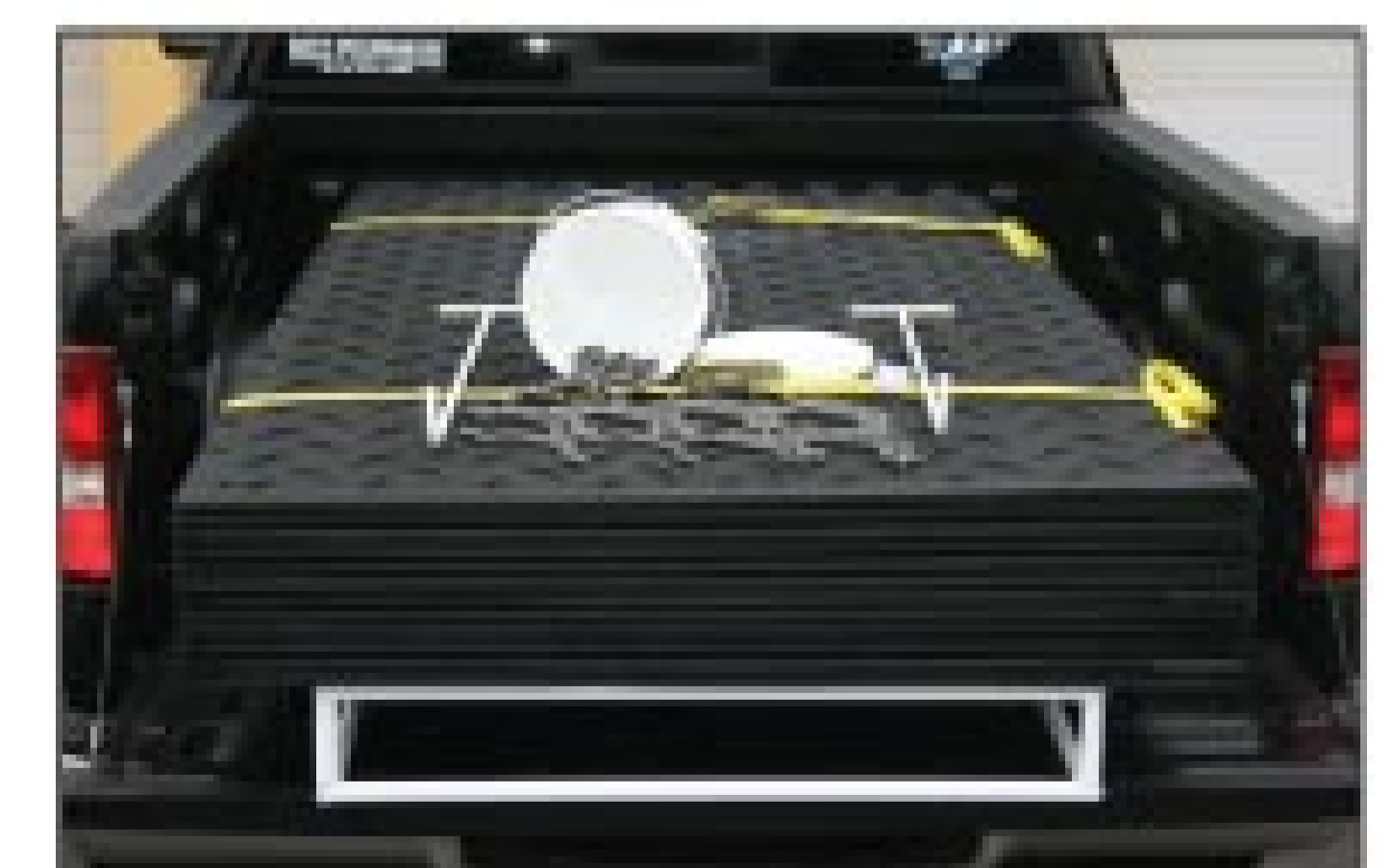


SewerVUE Designs Ground-Penetrating Radar System

The Surveyor robot-mounted, in-pipe, ground-penetrating radar pipe inspection system from SewerVUE Technology Corp. is mounted on Inuktun V 150 tracks and equipped with two high-frequency antennae. The system can be adjusted between 18- and 30-inch diameter pipe, while the GPR antennae can be rotated between the nine and three o'clock positions. Radar data collection is continuous on two channels in both in and out directions, providing a continuous reading on pipe wall thickness, rebar cover and locating voids outside the pipe. CCTV data is recorded simultaneously and correlated with GPR data collection. The unit is equipped with two cameras (front and back). Standard tether length is 1,500 feet that can be upgraded to fiber optic cables to a maximum length of 6,000 feet. **604/291-9391;** www.sewervue.com.

AlturnaMATS Redesigns Turn-a-Racks

The Turn-a-Rack from AlturnaMATS, designed for storage and transport of ground-protection mats, has been restructured using round steel instead of square, reducing rack weight by 30 percent while improving strength. The racks are part of the MatPak complete package, or can be purchased separately. They can be loaded from either end or side, with four-way forklift entry. **888/544-6287;** www.alturnamats.com.



Electric Eel Introduces EJ1500 and EJ3000 Jetters

The EJ1500 electric and EJ3000 gas jetters from Electric Eel Manufacturing Company Inc. are engineered to clean 1 1/2-inch to 8-inch lines. The EJ1500 cleans 1 1/2- to 4-inch diameter lines and delivers 1,500

psi at 1.7 gpm. Features include 15-amp motor, duplex pump with pulsation, 150-foot 1/4-inch hose reel capacity, removable pump/motor assembly, thermal relief valve and inlet shut off valve and removable handle/reel. The EJ3000 cleans 2-inch through 8-inch diameter lines up to 300 feet and delivers 3,000 psi at 4.7 gpm. Features include a 13 hp overhead valve engine with electric-start option, 2-to-1 gear reduced triplex pump with pulsation, 300-foot capacity hose reel, automatic throttle back control and low-tone muffler. **800/833-1212; www.electriceel.com.**



Williams Innovations Introduces Movable Hitch Adapter

The TeleSwivel hitch adapter from Williams Innovations enables an individual to connect a truck and trailer in a single pass. The adapter features a target zone that's 25 times larger than a standard ball hitch. The coupler inserts into any 2-inch receiver. To use, the operator backs into position, swivels the hitch, connects and backs up to lock into place. The adapter is Class IV rated for up to 10,000 pounds gross trailer weight, 1,000-pound tongue weight and accepts any size ball. The BX model accepts a three-ball or pintel hitch, while the Pro adapter is rated at 14,000 pounds and comes with a 2 5/16 and 2-inch ball as well as pintel capability. It also features 7 inches of drop for easier hookup. **919/794-5484; www.teleswivel.com.**



WEG Introduces NEMA 4X Wash Down VFD

The CFW08 Wash Down variable frequency drive from WEG Electric Corp. is designed for harsh environments exposed to water, sprays, high humidity and dust. Rated for heavy-duty applications and 150 percent current overload capacity, the unit can handle temperatures from 32 degrees to 104 degrees F with 90 percent humidity at altitudes up to 3,300 feet. **800/275-4934; www.weg.net/us.**

Kuriyama Introduces Tiger-TRI Hose

The Tigerflex Tiger-TRI heavy-duty, rubber blend, wet and dry vacuum hose from Kuriyama of America Inc. is made with rigid PVC helix for lightweight, flexibility and durability. Smooth bore construction eliminates material buildup, while the convoluted cover design keeps the hose flexible for easier handling and durability. Made to withstand temperatures from -40 degrees to 150 degrees F and working pressures from 13 to 32 psi, the hose is available in 2- to 6-inch I.D. and 2.38- to 6.88-inch O.D. It has a vacuum rating of 24 through 28 Hg, a minimum bending radius of 1.5 to 9.5 inches at 68 degrees F and is available in 20-, 50- and 100-foot lengths. **847/755-0360; www.kuriyama.com.**

Wachs Introduces Water Maintenance Programs

Street Asset Protection Services from Wachs Water Services, formerly Wachs Utility Services, is designed to ensure access to water assets before, during and after road construction. Wachs also offers the Hydrant Maintenance and Management program for the protection of people and property, Operational and Intelligence Services that transform data into information to effectively manage the system and Critical Customer Protection, a 100 percent uptime for hospitals, critical care providers, schools and other facilities. **800/525-5821; www.wachswaterservices.com.**



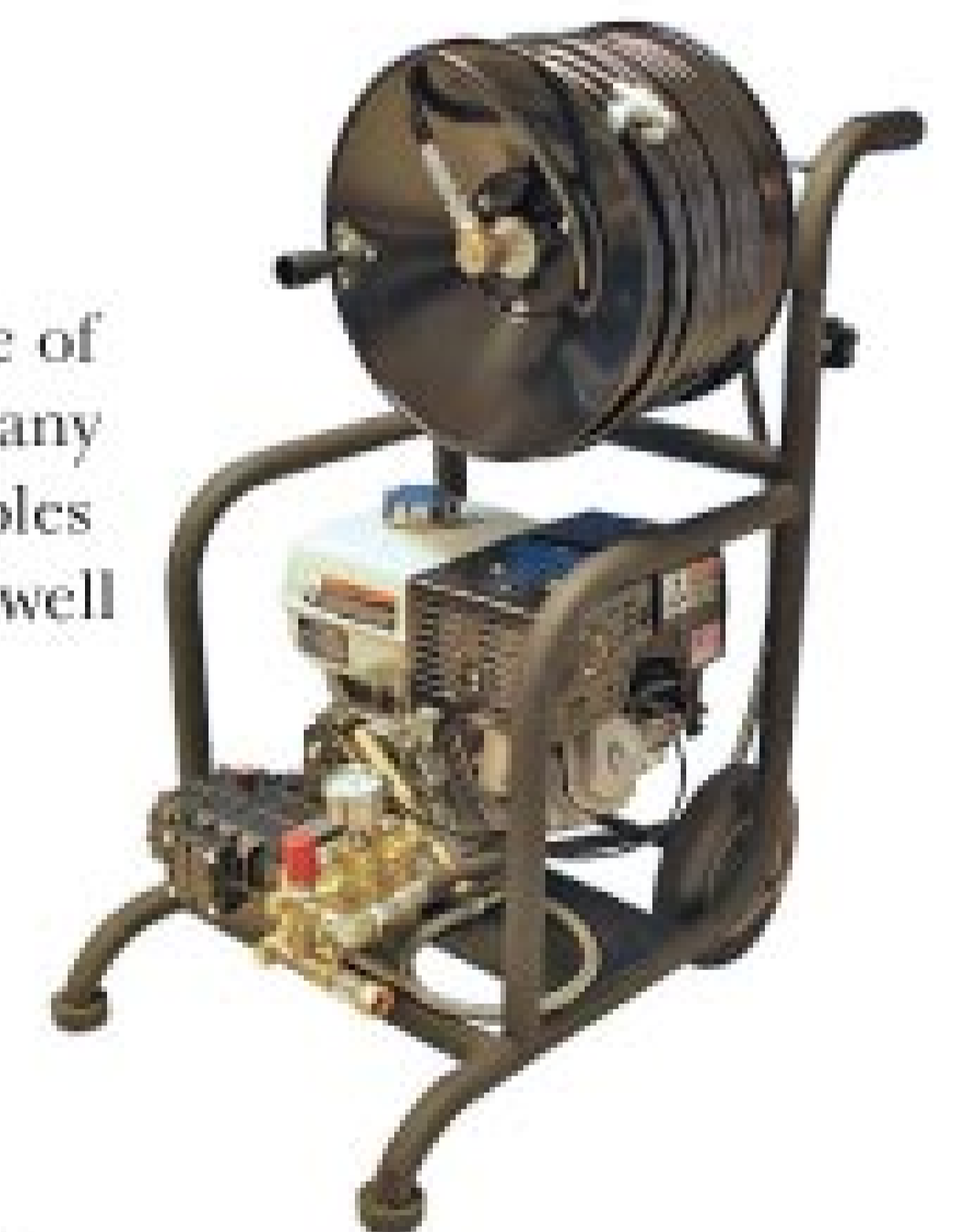
McLaughlin Introduces GPS-Enabled Locator

The Verifier G2 GPS-enabled utility locator from the McLaughlin Group features one-touch operation and software applications that enable it to share real-time data with an integrated Magellan GPS unit installed on the locator. The program enables the receiver, through a serial port, to export real-time depth, current measurement index, frequency and locator mode (peak or null) to the integrated GPS unit. A second program enables Windows-based GPS units to receive the locator data. When the GPS unit receives the data, it cues the Magellan unit to record the latitude and longitude coordinates for the specific underground facility.

Facility owners can download the raw data into a geographic information system as a layer that can be used to update existing maps or create new ones. It also can be overlaid on aerial photos or as-builts. **800/435-9340; www.mightymole.com.**

Draincables Direct Expands Product Line

Draincables Direct has expanded its line of jetter machines and jetter hoses. The company now offers from 2 hp, 2 gpm electric portables to 27 hp gas-powered, 11.5 gpm models, as well as 4,000 psi hoses in 25- to 500-foot lengths and five I.D. sizes: 1/8, 3/16, 1/4, 3/8 and 1/2 inches. Custom sizes are available. **800/421-4580; www.draincables.com.**



Transportation Safety Offers Obstruction Detection System

The Eagle Eye obstacle detection system from Transportation Safety Technologies is designed to increase driver awareness of potentially

dangerous areas surrounding the vehicle. The system monitors side and rear blind areas or "no zones" for vehicles or objects. The dash-mounted digital display visually and audibly alerts the driver of potential contact beginning at eight to 10 feet away. The unit consists of up to seven weather-resistant strategically mounted sensors (heated to prevent snow and ice buildup) and driver alert module. **800/428-4449; www.tst-corp.com.**





American Highway Products Offers Pivoted Turnbuckle Riser

The Pivoted Turnbuckle manhole riser from American Highway Products Ltd. is made to reduce cost and streamline the adjusting of utilities to the new grade when

paving a road. The pivoted linkage ensures a pressed-in bearing fit when installed, enabling installation before paving. The linkage can contract and expand the riser 1/2 inch, providing a 1-inch variance. Risers start at 3/4-inch rise and continue in 1/4-inch increments. 888/272-2397; www.ahpl.com.

Rain for Rent Offers Stainless Steel Pump

The 6-inch HH-150 stainless steel Power Prime pump from Rain for Rent is designed to produce high-discharge heads for dewatering projects. Stainless steel impellers and shafts add durability. The pump can handle solids up to 1.5 inches in diameter, flows up to 2,250 gpm and heads up to 320 feet. 800/742-7246; www.rainforrent.com.



Chemical Metering Pumps from Watson-Marlow

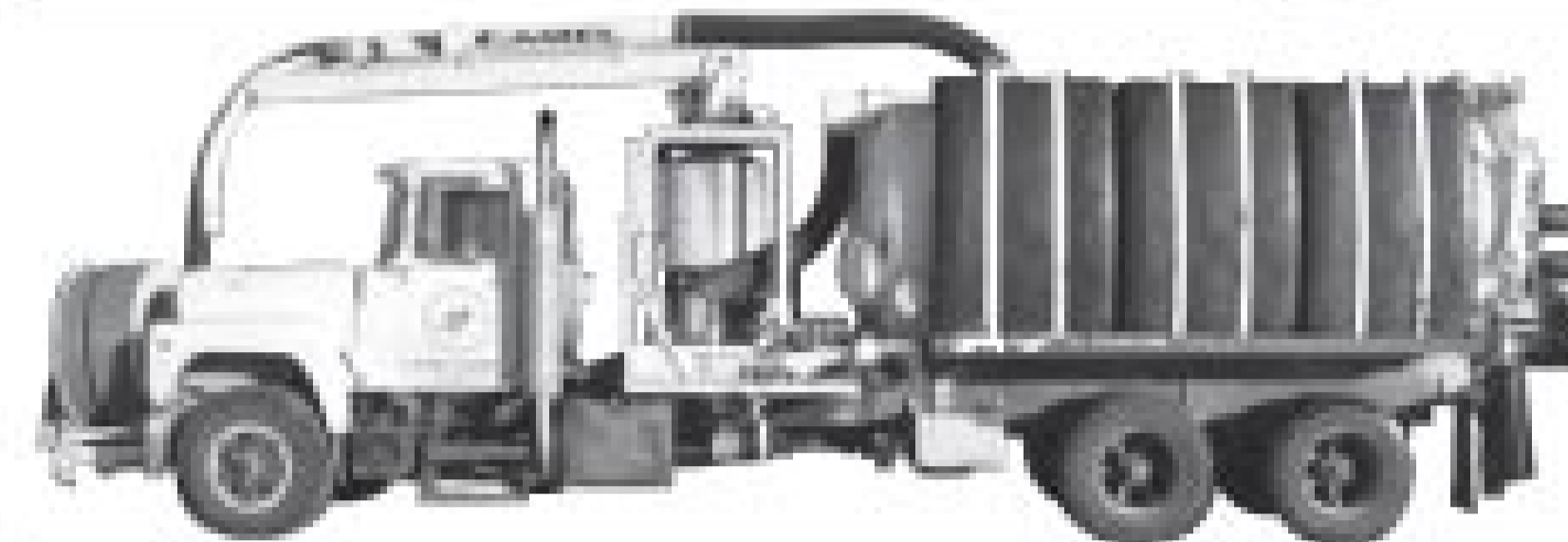
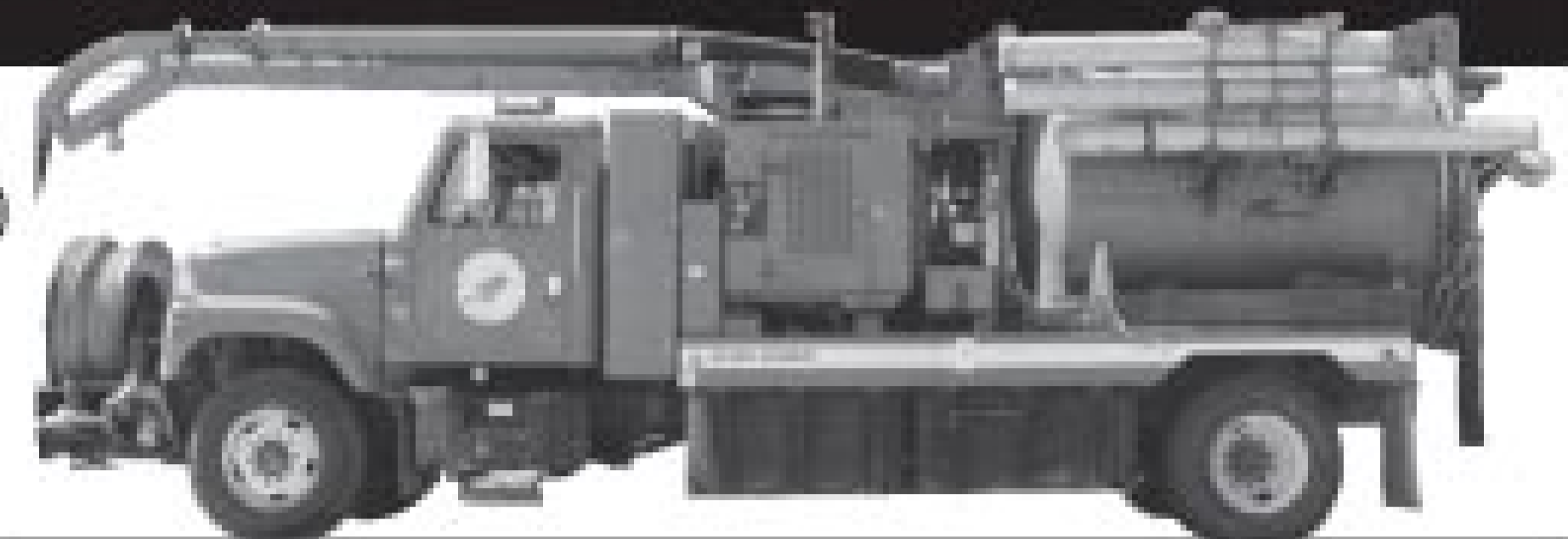
Chemical metering skid systems from Watson-Marlow are designed for easy operation and maintenance in applications at water and wastewater treatment facilities and industrial applications. The systems come with a calibration column and all necessary piping for pumping sodium hypochlorite, ferric chloride and other chemicals. The tubing pump skid systems require no back pressure regulators, de-gassing valves, strainers, or pulsation dampeners. They deliver accuracy of +/- 0.5 percent.



Each peristaltic pump is an inherent metering pump with repeatability at 99.5 percent. Many models include integral digital drives with PROFIBUS or SCADA control in NEMA 4X washdown enclosures. The self-priming pumps accommodate flows from 0.1 microliter to 350 gpm and withstand pressures to 232 psi. There are no internal universal joints, valves, dead corners or glands to impede flow. The pumps are reversible for back-flushing lines, can run dry indefinitely without damage, and provide up to a 30 foot suction lift. 800/282-8823; www.watson-marlow.com. ♦

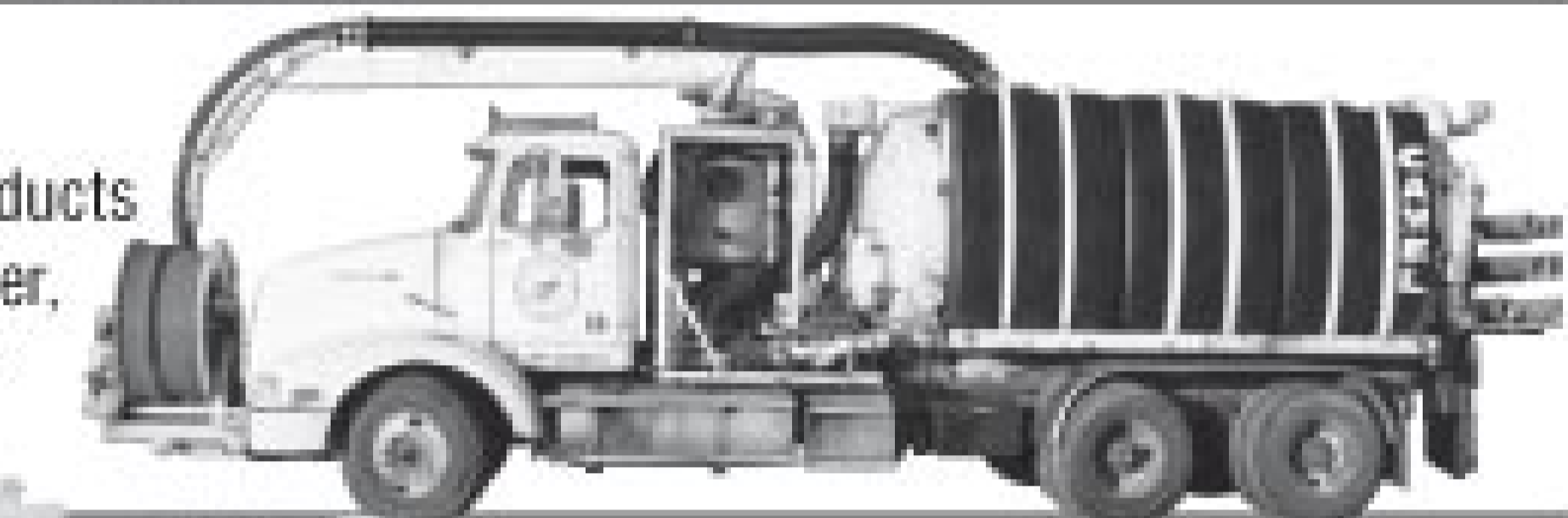
Great Trucks. Great Price.

1998 International Vac-Con Combination Cleaner: 69,700 miles, 65 gpm @ 2000 psi, 1,000 gal. poly tank, 1' x 600' hose, TigerTail/ MiniMissile.



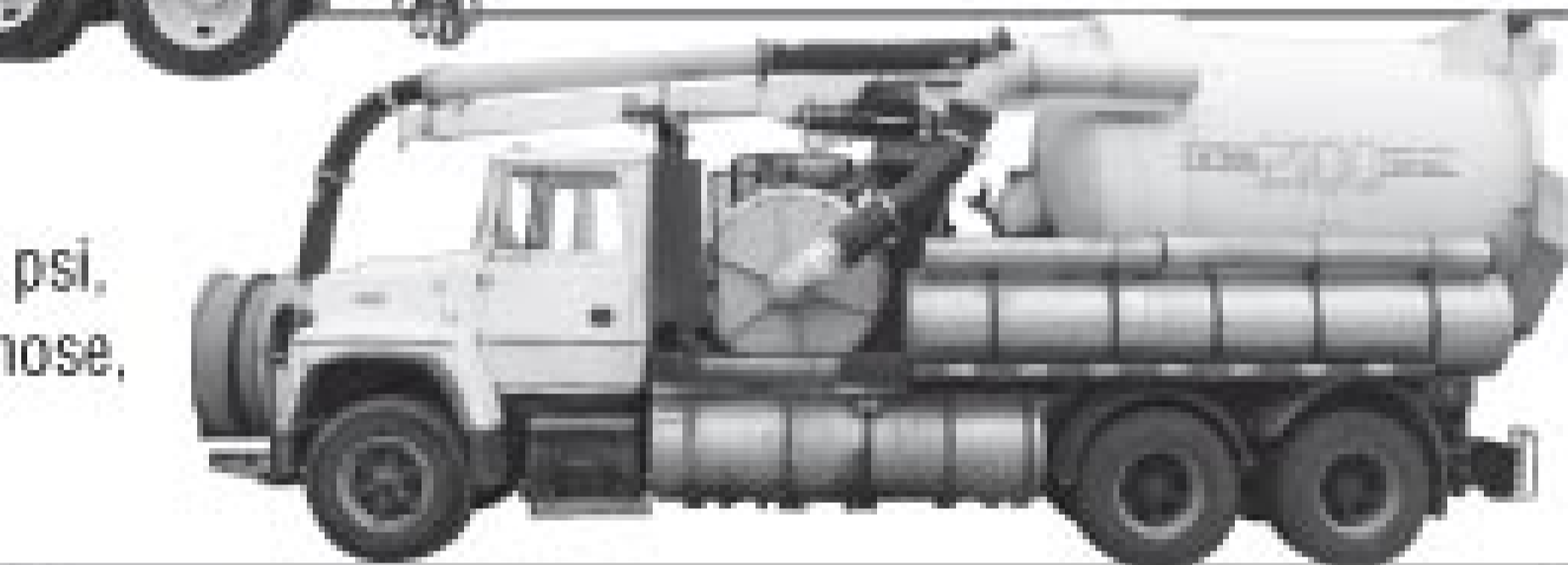
1987 Mack Chassis Combo Truck: 235 hp, 1997 Super Products Camel, 16-yd. debris, Hicks blower, 1500 gallon water, 65@2000 psi Myers pump.

1992 Western Star Combo Truck: 280 hp, 1995 Super Products Camel, 16-yd. debris, 6-24 blower, 1500 gallon water, 65@2000 psi Myers pump.



1991 Camel Combination Cleaner w/1986 Mack: 80 gpm @ 2000 psi, 1,500 gal. poly tank, 1' x 600' hose, TigerTail/ MiniMissile.

1993 Ford LNT 8000 Vector Combination: 80 gpm @ 2000 psi, 1,500 gal. alum. tank, 1' x 600' hose, TigerTail/ MiniMissile.



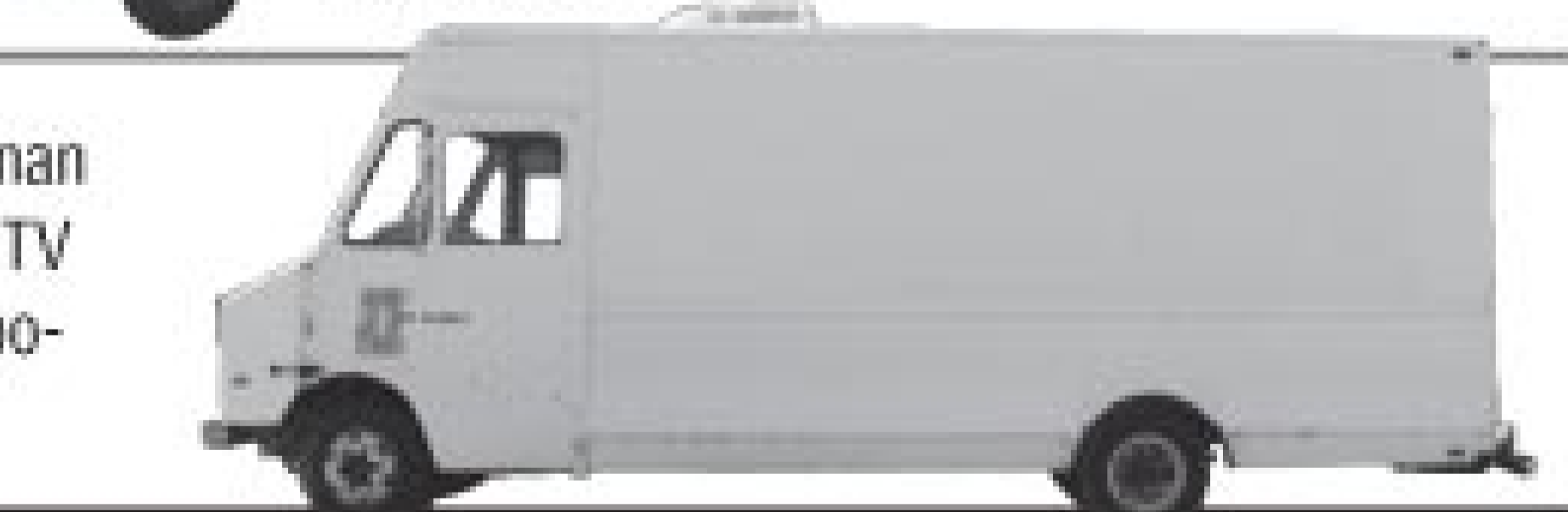
2007 Sterling Combo Truck: 335 hp, 2008 Super Products Camel, 16-yd. debris, 6-24 blower, 1500 gallon water, 80@2000 psi Myers pump.

1996 Ford L8000 Vector Combination: 87,500 miles, 80 gpm @ 2000 psi, 1,500 gal. alum. tank, 1' x 600' hose, TigerTail/MiniMissile.



1994 Ford Cargo Van: 1994 7.5 Onan gas generator, 1996 RST TV equipment. Many extra TV components included.

1994 Isuzu Step Van: 2000 Onan 10K diesel generator, 1996 RST TV equipment. Many extra TV components included.



Municipal Pipe Tool Co., LLC
800.798.4205

Contact: BryanR@municipipe.com
515.681.6321
www.municipipe.com



IT'S NEW! *Treatment Plant Operator*™
FREE subscription at www.tpomag.com

BUST BLOCKAGES!



- Used in high pressure jet cleaners to bust the toughest grease blockages.
- Safe for the environment and your crew.
- Eliminates H2S odors.
- Great for grease and oil spill cleanup.

866-366-0587



www.safetechemical.com



CONFINED SPACE ENTRY PACKAGE
ONLY \$2,995

The best package on the market includes:

- 4-Gas Air Monitor (3 Year Sensor Warranty)
- 7' Tripod
- 3-Way Fall Protection
- Work Winch
- Full Body Harness



Add a Blower with 15' of duct for only \$300!
Add a 5 Minute Escape Respirator for only \$500!

MTECH 800.362.0240
www.mtechcompany.com

We put the "smoke" in the Smoky Mountains.



Turbo-Fog
The Original Liquid Smoke Generator

- Produces Dense Smoke
- Versatile - Lightweight - Compact
- One Person Operable

Solutions for:

- Testing - Training - Tracing

TURBO-FOG www.turbo-fog.com
800.394.0678

Handy-Sumper



12V Submersible Manhole Pump

Quick Pumping Using Any 12V Battery, Pickup or Auto.
Only 33 lbs.

- > Connect 30' leads, supplied with battery clips, to battery.
- > Hook up light weight discharge hose.
- > Lower into manhole, sump, caisson, ditch.
- > Flip the switch, mounted in the leads, and in seconds - water

D&O Equipment Co.

Richmond, VA

Phone: **804.275.2988**

E-mail: dando@att.net

One Complete Package

mswmag.com	eq-mag.com
promonthly.com	pumpershow.com
cleaner.com	pumpetrades.com
pumper.com	tpomag.com
onsiteinstaller.com	septicyellowpages.com

COLE Publishing

1.800.257.7222 • 715.546.3346



Advanced Pipe Inspection Systems

- Full Pan&Tilt systems starting at \$40,000
- The only completely DC powered system
- Inspect pipes from 6" and up



more information at:

tvferret.com

518.399.2211

DYNAMIC CABLE REPAIR

We Repair: Gen-Eye I, II, III, Aries, GL, Ratch, RIDGID, Insight Vision, Electric Eel, GatorCams, Scooter, Plumbers Depot, UEMSI, Pearpoint, Spartan, Vision Intruders, Vivax, Inspection Cameras, Locators, Command Modules and Cables

48-Hr. Turn Around Time
INSPECTION CAMERAS ARE OUR ONLY BUSINESS!

973-478-0893

DYNAMIC REPAIRS

40 Arnot St., Unit 20 • Lodi, NJ 07644

www.dynamicrepairs.net



Delivery Throughout The USA
Los Angeles, CA

800.896.2480

Outside US 323.225.2295

sales@alasher.com www.alasher.com

More Trucks Available



Stock No. 14754-99

2002 IHC Vactor 2100, \$148,500

From Local City, Call for Complete Photos and Details!

Price includes delivery anywhere in the United States

MUNICIPAL SEWER & WATER

Municipal Sewer & Water Marketplace

gives you nationwide exposure to thousands of industry professionals.

Layout and design is included **FREE**, and we can fax or e-mail you a proof for final approval

Now Available In 4-Color or Spot Colors

Choose a size that works best for you!

Call **1.800.994.7990**

*Black and white prices, call for 4-color pricing.

Send ad materials and payment to:

COLE PUBLISHING INC.

P.O. BOX 220 • THREE LAKES, WI 54562

SPECTRASHIELD
LINER SYSTEMS

**MANHOLE & WETWELL
RESTORATION SYSTEM**



Prevents Corrosion
Stops Infiltration
Stress Skin Structural Panel
Cost Competitive

10 YEAR WARRANTY

A 7' DEEP MANHOLE CAN BE
LINED IN LESS THAN 1 HOUR

CCI Spectrum, Inc.

800-284-2030

www.spectrashield.com

DYE TRACERS
Solutions for:
• Infiltration
• Septic Systems
• Cross Connection
• Leaks and more...
BRIGHT DYES
Division of Kingscote Chemicals
www.brightdyes.com FREE SAMPLE 1-800-394-0678

ROOT SAWS
CUT FASTER & LONGER WITH
CARBIDE TEETH
AND WEAR PADS
www.productivecarbides.com
800-676-7649 - 513-771-7092

1-800-538-8464

Nozzles, Hoses
& Parts for ALL
Jetting Units.

www.usjetting.com

**Spring Ahead
Specials!**
Footage
TOOLS INC.
▶ Underground Piercing Tools
▶ Service Line Replacement Tools
▶ Pipe Fusion Tools
▶ Tapping Tools
Call us toll free:
1-888-737-3668 **On Now!**
View our entire product line at:
www.footagetools.com

IndustrialOdorControl.com
A broad and
economical range of
odor control solutions

Pictured: Super Wolverine 88 Unit
■ Manhole Odor Inserts
■ Pollution Control Barrels
■ Activated Carbon
■ Vapor Phase Adsorbers
■ Septic Vent Filters
■ Custom Solutions
866-NO-STINK (667-8465)
973-846-7817 in NJ
IndustrialOdorControl.com
Simple Solutions
DISTRIBUTING LLC
Makers of the Wolverine Brand
of Odor Control Solutions

**SAFETY
CAMERA**
ON HEAVY EQUIPMENT
VISIT
WWW.TRACK-VISION.COM
TO WATCH THE VIDEO
TRACKVISION™ BY RMT 1 800 648 8132

**Flexible
Pipeline & Valve
Markers**

Durable Quantum Flex™ composite markers are 10 times stronger than typical thermoplastic materials. Flexible design withstands vehicle impacts and vandalism. Installs in seconds through the toughest soil.
www.QuantumMarkers.com
714-563-9749
866-778-6017 - Toll Free

JOIN THE DISCUSSION!
Municipal Sewer & Water Discussion Forum is an online based forum for sanitary, storm and water system maintenance professionals to swap information and ideas on topics related to the industry.
Sign up today at www.mswmag.com

ONE SUPPLIER
WATER CANNON
A WATER CANNON PRODUCT™
1-800-333-WASH
Parts for Most Major Brands

10,000+ Items Online
www.1800333WASH.com

SEWERLOCK.COM
MANHOLE SECURITY GUARDIAN
(800) 761-5882
• SEWER
• STORM
• UTILITY
• GREASE
• HOMELAND SECURITY
Installs below & independent of frame in new & existing manholes, & prior to street overlay for safety, to catch debris, deter dumping & theft.
SEE "HOW TO GET STARTED" www.sewerlock.com

Size A:
\$319^{00*}
1.875" W x 4.875" H
This size is great
for two photos!

Size B:
\$219^{00*}
1.875" W x 3.2" H
Perfect size for
one photo!

Size C:
\$119^{00*}
1.875" W x 1.5" H
A great value!

- ▶ Bucket Machines
- ▶ Businesses
- ▶ Business Opportunities
- ▶ Cable Machines
- ▶ Computer Software/Billing
- ▶ Consulting/Engineering
- ▶ Dewatering
- ▶ Drain/Sewer Cleaning Equipment
- ▶ Easement Sewer Flusher
- ▶ Excavating Equipment
- ▶ Gas Indicators & Detectors
- ▶ Hydroexcavating Equipment
- ▶ Jetters - Trailer
- ▶ Jetters - Truck
- ▶ Jet Vacs
- ▶ Leasing/Financing
- ▶ Locators
- ▶ Miscellaneous
- ▶ Padlocks
- ▶ Parts & Components
- ▶ Pipe Bursting Equipment
- ▶ Pipeline Rehabilitation
- ▶ Positions Available
- ▶ Pressure Washers
- ▶ Pumps - Submersible
- ▶ Pumps - Vacuum
- ▶ Safety Equipment
- ▶ Street Sweepers
- ▶ TV Inspection
- ▶ Septic Trucks
- ▶ Vacuum Loaders
- ▶ Wanted

BLOWERS

VFC200P-5T, FUJI Pumps, Regenerative Blowers, Ring Compressors. All models, accessories. Authorized distributor. Authorized parts and repair center. Call 888-227-9822. www.carymfg.com (MBM)

BUSINESSES

Looking to sell your industrial cleaning, hydroexcavation or waterblasting business? We have buyers. Must have gross revenue in excess of \$1,000,000 annually. Nationwide interest. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

BUSINESSES

Philadelphia/Allentown Pennsylvania Area Sewer Business For Sale. Specializing in collection systems, video inspection, jetting, municipal work. Includes CUES TV & grout truck, Sewer Equipment Corporation jetter truck, Vactor 2100, RIDGID camera, confined space equipment and more! Good revenue history. Great opportunity to expand or start your own business. Current owner wants to retire. **Offered at \$330,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

Massachusetts Sewer & Drain Franchise For Sale. Confidential listing, Non Disclosure Agreement required. Turn-key business, good revenue — **asking \$165,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

Northern California/Reno, Nevada Area Portable Restroom Service Business for Sale. Owner is motivated and inventory alone is worth the asking price. Includes 100+ restrooms, sinks, ADA units, holding tanks, 2 service trucks and a delivery trailer. Annual revenue in excess of \$100K each of the past 4 years. List of existing customers and contracts included. Owner is willing to train if needed. **Asking \$75,000 - REDUCED TO \$55,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (M6)

Very successful established Midwest based full service Trenchless Sewer Company with municipal and industrial experience and contacts available for acquisition. Serious confidential inquiries only. Please respond to P.O. Box 154283, Irving, TX 75015-4283 or email: cippcompany@yahoo.com. (CM6)

BUSINESSES

Looking to sell your portable restroom business? We have buyers looking in the following areas: Florida, California, Virginia, Iowa, Kentucky, New York, Pennsylvania and more! Must have gross revenue in excess of \$250,000 in most cases. E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

Green Bay Wisconsin Area Septic & Drain Business For Sale. Solid and steady revenue history and nearly 20 years established. Excellent opportunity to expand or start your own business. Includes very well-maintained 3,800 gallon septic service truck, fully outfitted 2002 Chevy drain service van, drain & sewer equipment, all office equipment and computers, 2,700+ customer list, and more - a true turn-key or easy expansion opportunity. Very meticulously maintained equipment all kept inside a heated shop. Current owner is retiring. Large shop and real estate is also available if desired at additional cost. **Offered at \$249,000.** E-mail jeffb@colepublishing.com, visit www.Btwo.biz or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

ARIZONA BUSINESS WANTED: Qualified buyer looking to purchase existing industrial/municipal cleaning and inspection business in the Phoenix area. Will consider other areas in Arizona as well. If you are looking to sell, please call Jeff at 800-257-7222. (M6)

Houston Texas Area Septic & Drain Business For Sale. Grossing nearly \$300,000 annually and showing growth. Established commercial clients and customer list. Includes all equipment to operate, a turn-key business. Huge potential, owner is motivated and moving on - **asking \$140,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

BUSINESSES

Dallas/Fort Worth Texas Area Sewer/Rehab Business For Sale. Drain Cleaning, TV inspection, Pipeline & Manhole Rehab/Relining, Municipal Cleaning and Maintenance business for sale. Excellent opportunity to expand or start your own business. Good revenue history and priced to sell. Includes all equipment to get started. **Offered at \$150,000.** E-mail jeffb@colepublishing.com visit www.Btwo.biz or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

Well-Established and Profitable Texas Septic, Sewer & Installation Business For Sale. Grossing in excess of \$1,000,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Real estate with rental income can be purchased separately if interested. **Asking \$799,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

North Carolina Septic and Installation Business for Sale. Showing good growth over the past 3 years. Includes all equipment to operate, extensive customer list, and owner is willing to train if necessary. **Asking \$110,000.** E-mail jeffb@colepublishing.com or call 800-257-7222 and ask for Jeff Bruss for more details. **A B2 Business Brokerage Listing.** (MBM)

BUSINESS OPPORTUNITIES

Looking to buy a business in the liquid waste, portable sanitation, or sewer & drain industries? Call B2 Business Brokers powered by Municipal Sewer & Water at 800-257-7222 and we can add you to our VIP buyer list. No obligation, no fees, no pressure. (MBM)

BUSINESS OPPORTUNITIES

Looking to sell your business? We can effectively market your business to more than 60,000 potential buyers in the liquid waste, portable sanitation, and sewer & drain industries, as well as your local markets, the Internet and other venues. No upfront fees — you don't pay unless your business sells. To learn more about brokering your business through B2 Business Brokers powered by Municipal Sewer & Water, call 800-257-7222. (MBM)

DRAIN/SEWER CLEANING EQUIPMENT

Used ENZ GOLDEN JET 10.080 FOR SALE. 1" threading w/skids \$1,100 OBO. Call Steve at 330-414-2409. (M5)

JETTERS-TRAILER

2008 Sterling LT7501 with a VacAll AJV1015, 10-yd. debris body, 1500 gal. water, combination vacuum/jetting unit, preowned rental unit. **PRICED TO SELL!** (Stock #13366) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (M5)

2 SECA trailer jets. Both have Myers 35 gpm, 2000 psi pumps. New paint on both. Located in Dallas. 972-938-1905. www.empireequip.com. (CPBM)

New Pipehunter trailer jet, 300 gallon poly, 40 gpm @ 3000 psi, John Deere diesel, rotating hose reel. Call 800-537-7484. (CM5)

JETTERS-TRUCK

2006 GMC TC6500 cab and chassis with Pipe Hunter trunk mounted jetting unit, 3000 psi @ 50 gpm with a 1,000 US gal. water tank, rear mounted hose reel with JET EYE camera system. **6,800 original miles, new new. \$129,000 sale price. (Retail for \$210,000)** (Stock #13234V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (M5)

PLACE YOUR AD ONLINE AT www.mswmag.com - IT'S ALWAYS THERE TO MEET YOUR BUSY SCHEDULE



2000 Int. SuperSucker Vacuum Truck: Cat engine, 27' blower, 9000 original miles, completely serviced.....\$70,000
1-800-698-8080 CP5



2007 CHEVY C7500: High pressure Sreco sewer jet, GVM 25,950, Isuzu diesel, 21K mi., Allison 5-spd. auto, 300 Ford gas rear eng., 2,157 hrs., Meyers pump, 65 gpm/2500 psi, 1"x500' Piranha hose, 1200 gal. water, built-in back flow preventer. Other vehicles available.....\$40,000
631-242-4999 CM5



2004 International/Maxvax 1400 Hydrovac: HT530 engine, Fuller RTO trans., 12-yd. body, 1300 gal. tank, 980000 BTU burner, 2500 psi @ 18 gpm pump, 3000 cfm blower, 22000 miles.\$125,000
Matt 330-270-0700 x108 CP4



1988 Ford F-800 Jet Vac Truck: 8.2 Detroit diesel, Allison 4-spd. auto trans., air brakes, recent new \$7,000 vac unit installed. Extra nice condition. Located in Seibert, Eastern CO on I70...\$27,500 OBO
970-664-2426 CS



2001 GMC C6500: 38,000 miles, new cab, new .461 continuous rod, -spd. \$660 drive head, AC, AM/FM, Cat 3126B, 2" guide set, hyd. water pump, Capstan drive wheel. Like NEW and ready to work.\$83,000
703-313-6771 CS



2006 Safevacs - Two (2) To Choose From: Sterling LT9511 chassis, MBE 460 engines, 27" Wispair blowers, OMSI transfer cases.Special Price \$139,950 Each
Call 1-888-739-0838 CS



2002 Sterling Safe Jet Vac: 4283 Hixon PD blower, 10-yd., 1500 gal., Meyers DP80-20WP, Cat eng., 3-spd. Fuller, 8' boom, hydro-excavator, 270K miles.\$60,000
206-793-4923 CS



2007 SECA TGV-2600: 3-yd. debris body, 40 gpm @ 2000 psi Tri-plex pump, 188 hp Cat engine, recirculation system, 1400 cfm blower, hydraulic dump & rear door, hydrostatic drive, 4" catch basin tube & rotating boom. (Stk. 1647)
Call Joe 312-706-9678 CS

PIPE REHABILITATION

Cues TV/Cutter Trailer: 2007 Evolution package, with or without camera, cutter or compressor. Call or go to our web site for photos and specs. www.mccannsun.org. Financing available. Kelly 608-279-2299. (MBM)

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

RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted jetters. All available for daily, weekly, monthly, and yearly rentals. **VSI Rentals, LLC, (888) VAC-UNIT (822-8648) www.vsirentalsllc.com.** (M5)

SEPTIC TRUCKS

2010 Peterbilt 340 with a Presvac 3600 gal. (US), aluminum vacuum tank unit and Masport pump package. **2010 Model year units coming!** (Stock #8807V) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M5)

SERVICE/REPAIR

Sewer Cam Reel, Camera and Locator Repair: 48-hr. turn-around time. General Wire, Ratech, Ridgid, Pearpoint, Electric Eel, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. For more info. give Jack a call. Dynamic Cable Repairs, Lodi, NJ 07644. 973-478-0893. (MBM)

PROGRESSIVE CAVITY PUMP ROTOR, DRIVE SHAFT AND SHAFT QUILL REPAIR. Hard chrome plating, ceramic and metal spray coatings. Babbitt Bearing Company, San Jose, CA. 408-298-1101. (MBM)

TV INSPECTION

COMPLETE ENVIROSIGHT SYSTEM: 3 steerable crawlers (900, 600, 400), auto cable reel, watertight outpost box, text overlay, two pan and tilt lenses (one w/optical zoom valued at \$25K), dual joystick, extra wheel setups for sewer/drain pipe, 18 months of use. Valued at well over \$100K. Orig. owner downsizing. Turn-key ready. Also available 200' Pushcam ProSeries 2, self leveling head, video screen & DVR storage. Located in Northeast. 508-726-0813. (CM5)

2003 RST E350 Hi Top van upgraded computer. POSUM software, OMNI-3 camera and tractor. 1200 ft. cable/poles etc... Super CLEAN unit. **READY TO WORK!!** Steal it at \$32,000. 800-627-0778. (C5)

Pads and Chain Assemblies: Silicon carbide filled for maximum traction and long life. Single and double hole pads for all makes of tractors. Money back guarantee. Contact **Pipe Tool Specialties** (503) 1-888-390-6794 or fax 1-888-390-6670. Samples sent upon request. Same day shipping. We are a 6/12 company. (CMBM)

TV INSPECTION

1996 RST pan/tilt camera trailer w/ 11,000W Honda generator. 18' enclosed trailer has heat/AC. Two crawler bodies. View from 8"-60". Reel has approx. 1,400'. Pictures available via e-mail. \$14,000. Phone 507-340-0389. (C7)

New Top-of-the-Line Cyclops Sewer Inspection Van. P&T color camera, HD transporter, 1000' TV/tow cable, front and rear color LCD monitors, 1000 watt inverter, DVD rec/player, powered cable reel w/auto level wind, Dell laptop with PACP certified software. System mounted in good running 2005 Ford E-250. All for only \$61,000. Call Bill @ 830-249-9756. (C5)

Seacon connectors and pigtailed, increased inventory and specials. **Turck** connectors. 504-343-7833 cell or 504-738-7833, **oceanquip llc.com.** (CBM)

TV Ferret: Complete used, pan & tilt system, 600 ft. cable, 6" crawler, \$16,000. More turn-key systems. www.tvferret.com. 518-399-2211. (CBM)

TV INSPECTION

CUES 1999 and 1996 GMC raised rooftop vans, pan + tilt color cameras, crawlers, generators, control rooms, computers + software. \$24,500 OBO. 717-554-1715. (C6)

VACUUM LOADERS

2008 Demo Internationals 7600 with a Guzzler Ace XXS4118TS wet/dry industrial vacuum loaders, 18-yd. debris body, dump-type, carbon steel vacuum tanks. **PRICED TO SELL!** (Stock #'s 4400V & 4401V) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M5)

1999 International with a Guzzler Ace 27' HG wet/dry industrial vacuum tank loader. **PRICED TO SELL!** (Stock #7390) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M5)

2009 used Sterling LT9500 triaxle with new Presvac, Powervac 3800, 3,250 gallon (US) DOT, wet/dry industrial vacuum tank loader. **ONLY 500 miles since new.** (Stock 4735C) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (M5)

ALL THE TOOLS OF THE TRADE. FROM ONE SOURCE.

AQUATECH

COMBINATION MACHINES ENGINEERED & BUILT AROUND THE OPERATOR.



O'BRIEN®

JETTERS THAT PAY FOR THEMSELVES. AGAIN, AND AGAIN, AND AGAIN.



ultraVac®

THE NEW POWER IN HIGH VACUUM LOADERS.



X-vac®

VACUUM EXCAVATORS. THINK OF THEM AS SURGICAL INSTRUMENTS.



When you invest in any of the Hi-Vac Corporation Brands, you are getting "The most value for your money". They are designed to be the easiest to operate. Cost less to maintain. And, are built tough to withstand the test of time.

Hi-Vac®

HI-VAC® CORPORATION

740-374-2306
USA 800-752-2400
FAX: 740-374-5447
hi-vac.com

Schwalm Robotic Systems

Presented to you in North America by

Robotic Inspection

- On-Board Tilt Camera
- Self-Cleaning Lens
- High Resolution CCD Camera
- Water-Powered Camera Cleaning System
- Powerful LED Lighting



Robotic Cutting & Grinding

- Self-Propelled Cutter
- Powerful Grinding/ Cutting Tool
- Fast Cipp Service Reinstatement
- Chisel for Removal of Concrete in Pipelines
- Inserts/ Removes Mechanical Plugs Up into Lateral Pipes
- 360 -Degree Cutting Function
- Cuts Through CIPP Lifts or Turn-backs
- Reaches Far Up into Lateral to Remove Resin Slugs
- Only One Manhole Access Required



Grinding



Robotic CIPP Repairs

- Install Full Circle CIPP
Main/ Lateral Connection Liners

LMK Stubby™ and Shorty™



**MOST POWERFUL AND VERSATILE
SEWER ROBOT IN AMERICA**

To learn more about ground-breaking new products brought to you by LMK contact
sales@lmkenterprises.com or call (815) 433-1275.

www.performanceliner.com



Less Noise

Vac-Con's larger capacity hydrostatic pumps allow the system to perform at a much lower RPM which means quieter operation, a healthy benefit for operators and community residents around the world.



Less Exhaust

Because of the efficiency of our hydrostatic drive systems, Vac-Con machines use less fuel, which means lower cost...and less exhaust.

Less Fuel

Vac-Con's exclusive 3-Stage Centrifugal Compressor operates at a performance level that loads material faster than the competition. This equals Less Time on the job which means Less Fuel is used.

Less Water

Vac-Con's available high pressure/low volume water systems conserve water.

We Were "Green" Before It Was Even Called "Green"

VAC-CON MACHINES HAVE BEEN "GREEN" FOR MORE THAN 20 YEARS.

Vac-Con is proud to be a leader in the worldwide environmental industry.

We have been manufacturing products that assist public and private entities in maintaining water collection systems and treatment facilities for more than two decades. We can all help assure that the world's potable water supplies are preserved for future generations simply by not wasting or polluting this precious resource. *Think high pressure/low volume!*

VAC-CON MACHINES – LEADING THE INDUSTRY IN "GREEN" INITIATIVES.



A HOLDEN INDUSTRIES Company

www.vac-con.com