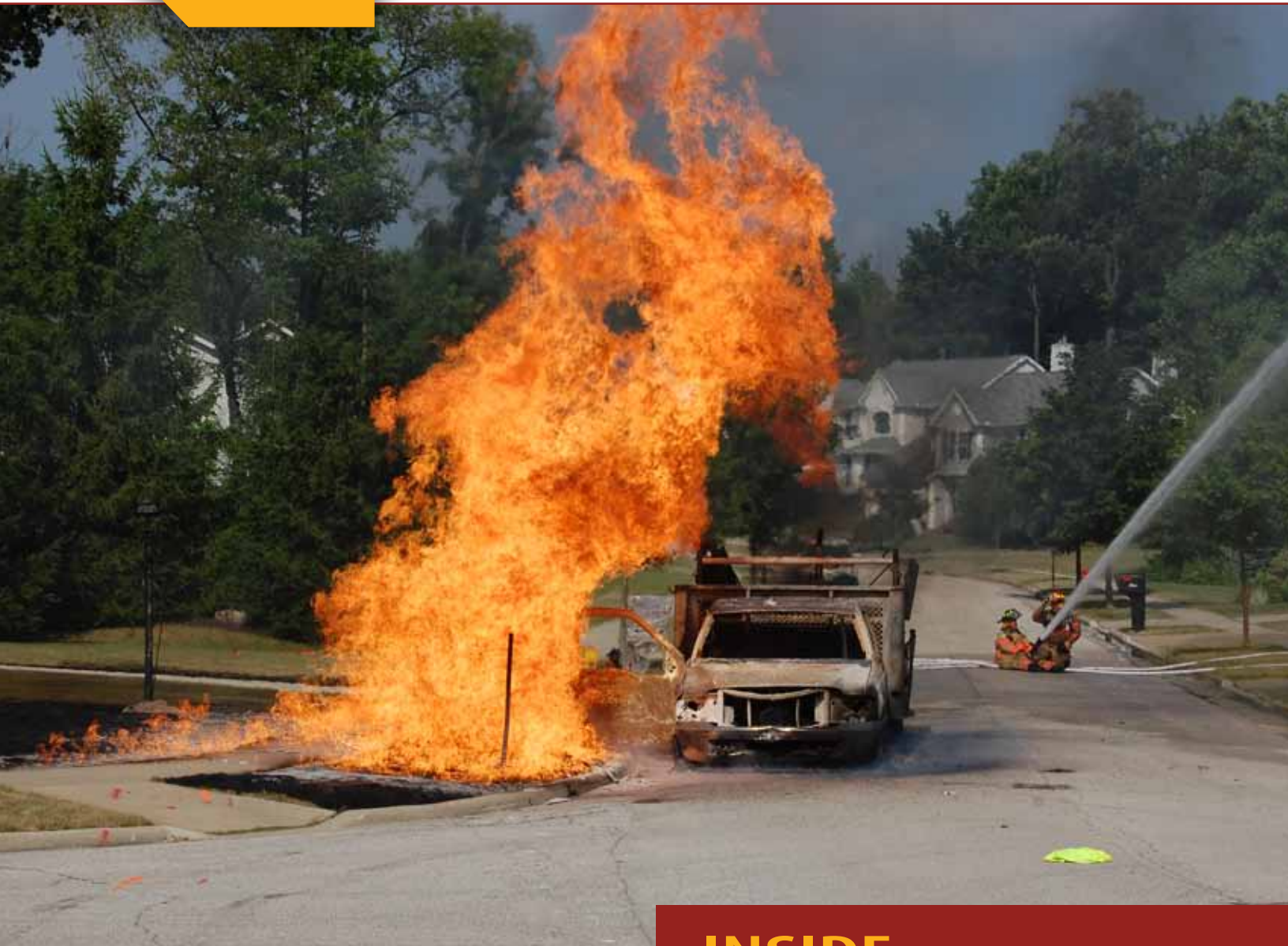


# UNDERGROUND FOCUS

THE MAGAZINE OF BELOW-GROUND DAMAGE PREVENTION. UNDERGROUND, UNDERSTOOD.



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# UNDERGROUND FOCUS

NOVEMBER 2010 . VOLUME 24 . ISSUE 6

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Photos courtesy of Richard Smith, Stow Fire Department



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# Safety in Excavation

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## Contractor Bets on a SHORE THING

**Kinsel Industries**, now a part of Insitu-Form, can't take any chances when it comes to the project constructed in Jacksonville, Florida. The contract with the city utility authority, J.E.A., is a five-year, \$160 million contract that initially required the bursting and replacement of sewer pipeline at a rate of over 45,000 lf. PER WEEK. This includes the tie-in of utilities to the community.

A great deal of the work is done in tight conditions and back yards.

**Kinsel Industries** has a long history of putting safety to work, hand in hand with productivity.

variety of applications that were encountered. **Carlos Zambrano** was one of the many foremen on this vast project. Carlos appreciated the fast and dependable service provided by Trench Shoring Services to meet the ever-changing ground conditions.

The Jacksonville TSS facility also provides steel trench boxes and road plates to the region. CPT training is available in English and Spanish to meet the needs of the growing workforce.



The project required constant monitoring for hazardous atmospheres and protection of workers in the excavation.

The initial use of hydraulic shores proved to be too time consuming, slowing productivity and increasing costs. The decision was made to use the latest technology in aluminum trench shoring, **ultraSHORE™** trench boxes manufactured in Denver, Colorado. The trench depths are less than 12 ft. deep and **ultraSHORE™** is well suited to the Florida sands. A variety of Mini-Excavators are used to handle the excavation and boxes, even though most **ultraSHORE™** shields are light enough for two men to handle.

The local rental dealer for **ultraSHORE™**, **Trench Shoring Services**, (TSS) was able to supply a wide selection of inventory to match the

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## A View from the Underspace

# The Real Voices of Damage Prevention: Is it the Same Old Rhetoric?

By Mike Parilac, Publisher  
mike@underspace.com

Back in March, I attended a utility claims seminar hosted by a one-call center and a local utility contractor's association, of which my company is a member. The seminar was conducted in a Q&A format. The questions came from excavators and the answer side was provided by claims people from four large area utilities. It was a civil seminar given the sometimes combative nature of settling utility damage claims.

The next day, one of the seminar-attending excavators came by my office to take a look at some locating equipment. I asked him what he thought of the seminar. It took him twenty minutes to tell me. I don't remember all that he said but he said that excavators don't bother bringing up their issues with the utilities anymore because the excavators tire of hearing the same old rhetoric. Maybe he thought telling me his problems was likely to do more good than telling the utilities. Nah, it probably just made him feel better.

After reading our May 2010 issue of *Underground Focus*, we struck a nerve with a Pennsylvania excavator:

"...your opening paragraph should state, 'What are the odds that a utility company is going to show as much diligence in marking a utility correctly as most of us prudent ditch diggers spend looking for all their screw ups?'"

Even when you try to backtrack and mention locator error and missing lines on utility maps, you still make a statement that the damage frequency goes down, 'If the excavator conducts an exhaustive search for unmarked utility lines.' Are you kidding me?"

You further state, 'If the excavator trusts the marks, the damage frequency goes up.' That's what damage prevention is all about. We make a call and trust all affected utilities will be marked. Are we going to play a game and call it *What's the Right Mark?*

Nowhere are there any pictures of the excavator's crew standing by idly or the foreman trying to explain to his supervisor or owner about what they can do to make up for today's lost production.

Oh, and the news camera is a nice touch. I can see the headlines, *Contractor Damages Gas Line, City Block Evacuated*. Wow, that's fair and balanced. Every time I think we're making progress in damage prevention I read this and know we still have a ways to go."

We most certainly have a ways to go in damage prevention. Perhaps one of the most overlooked aspects of damage prevention is this:



**While others greatly assist, only excavators can prevent damages.**

I helped the excavator that dropped by my office to find an locating instrument which would serve his needs: to verify the accuracy of existing marks and to alert the crew of lines not marked, whether these lines be private lines or lines missed by the utility companies' locators.

I imagine the Pennsylvania contractor felt better after he wrote to me. I wrote back indicating that I did not agree with his assertion "that my bias against excavators is evident" and offered up some of my past editorials to dispute his claim. Nevertheless, I thanked him for taking the time to write.

It's a fact that many of my past editorials have focused on the need for more and better locating: better locating from the utilities and more locating from the excavators. Without movement by both sides, the voices of damage prevention really sound like they're speaking the same old rhetoric. **UF**

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# The Real Faces at an Underground Damage



Photo courtesy of Jay Dyal, Salt Lake City Fire Department

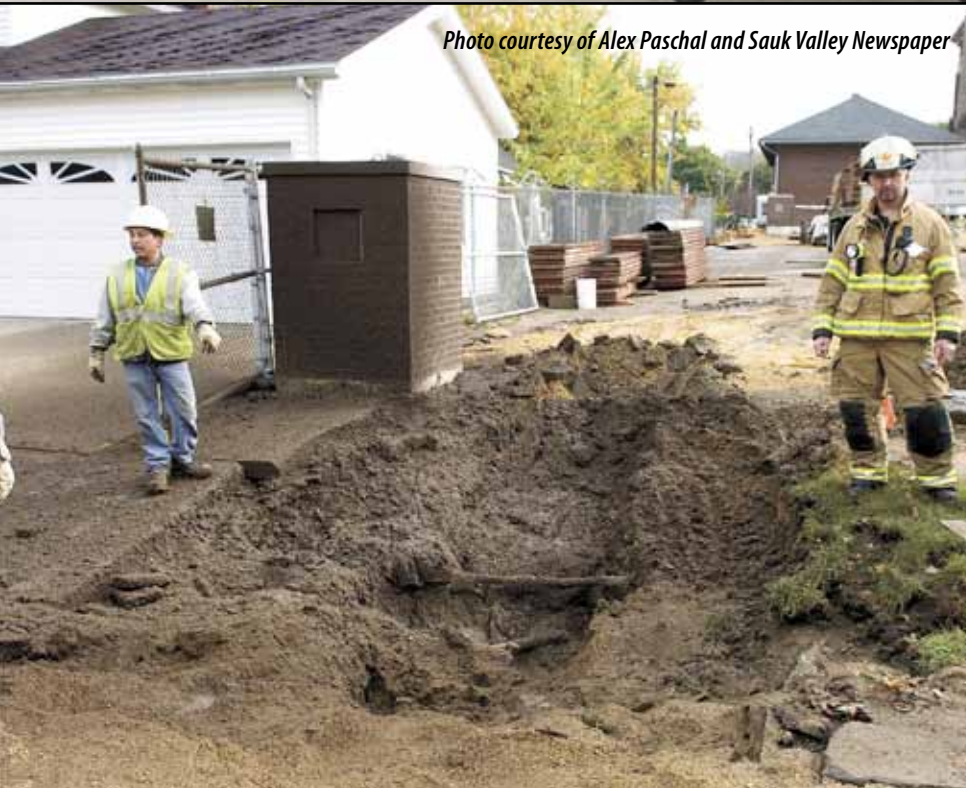


Photo courtesy of Alex Paschal and Sauk Valley Newspaper



Photo courtesy of Adam Sacasa, McDonough County Voice

For *Digging Dangers 2010*, I picked this photo for the cover because of the look in the guys' eyes; the look reveals the gravity of the situation. A house had just blown up halfway down the block and they are digging to squeeze-off the plastic main. This accident occurred in a town of 3000 people with a municipal gas system. The closest city is more than hour away. The main was struck by the contractor's drill while installing a water main for the town. An adjacent sewer line was also struck and the gas was blowing directly into the sewer.

## Thomson, GA, July 5, 2010

**DAMAGED: 8" liquefied propane gas transmission line**

In late 2009, PHMSA cited a pipeline operator for failing to install permanent pipeline markers in a "line-of-sight" fashion. Line-of-sight refers to the ability to stand at one marker and see the next. PHMSA, however, withdrew the charge after admitting that their requirements regarding permanent markers have "resulted in confusion within the industry and differing application among the regions."

"It doesn't really give a clear picture for operators to actually go about putting markers in the ground and making sure they are spaced apart correctly and they are able to be seen from a distance," said pipeline administration spokesman Damon Hill.

PHMSA has yet to clarify their rules regarding permanent markers.



Photo courtesy of The McDuffie Mirror



We could see from the video obtained for *Digging Dangers 21, A Sliver of Darkness* that the propane pipeline excavation accident occurred on a right-of-way that had a pipeline marker. On page 9 of *Digging Dangers 2010*, we committed a layout error. Page 9 is shown here as it should have appeared in its original form. Subsequent conversations with the pipeline operator revealed that there were multiple pipeline markers on site. *Underground Focus* regrets the error.



# The Real Faces at an Underground Damage



Photos courtesy of Richard Smith, Stow Fire Department



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\*2009 Research Project by ORC Guideline Division of the Opinion Research Corporation at CGA Excavation Safety Conference & Expo

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# Airplanes Crash, Trenches Collapse. It Happens

## Trench Shoring Services

By Wendell Wood & Jennifer Allen

There is a “new wave” in trench shoring safety! For some thirty years I have had the privilege of watching the ebb and flow of interest in shoring and shoring equipment. In my early experiences—the late 70’s and early 80’s—the primary interest in using trench shields was on the part of utility contractors who specialized in interceptors and collectors utility work; typically the deep and oftentimes wet projects. Their interest, whether admitted or not, was for the financial benefits of using trench shields, only one of which was safety. The other financial benefits—seemingly of greater focus—were reducing the amount of soil removed, minimizing the cost of select fill, reducing restoration costs, and reducing fuel costs and cycle times. Seriously, protecting human life was not first and foremost on their minds. They considered trench fatalities tragic but anecdotal evidence I collected over the years (right up until last week) suggest that they thought of trench fatalities as simply “part of dangerous work.” As one contractor said, “Airplanes crash...what more can I say. Trenches collapse. It happens.”

Fortunately, the industry has progressed. Deaths and injuries as a result of trench collapses have been greatly reduced. But many still consider the work of our safety people as a burdensome necessity. The context in which OSHA was authorized, as well as the duty of employers to provide a safe job and safe workplace, are not fully accepted nor understood. High profile companies do seek safe worksites and I have recently worked with some who are taking safety to the next level. Although their shoring policies merely reflect the requirements of the regulations, there are municipalities which think they are taking

safety to the next level. Sadly, though, with many smaller companies employing less than 25 people along with mid-size municipalities, excavation requirements are not a priority. In fact, someone from the regulatory side of the business explained to me late last week that due to staff shortages and funding problems, excavation requirements are currently not a priority!

Safety has, however, become paramount in a couple of associations I have followed over the last two decades and I believe the concern for a safe job and safe work environment is reflected in what I refer to as the “new wave.” The Excavation Standard was published in 1989 and is now over twenty years old. Over the last two decades, the number of shoring manufacturers has increased from two to eight. In that same time, product offerings have expanded from 8” wall units for deep work (20-feet and deeper) to 6”, 5”, 4” and now 3” wall units. These products vary in



Four-sided shoring is now the norm for repair and maintenance.

configuration as well as materials used. Approaches to achieving safety have changed, as well, and now incorporate slide rail systems, mega brace systems and a mix of both.

What exactly is this “new wave?” Maybe these two questions illustrate what is happening in many areas of the country and why many companies are changing their policies:

1) Why shouldn't shallow excavations, even those less than five feet deep, be shored if there is potential for hazardous ground movement that could entrap or immobilize an employee?

2) Why not utilize four-sided shoring?

As excavators have pondered these questions, they have developed an increasing interest in Ultra Shore products. Ultra Shore has been available for a number of years, and like most aluminum products, the publication of the

*No longer just small utility contractors laying water and sewer lines, but mechanical and electrical contractors, telecommunication contractors, gas distribution contractors, day-lighting contractors, plumbers and water service companies are getting on board for worker protection.*

Excavation Standard in 1989 caused many small contractors to realize that their preferred method of protecting their employees—sloping—was no longer feasible (unless their sloping plan followed Subpart P's Appendix A and Appendix B in their sloping plan). But to slope without a visual and manual test in accordance with the standard requires a 1.5 H to 1 V sloping angle. Even for a shallow excavation or trench, the amount of material to be moved along with the fuel costs, cycle times, and restoration costs would sky rocket. In the early years, the hydraulic shield and the modular component systems flourished. But in recent years the use of the Ultra Shore has grown greatly. Exceedingly light in weight, the ease of transport and assembly (only 8 pin snap-in-place end panels) combine for quick excavation and trench protection. Plus, the ability to use Ultra Shore in a vertical mode will satisfy a host of smaller contractors who work in shallow trenches. These contractors now realize that even trenches less than five feet deep may require shoring and with it's 12-foot depth rating in both C60 and C80 soil conditions, using Ultra Shore is ideal.

The type of contractor using Ultra Shore has also grown. No longer just small utility contractors laying water and sewer lines, but mechanical and electrical contractors, telecommunication contractors, gas distribution contractors, day-lighting contractors, plumb-

ers and water service companies are getting on board for worker protection. Even fire departments are using Ultra Shore for quick and fast shoring in trench rescue operations.

When it comes to locating, repair and maintenance jobs where four-sided shoring is expected, Ultra Shore is the ultimate solution. **UF**

*Wendell Wood has 30 years of experience with several major manufacturers of shoring equipment. Currently President of Performance Manners LLC, he works nationwide as a consultant to shoring manufacturers, distributors and shoring engineers. He's also a Midwest sales representative for Allen Trench Safety, operated by his daughter and son-in-law, Jennifer and Chris Allen. 800-295-1604.*



Miller Pipeline in a welding pit.



Valve repair.



# Managing Information Overload

One Call Concepts, Inc

By James Holzer

“Every one call center routinely takes in and sends out literally terabytes of data annually. That’s understood. What most people don’t realize is that a bigger challenge lies in helping people make sense of it all,” says Tom Hoff, president and CEO of One Call Concepts, Inc. (OCC). “We installed one of the first automated positive response systems in one of the busiest one call centers in North America in the mid-90’s - back when the information superhighway was still a dirt road.”

The positive response system he refers to processed massive amounts of information regarding the status of utility markings in Northern Virginia. By statute, all the collected data was required to be shared with multiple parties—excavators, facility operators and regulators. “We used all the tools at our disposal to communicate with the affected parties—Fax, remote connections, and IVR to name a few,” says Hoff. “The most significant and enduring outcome of that effort is that we learned how to share tremendous amounts of data from different systems with large groups of people who had distinctly different needs.”

In 2001, when Maryland mandated the creation of a positive response system, OCC applied what it had learned as it created its second generation positive response system, Ticket Check. Kelly Ruddo, OCC’s Director of National Ticket Management Systems notes that, “Ticket Check was launched with a significant internet component. We already knew there was going to be a great demand for the information that would be available through the system. By using the internet, we could make it conveniently available to the widest group of users possible.”

National Ticket Management System				
Damage Manager	Excavator Ticket Management	Locator Ticket Management	Search and Status	Ticket Check
<ul style="list-style-type: none"> <li>- Completely web based</li> <li>- Users can customize data fields used</li> <li>- Upload and store supporting information</li> <li>- Retains and organizes data for tracking and billing</li> </ul>	<ul style="list-style-type: none"> <li>- Completely web based</li> <li>- Store, organize, recall, print tickets</li> <li>- Upload and store images</li> <li>- Add notes</li> <li>- Customize locate detail fields</li> <li>- Assign job numbers</li> <li>- Track damages</li> <li>- Route optimization</li> </ul>	<ul style="list-style-type: none"> <li>- Completely web based</li> <li>- Access to excavation and operator polygons</li> <li>- Distribute tickets based on user defined criteria</li> <li>- Upload and store images</li> <li>- Add notes</li> <li>- Customize locate detail fields</li> <li>- Route optimization</li> <li>- Interface with center positive response system</li> </ul>	<ul style="list-style-type: none"> <li>- Completely web based</li> <li>- Users can browse, search, view and print tickets</li> <li>- Includes positive response system status information (when available)</li> </ul>	<ul style="list-style-type: none"> <li>- Web based</li> <li>- Interactive voice response</li> <li>- Scalable: can serve all or a subset of participants</li> <li>- Fully customizable to meet local requirements</li> <li>- Automated fax and email of status information to excavators</li> </ul>

Facility operators have their choice of methods when responding to Ticket Check with the status of their locate requests. Most larger facility operators use an FTP transfer of a batch file containing the required data. Users can also upload the batch file to Ticket Check through a web portal. An on-line tool can also be used to status individual tickets one at a time. Finally, the traditional Interactive Voice Response system is available to provide status for individual tickets. Operators can make use of a variety of different status codes that are configurable for each state in which Ticket Check is installed.

OCC has installed Ticket Check at several other one call centers for statewide use: Hawaii, Delaware and Minnesota. In addition, Ticket Check is available for voluntary use in Texas through the Lone Star Notification Center. It is also slated for installation at the New Jersey One Call Center with activation scheduled in late 2010 or early 2011. Individual companies have also purchased Ticket Check to assist in communicating locate status information to excavators in states that do not have a centralized positive response system based in the one call center.

Customizations both small and large are part and parcel of setting up Ticket Check for each state. Basic differences, like the statutory due date of a ticket, changes from state to state. Other modifications are more sophisticated.

For example, in Maryland, excavators can provide feedback to utility operators through Ticket Check if a discrepancy is found between the status reported and conditions in the field.

Ticket Check “closes the loop” by sending the accumulated status responses back to excavators. The system is, by default, configured to email excavators with the status of their locate requests. Fax transmission of status results is also supported. Excavators can also look up the status of individual tickets through a web based interface called “Search and Status” that was originally designed as a companion to Ticket Check.

Search and Status is a search engine for the one call center’s ticket database. Users can choose from any combination of a wide variety of criteria to find tickets taken by the center. If there is an associated status record, detailing the action the facility operator took in responding to the ticket, this can be retrieved at the same time.

“Prior to the advent of Search and Status, the only way an excavator could get a copy of the ticket was by contacting the one call center and requesting it. The person might not have a ticket number, which meant even more time was required to fulfill the request,” says Hoff, “All this led us back to an idea we had developed earlier.” OCC had pioneered

the concept of remote connections to the one call center computer in the late 1980’s. That way, an excavator could connect with the center and complete a ticket at a time of his or her convenience. Hoff continues, “We were always looking for a way to expand this concept.” By adding the web-based Search and Status, OCC created a vehicle for users to gather and manage the information they needed, when they needed it. Search and Status can also be easily modified to work with any state’s one call center—it does not have to be installed in conjunction with an OCC call center computer system.

The excavating community’s response was overwhelmingly positive. “Based on the overwhelming positive response from stakeholders in Maryland,” says Ruddo, “we began offering Search and Status in all the centers we operate, even those without positive response systems.” Search and Status is extremely versatile and can be customized to meet a variety of needs. It receives a combined total in excess of 500,000 hits per month from all the centers served.

“We worked with both locators and excavators as we designed the Ticket Check system for Maryland in 2001,” says Ruddo, “Both groups wanted to know when OCC was going to design something to meet their specific needs.” OCC’s next web software project became the Locator Ticket Management System (LTMS).

‘A large group of facility operators with a wide range of needs’ adequately describes the core of participants in most one call centers. Larger utilities and contract locators tend to be more sophisticated and require different services from a ticket management system than do smaller operators. “Working directly in consultation with facility locators, we designed LTMS to be scalable and easily modified so we could quickly meet the needs of large and small companies,” says Ruddo.

LTMS is a feature rich application equipped with extensive mapping functionality which includes the ability to view excavation areas in the context of the facility operator’s notification area database. In addition to storing, retrieving and forwarding locate tickets, users can access scheduling and driving directions through routing functionality built into LTMS.

The system was designed with the needs of a broad range of locating operations in mind.

Users will find that LTMS has a fully-loaded billing module that can be scaled to meet the needs of a full spectrum of contract locating operations. Users will find that a template-based system of information gathering permits easy modification of the input of key data. That way, the user can determine the key variables LTMS tracks to support the needs of their organization.

Another important and unique feature of the LTMS application is the integration of positive response functionality. It can be customized to automatically provide responses to a one call center’s positive response system.

*Search and Status is extremely versatile and can be customized to meet a variety of needs. It receives a combined total in excess of 500,000 hits per month from all the centers served.*

In short, LTMS provides locators and facility owners with a comprehensive and user-friendly way to view, map and manage tickets online. Like Search and Status, it can be configured to support the needs of multiple states and will work equally as well in centers that run on other call center software platforms.

There are more than 250 individual LTMS customers in the United States. In addition, two state-wide one call centers have obtained LTMS for use by any of their participating facility operators.

“While the excavators working with us to help design Ticket Check liked Search and Status,” says Ruddo, “some of them wanted ‘something more’ to help them address specific issues they were facing.” Working together with excavators, OCC created the Excavator Ticket Management System (ETMS).

The primary function of this web-based tool is to store and organize an excavator’s ticket in one convenient location along with relevant notes and documentation. ETMS allows a user to track damages and upload

notes, photographs and other information about them, cross indexing them with ticket information. The system will also integrate with Ticket Check in those centers where it is available, allowing the excavator the freedom and convenience of warehousing all ticket information in one system. ETMS brings speed, convenience and ease of use to the process of managing tickets.

“Most recently, we were approached by several facility operators who wanted to automate their damage investigation processes,” says Ruddo. These companies were looking for a way to consolidate paper-based systems of reporting, tracking and processing facility damages. In exploring their requirements, OCC found that a web-based solution would once again provide the easy access to work collaboratively in processing damages. After less than a year of intense effort, OCC launched Damage Manager, which has been rapidly adopted by the facility operators in this focus group.

When asked about why these different systems have been so well received in OCC’s areas of operation, Hoff says that, “The key to the success of each of these products lies in making the data accumulated in the call center available to traditional users in non-traditional ways.” Tickets previously stored in the call center computer are combined with status responses received from facility operators that are stored in another system to create a “unit” of information never previously available: the combined picture of what is happening at a job site. When first introduced, this piece of information was a novelty. Excavators quickly found it saved them time and effort to find out through a message from the call center information they would have previously had to dispatch someone in a truck to determine.

Taking the data available across multiple systems like the call center computer and a positive response system, marrying it with reporting and on-line data storage is, as Hoff says, one way of re-combining previously captured data in new ways to increase its value. Ruddo, however, has a simpler answer when asked to account for the success of OCC’s web-based products: “We listened to our customers, and gave them what they wanted.” **UF**

*Jim Holzer has worked for One Call Concepts, Inc. in offices in five states and Ontario, Canada.*

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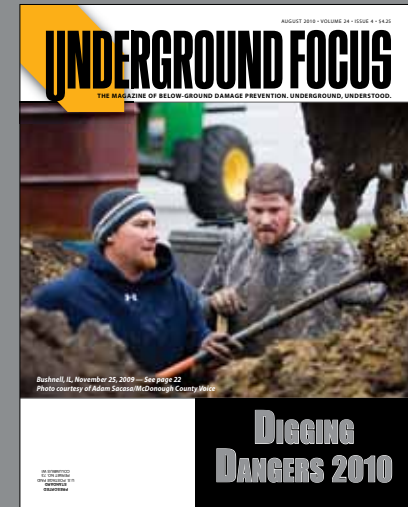
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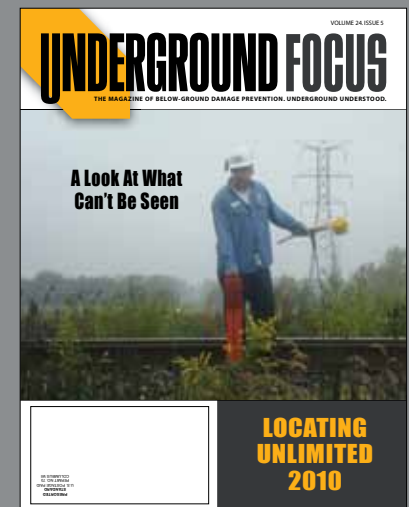


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# The Pedigree of Private Locating

## Blood Hound Underground Utility Locators

By Brian R. Clem

We all know the importance of having utilities located before undertaking any excavation activity. This used to involve making numerous calls to individual utilities. Now, thanks to dedicated damage prevention efforts over the last decade, excavators can contact virtually all utility service providers by dialing just three digits: 811. Education efforts by one-call centers and member utilities across the country have significantly raised awareness of the need to “raise the flags” and “call before you dig”. However, what about the lines which aren’t owned by utility service providers? How do excavators avoid the financial risk and employee safety risk that comes with damaging a privately owned utility? Fifteen years ago that would have been a difficult question to answer; there were almost no private locating firms. Contractors might have been able to bribe

a contract locator to mark a line or two, but there just wasn’t any reliable way of protecting private facilities. It was this observation that provided a young contract locator with the vision of a company that would “sniff out” these private lines for clients.

In 1999, Mark Mason along with his father, Robert Mason, founded a private utility locating company in Indianapolis named Blood Hound Underground. Like many small businesses working out of the family garage, Blood Hound had just enough starting capital to purchase a couple of Subsite 75 locators, some business cards, and a magnetic sign to put on the side of the family truck. In the beginning it was just Mark and Robert—both of whom had full time jobs—completing private locate requests in their spare time for Blood Hound. Before long, there just weren’t enough hours in the day (or days in a week) to fulfill all of the private locating requests.

Fast forward 10 years: Robert is retired but Mark is still hard at work as the President and CEO of Blood Hound Inc., overseeing a



fleet of dedicated vehicles, over a dozen full-time locating technicians based in 4 different states, and office locations in Brownsburg, Indiana (an Indianapolis suburb) and Cincinnati, Ohio.

*During the past 10 years, Blood Hound expanded as private locating evolved into a high demand service whose customers placed an ever-increasing emphasis on quality and comprehensiveness.*

During the past 10 years, Blood Hound expanded as private locating evolved into a high demand service whose customers placed an ever-increasing emphasis on quality and comprehensiveness. Ten years ago, most contractors would not expect a plastic water line or clay sewer pipe to be located. Today, most contractors expect all facilities within their job scope to be located. Very early in the life of the company, Mason noted the contractor’s expectation that all lines be located and chose to lead the field by acquiring advanced technology, such as fiber-optic pipe inspection cameras, vacuum excavators, and ground penetrating radar (GPR) which allowed him to locate lines that his competitors could not. Mason’s decision to invest in equipment and the training necessary to offer these services to his clients proved to be very beneficial. While there were many firms that provided all of these services piecemeal, there were no firms that could be contacted with one phone call and provide all of these services with one technician. Blood Hound changed all of that. Consequently, the impression that most contractors had of what a professional private locating firm should be and the services they offered changed, as well.

Speaking of the time he first saw the need for a private utility locating company, Mason said: “I was part of the contract utility locating field. As a field tech I noticed that I wasn’t required to locate everything on site when I was performing a typical ‘one-call’ style locate. As I moved up into a management role, I also kept noticing private line owners’ confusion as to why their utilities were not located. I decided that I wanted to go after that ‘second-



call’ market and I developed Blood Hound, Inc. I wanted to be a specialized company that was 100% focused on quality. Private utility owners have a smaller threshold of pain when it comes to damages to their utilities. They can’t simply call the power company when their electric line running between two buildings is damaged. They have to hire contractors to make repairs. When there’s excavation, they want to make sure their buried lines are properly protected by a highly-trained and certified technician.”

This philosophy of a quality, not quantity, driven approach has fueled the growth of Blood Hound from its humble beginnings in the family garage to a multi-state, multi-million dollar company. Blood Hound has experienced continuous growth since its inception a decade ago. In the past few years as most companies were scaling back operations due to the challenging economic climate, Blood

Hound continued its expansion by adding employees as well as revenue.

Central to this continuing growth plan are the safety and training programs put in place at Blood Hound. The training program at Blood Hound includes not only extensive training in locating methods and techniques, but also extensive safety training including OSHA 30-Hour, 40-Hour HAZWOPER, confined space entry, Smith Safe Driver certification and many other programs. While other locating firms may lay off employees during the slow winter months, Blood Hound uses this time to provide refresher and additional skills training for all employees. As a part of the expansion plans for Blood Hound, and in cooperation with Staking University, a dedicated training facility is currently being constructed to provide comprehensive locating training complete with a dedicated training staff. This will provide continuing education to exist-





One aspect that Mason never anticipated was the variety of items over the years that his company would be asked to locate. In addition to the private utility lines such as private water systems, electrical lines, private fiber-optic and other traditional utilities, Blood Hound technicians have been asked to locate buried storage tanks, buried industrial waste, and old building foundations. Additionally, Blood Hound has been involved in the forensic search for murder victims, pioneer era gravesites, and even archaeological surveys for airplanes!

At the end of World War II, the US Army Air Corp (the forerunner to the modern Air Force) needed a location to study captured German and Japanese aircraft, some of which was significantly more advanced than US aviation technology at the time. Freeman Field in Seymour, Indiana was selected as the site for further study of this captured material. Army documents suggest that more than 40 warehouses full of equipment was sent to this airbase. When the project was cancelled several years later, it is believed that most of this material was buried at the site. Now more than half a century later, a dedicated effort is being led by the Freeman Field Recovery Team (<http://freemanfieldrecoveryteam.com>) to locate these priceless aviation artifacts. Blood Hound is a key partner in the search for this material and several artifact burial sites have already been located.

ing employees as well as provide training to new employees for the unique challenges that come with locating private utilities.

Mason elaborates on the challenges in locating private utilities: "You never know what you will encounter from day to day in this field. Prints are rarely available, and on the occasions when you have them, they are often outdated or just flat out wrong. Our employees have to be investigators not just locators, and while experience with public utility locating can be helpful for a Blood Hound employee, that only represents about half of the training that they need in order to be successful in this field."

These requests for unusual services have resulted in further expansion of services offered. Based on customer requests over the past few years, Blood Hound has added GPS mapping services, leak detection services, and robotic sewer camera inspections to the already extensive list of services offered. The demand for additional services has even led to the creation of a sister company, Utility Damage Investigations (<http://www.utility-damageinvestigations.com>), which is dedicated to providing independent third-party investigations of utility damages as well as independent locating auditing services.

Blood Hound's dedication to quality, safety, and training, combined with their responsiveness to their customers' needs, has led to tremendous growth. In 2009, this growth was acknowledged by the Indiana Economic Development Corporation when Blood Hound was named one of the top 50 Indiana Companies to Watch. The award, which was given by the Small Business Development Center division of the Indiana Economic Development Corporation in conjunction with the Edward Lowe Foundation and Purdue University, is for 'second stage' companies with between \$750,000 and \$100 million in annual revenue and which have shown exceptional growth and entrepreneurial leadership. When asked about the award Mason said that "receiving the top 50 Companies to Watch award was one of the proudest moments of my life. Having this company singled out and honored in this manner was a tremendous validation of the hard work that I and the rest of the employees at Blood Hound have put in over the years."

Mason and Blood Hound certainly have much for which to be proud, and with an ever-expanding client base and geographic footprint, it is likely that pride will continue for the foreseeable future. Blood Hound's motto is: "It's Not Just Underground, It's Under Control." With their dedication to quality service and a commitment to leading the industry with new equipment, methods, and techniques, it is likely that they will keep things "Under Control" for the foreseeable future. The private locating market is the next frontier in the utility locating industry and Blood Hound is certainly blazing the trail into the future. **UF**

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# Quality—It's More Than Just a Word

## UNIBAR DPG

By Patrick Burk

EVP/COO, UNIBAR Damage Prevention Group



our operating procedures to ensure that we are following our QMS plan to the letter. The auditor took a look at our QMS from the top down and from the bottom up. From what we have learned, our ISO certifications are important to our employees because they take an active role in our quality processes and they have documentation to refer back to if they have any questions. Our quality processes are thoroughly reviewed, researched and documented. Our employees know that we are serious about providing quality service to our customers, that we are always looking for continued improvement along the way, and that they play a crucial part of this process.

Our ISO certifications are extremely important to our customers because they know our quality system is solid, documented, audited and proven. We attempt to demonstrate to municipalities and utility companies that if they take the time and seek out locating contractors that have achieved ISO certifications—contractors which can provide the proof of ISO registrations—this certification can take the place of

having prospective contractors to provide information on their quality, safety and training programs every time a RFP/RFQ is let out. I recently spoke to one of our suppliers that had to answer an RFI that had over 170 questions. It took our vendor over five hours to put the

*We recognized early on that if we wanted a “true atmosphere of quality” then our company needed to have a quality system.*

answers together for this RFI (Request for Information). Who knows how long it took for the client to analyze the answers. By simply

UNIBAR Damage Prevention Group decided that just talking about quality within our organization was not fair to our employees, our customers or future clients; we needed more. Many companies strive to achieve quality by emphasizing motivational and attitudinal factors. The assumption is that quality is created when technicians have both the right motivation and the right attitude. While employee motivation and attitude are great places to focus, they alone won't get you far unless you support them with a proper structure that implements policies, procedures, training, resources and technological advances. UNIBAR DPG has successfully created an attitude of quality by creating our Quality Management System (QMS) in which we continually strive to achieve a “world class” standard of quality within our organization for our employees and customers. We recognized early on that if we wanted a “true atmosphere of quality” then our company needed to have a quality system. This is why we searched out ISO 9001:2008. After a lengthy process and a lot of hard work by our staff, we successfully became a “certified” ISO 9001:2008 company.

In order to become a “certified” ISO company we had to undergo a series of audits conducted by the auditing arm of ISO. This is a third party auditor that takes an unbiased look at



### ISO Quality

providing ISO certifications to potential customers, the ISO qualification could replace a time consuming screening process.

There are a lot of companies that are competing for locating business. If the contractors in this industry want to stand out and provide superior service in this market, then the thing to do is to have your QMS certified by ISO. This tells your customers and potential customers that you are serious about safety, quality and ensuring that their contract expectations will be met or exceeded. It is our belief that customers will pay more for our service and are more likely to extend existing agreements if our service consistently meets their needs. We recently received an RFQ from a major telecommunications company and one of the requirements of their agreement was that the contractor be either ISO certified or be able to become ISO certified within 180 days of the contract being signed. This is one of the first contracts we have seen with the ISO language and I believe it shows that utilities are becoming aware of the value of a contractor that has ISO certifications.

At UNIBAR DPG, we are required to have internal audits performed on a quarterly basis and then have our annual audit performed by a certified third-party auditor. Our QMS is reviewed by our executive staff on a monthly basis and all Key Performance Indicators (KPI) are reported at that time. This is the time where our Continuous Improvement Teams (CIT) can gather the information required to come up with ways to show improvement in

all of our KPI goals and objectives. If auditing uncovers a process is not being properly followed, a “non-compliance” report is issued and corrective action must be taken immediately. Our quality objectives and KPI are established and reviewed on an annual basis and then our team communicates the KPI to the UNIBAR DPG organization to ensure that they are understood. The involvement with all of our employees ensures that our goals for quality, safety, efficiency and customer satisfaction levels are either met or exceeded.



### ISO Environmental

UNIBAR DPG has also made our training and annual locator certification a part of our ISO process. We have utilized the training standards and locator qualifications of Staking U as an integral part of quality processes. It is important to ensure our locating staff is trained in all aspects of utility locating. When our field technicians perform their work, it is important that they have a full understanding of how the all of the buried utilities at a site may impact their ability to mark their target utility in an accurate manner. We may not be responsible for locating every utility on the jobsite but we are responsible to understand how they may all interact with each other.

I recently spoke with Gary Sloman, Executive Director for New Mexico One Call, Inc. They are currently going through the ISO 9001 auditing and hope to have their certification by year's end. It is encouraging to see that the leaders in the one call industry are also recognizing the value of obtaining ISO certifications. We need to see more partner-

*From what we have learned, our ISO certifications are important to our employees...*

ing with quality measures in the damage prevention industry. In the past, it seemed that the locating industry shied away from having any type of “locator certification.” In the long run, however, we believe having your locating company “certified” in quality, environmental and safety should make you one of the leaders in the industry. Much like the price of a locate does not reflect the “true cost” of a locate, the size of the locating company does not matter as much as the quality provided.



### ISO Safety

The long and short of ISO: If a company goes through the process of becoming ISO 9001 certified and passes the audited third party review, they are a company that is truly dedicated and committed to providing quality to their customer.

UNIBAR DPG currently holds certifications in Safety (OHSAS 18001:2007), Quality (ISO 9001:2008) and Environmental (ISO 14001:2004). **UF**

## Seeing the Picture More Clearly Engineer Uses State-of-the-Art Locator to Confirm Locates

### RIDGID

Headquartered in Pensacola, Fla., Peterson Engineering Inc. is a consulting firm that specializes in the design of engineered mechanical, electrical, plumbing and fire protection systems. The engineering firm offers a variety of services, which often requires the project engineer to have an understanding of underground utilities.

Peterson Engineering relies mainly on ground source radar to locate underground utilities. However, on more complicated projects, the project engineer uses a utility locator to confirm the ground source radar's readings.

Gene Freeman, an engineering assistant at Peterson Engineering for 15 years, was assigned the job of locating underground utilities at a military research center for high explosives to develop new blueprints of the facility. As an engineering assistant, his responsibilities include fieldwork verification, locating, measuring, energy surveys and system design. Like many military bases, this military research center has an intricate, complex underground utility design. Knowing the complexity and sensitivity of the project, Freeman decided it was time to purchase a new utility locator with updated technology. After researching several locators, Freeman chose the RIDGID® SeekTech® SR-20 locator.

The RIDGID SR-20 uses a combination of multi-directional antennas, a revolutionary mapping display, and state-of-the-art processing, providing more information to effectively and easily locate underground utilities. The SR-20 not only traces transmitted frequencies, it also offers advanced passive modes that allow users to search for other metallic lines that might be present.

The SR-20's unique mapping display and audible tones help guide the user by showing 1) target line direction and changes in direction as they occur 2) left-right guidance arrows 3) signal strength and 4) a proximity number that increases as the locator gets closer to the target.

#### Why Choose the SeekTech SR-20 Locator?

Freeman chose the SR-20 because of its multi-directional antennas, ability to read the depth of utilities, induction mode option and ease of use.

These features were useful when Freeman located the utilities at the military research center. According to Freeman, the project was complex because he was locating in a restricted area, and the existing blueprints of the utilities were incomplete, as newly installed utilities were not documented.

"We weren't always sure what each utility was and where it went. Some sites were either abandoned or cleared, but the utilities still existed. It was like being on a treasure hunt," said Freeman. "I would see all the underground utilities with the ground source radar, but I would need to isolate each utility with the SR-20 by getting a definitive signal. So we put the RIDGID SeekTech ST-305 transmitter on a pipe, such as a chill water pipe, and traced that particular pipe to differentiate that with other utilities in the ground. The SR-20 helped us to identify utilities that were in the ground. When we found a line that was metallic or with a current, then we traced it. We could follow it about 90 percent of the time."

In this instance, Freeman had used the SR-20's induction mode to confirm whether or not a particular utility was carrying an electrical current. Induction is the transfer of energy from one circuit (a transmitter antenna) to another (a utility line) without metal-to-metal contact. It is another way to make current flow in a circuit when the locator cannot make a direct connection or when direct connection does not provide desirable results.

"Using induction worked well, considering that there were quite a few utility lines around that were disrupting the locate readings," said Freeman.

#### Seeing Underground More Clearly

According to Freeman, the SR-20 provides a clear reading of where the utility line is, allowing him to easily follow the line and make markings. With the ground source radar, he

has to walk back and forth over the ground to receive a clear picture of where the utilities are located. Freeman says that he sometimes loses track of which pipe he is trying to locate because there can be four or five pipes grouped together, as shown on the ground source radar screen.

Peterson Engineering was also contracted to locate large underground fire protection lines at an air force facility. On both the research center and air force facility projects, Freeman found the SR-20 display screen to be useful. The display screen was helpful in showing where a utility made a turn, so Freeman could continue to trace the line correctly. The display screen's ability to continuously show the depth of the line helped Freeman to accurately locate as well.

"The SR-20 is more sophisticated than many of the locators I researched. It has more features and capabilities to verify that I'm locating the correct utility. The SR-20 visually guides me to where I need to go," said Freeman. "Also, the SR-20 goes the distance. Other locators' signals quit, and I have to start the locate over again. The SR-20's signal stays strong, so I can keep locating and complete the job more efficiently and timely."

Freeman says that he completed the locating project at the military research center in two days, and that it probably would have taken a week with other locators. The second project, which would have normally taken a day to complete, only took half a day.

"Because of the SR-20's state-of-the-art features, locating time is cut in half," said Freeman. "Also, as a result of using the SR-20, we've been more accurate, and it's taken less time to be accurate."

Using the SR-20 in conjunction with the ground source radar gives Peterson Engineering the ability to take on more difficult locating jobs with increased confidence.

Anybody can call us to locate, and we know we've got the best equipment to do the job. Having the SR-20 is the difference between having the ability to locate and not being able to locate at all," said Freeman. **UF**

## RIDGID® LOCATING

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Marco Chavarria, Team Manager, Novinium



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According to Chavarria, "The SR-20 distinguished energized from de-energized cables where there were multiple feeders running in the ground. The locator's exact pinpointing prevented the power company from cutting into a hot cable." Because of the SR-20's superior accuracy, Novinium now uses RIDGID® locators as standard equipment for all cable rejuvenation work.

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## When it Comes to Sewer-Jetters — One Size Doesn't Fit All Applications Trailer-Mounted Systems Ideal for Smaller Diameter Pipes

*McLaughlin*

By Greg Ehm

Many municipalities — large and small — are faced with a daunting challenge. The sewer infrastructure winding under these communities is rapidly showing its age, and funding to rehabilitate these lines is limited at best. Maintaining proper flow within sewer lines is becoming ever more critical.

Numerous things can restrict flow in sewer pipes. These may include tree roots, minerals, dirt, grease, sludge and damaged pipes. Depending on the size of the community, it may have a department that specializes in cleaning sewer pipes. However, in many cases this work is subcontracted.

Sewer jetting is an effective method to remove unwanted debris from sewer pipes ranging from 4 to 72 inches in diameter. The sewer-jetting process is quite simple — high-pressure water is introduced into the sewer pipe via a hose equipped with a specially designed jetter nozzle that directs water forward and also to the sides of the pipe. The jetter nozzle can produce up to 5000 psi and blast away debris within the pipe. The water pressure also will pull the nozzle and hose through the pipe. The idea is to always work uphill, so as you're cleaning debris out, it's flushing down the pipe. As the debris flows downhill, it is removed from the pipe with a hydro excavation vacuum.

There are a number of different types of sewer-jetting systems available. Some systems are dedicated units that focus only on the sewer-jetter cleaning function and require a separate vacuum unit to remove the debris from the sewer line. Other systems combine the vacuum and sewer-jetter functions into one unit. There are also trailer and truck-mount-

ed units. Truck-mounted units typically are designed to clean larger-diameter pipes while trailer-mounted systems are ideal for sewer pipes up to 20 inches in diameter.

While truck-mounted units have been the norm, contractors and municipalities are turning to trailer-mounted systems for a couple of reasons.

*“... trailer systems are very effective in cleaning sewer pipes up to 20 inches in diameter and at a lower cost compared to using the larger truck systems, ...”*

“The main reason for the shift is that trailer systems are very effective in cleaning sewer pipes up to 20 inches in diameter and at a lower cost compared to using the larger truck systems,” says Mike Moore, vice president of sales for McLaughlin. “This allows the municipality to expand their coverage and dedicate the more powerful truck system on the larger and more difficult sewer-jetting projects. Most trailer-mounted systems begin as a hydro excavation vacuum and then a sewer-jetter system is added to the unit.”

The City of Oldsmar, Fla., did just that. The water department purchased a trailer-mounted system and the deciding factor over a truck-mounted unit was cost and maneuverability.

“We purchased a 500-gallon trailer-mounted unit for storm-drain maintenance,” says John Derry with the City of Oldsmar. “Cost was the main driver in selecting a trailer-mounted unit. We needed another unit and couldn't warrant the cost for a truck-mounted system. The trailer system gives us everything we need in a small package. In addition, the trailer system is easier to get into hard-to-reach projects and more cost-effective to mobilize than a big truck.”

The biggest drawback with the trailer-mounted systems is water flow. If root infiltration is an issue then an under 30 gallon per minute system is not going to have the power to cut through the root system. In addition, due to the lower water flow, the smaller trailer units don't have the power to effectively clean pipes larger than 24 inches in diameter.

### Matching water flow and nozzles

“Before you purchase a unit, it's important to fully understand the type of work that needs to be completed,” says Moore. “Then be sure to select a sewer-jetter unit that will produce the water flow necessary to effectively accomplish the task at hand. While water pressure is a consideration, the water flow rate really is the determining factor. We offer two water flow rates — 12 gallons per minute at 3000 psi and 25 gallons per minute at 2500 psi.”

Why the difference? Well it really boils down to what you are trying to remove from the sewer pipe and the type of nozzle you plan to use. It's more of a gallons-per-minute

function. With each nozzle you want to make sure you've got enough water flow to effectively complete the job.

“It's all in proportion,” says Moore. “Many times you can use the same nozzle on a 12-inch and a 24-inch pipe as long as what you're trying to accomplish is the same. If you are cleaning the sides of the pipe, then you need a nozzle with a lot of outside pressure going to the walls to get that pipe clean. Removing a clog requires a forward cutting nozzle. In the case of root infiltration, then you might use a specialized cutter that goes onto the nozzle and a water flow rate of at least 45 gallons per minute.”

Moore encourages customers to work with the sewer-jetter manufacturer about the task at hand so they can help you match the appropriate water flow rate to the correct nozzle. It's also important to match the appropriate diameter hose to the nozzle as well. Too small of a diameter hose will limit water flow to the nozzle and reduce its effectiveness.

It's also important to make sure the unit has a good quality vacuum blower with suction strong enough to remove the debris flushed from the pipe. The size of the holding tank is also a consideration. If you're pumping 12 gallons per minute and have only a 100 gallon holding tank, then within nine minutes the tank will be full.

### Routine maintenance and safety considerations

Maintaining the integrity of the nozzles is important. Make sure they are working properly with regular inspections and cleaning of the heads as needed. If the nozzles begin to wear, they likely will not hold the required pressure to effectively clean the pipe and should be replaced. Also inspect the lead section of the hose. This portion is more rigid than the rest of the hose and can wear easily. If wear does begin to appear, it should be replaced.

From a safety standpoint, make sure the nozzle is completely inserted into the sewer pipe before you turn the system on. If this is not done, the hose will begin whipping and could cause injuries. Most importantly, before entering the manhole to position the sewer-jetter hose, test the air quality and visually inspect the area for any safety concerns, and then make sure no one enters the manhole during the sewer-jetting process.



Depending on your needs a trailer-mounted sewer-jetter system may be the ideal solution to your smaller-diameter sewer cleaning projects. Plus, since the heart of a trailer-mounted sewer-jetter system is a hydro excavation vacuum, you get some added versatility to help clean catch basins and pothole for utilities. “It's a lower-cost method of getting in and get-

ting your pipes cleaned,” says Moore. “Plus it offers better maneuverability and gives you an option to do more than just sewer jetting down the road.” **UF**

*Provided by McLaughlin, Greenville, SC. Greg Ehm is a technical writer for Two Rivers Marketing.*



# ACCIDENT FILE



**STOW, OH**—07/19/2010—Stow police said a company working for the cable television company hit a 6-inch gas line. A gas leak caused a truck to explode forcing the evacuation of thirty-five homes. Police said one worker was burned and taken to the hospital but was expected to recover. The fire burned for approximately two hours.

**HARMAR, PA**—7/27/2010—About 9:20 p.m. on Tuesday in Harmar, a gas contractor ruptured a gas line, officials said. Officials evacuated several stores. Traffic was diverted until repairs were made about 4:30 a.m. Wednesday.

In June, the gas company started to replace about 2,500 feet of main line along Freeport Road and the work is continuing through August. A gas spokesman said the contractor bumped into a service line leading from a 20-inch main line to the Comfort Inn.

**FOX CHAPEL, PA**—7/28/2010—A natural gas line damaged by excavation sent flames shooting high into the sky in a Fox Chapel residential neighborhood. It was the second ruptured gas line in the area within 12 hours. No one was injured in either incident and state officials said they are checking to see if the contractor called Pennsylvania One Call before digging.

A Fox Chapel fire captain said a contractor working for a homeowner was using a trencher when he apparently hit a gas line leading to the home.

**BEAVER DAM, WI**—07/30/2010—A gas leak along a road reconstruction project led to a temporary evacuation of numerous Beaver Dam residents Friday afternoon. A contractor using a backhoe

damaged an 8-inch gas line just before 2 p.m., releasing a large quantity of gas into the surrounding neighborhoods. According to the Beaver Dam Fire Chief, officials evacuated an area between a quarter and a half mile surrounding the leak, including a block east and south, and two blocks north and west.

The Beaver Dam Police Department, the Beaver Dam Fire Department, the Dodge County Sheriff's Department and the Dodge County Emergency Response Team all helped evacuate area residents and redirect traffic. The Sheriff's Department used the Code Red phone notification system to inform residents of the situation.

By 3 p.m., most residents were allowed back into their homes and the gas company gave the "all clear" at 3:15 p.m.

**SILVER SPRINGS, MD**—08/06/2010—A contractor working on an overpass for the Intercounty Connector ruptured a 12-inch gas line situated in the median just before noon, said a spokesman for Montgomery County Fire and Rescue Service. Crews cleared traffic and searched nearby houses for gas. No one was injured and a nearby school was evacuated as a precaution, he said.

"A total of 45 firefighters responded to the scene including the hazardous materials team with some specialized instruments used to detect gas levels in the air," the spokesman said. Crews from the gas company arrived at 12:20 p.m. and shut off gas to the section of the line by 4:30 p.m. before starting to repair the line.

**DAPHNE, AL**—08/09/2010—Residents of three subdivisions were without water service in the Daphne area after

a crew boring a fiber optic line hit both a Belforest water main and a Fairhope gas main on Baldwin County Road 64, authorities said.

The initial water line break occurred near the intersection of County Road 64 and Alabama Highway 181. When repair crews shut down the water main, a second water line break occurred farther west on County Road 64.

**ALBUQUERQUE, NM**—08/11/2010—A backhoe struck a gas line on Albuquerque's West Side igniting a tower of flames visible from much of the metro area. According to the Albuquerque Police Department, no one was injured in the incident which occurred in an open area about 5:45 p.m.

The fire continued to burn until just before 8:30 p.m. when the gas company stopped the flow of gas. About two dozen gas customers lost service due to the line strike. It was not until the next morning that the area cooled enough for crews to make repairs, a gas company spokesperson said.

A spokesperson for the electric company said a power outage beginning about 4:40 p.m. and affecting nearly 2,400 customers was also related to the same contractor digging in the area. All but 23 electric customers had service restored by 6:30 p.m.

**NEWBURGH, IN**—08/17/2010—The gas company was forced to shut off gas to a Newburgh neighborhood and evacuate fifteen people after a person accidentally hit an underground pipe while doing construction in the area. The Newburgh Fire Department says a person digging along a fence line hit a high-pressure two-inch gas main causing a leak.



**INDIANA COUNTY, PA**—09/13/2010—At 12:45 p.m., a construction crew grading two lots struck a 4-inch plastic gas line with a bulldozer, sparking a fire that sent flames shooting about 45 feet into the air. Gas company crews had to dig down to the line and clamp it off. The flames subsided about 2:30 p.m.

An assistant fire chief said firefighters did not douse the flames shooting from the ground, instead concentrating their efforts on cooling down the area around the fire. "It's important to let it burn so we know where the gas is," he said.

A gas company spokesperson commended fire crews for not dousing the flames. "What they don't want to do is put the fire out because that gas can migrate," he said. "It seems everybody really did their jobs well. The firefighters paid particular attention to dousing the exterior of a nearby building to keep the fire from spreading."

A spokesperson for the contractor said his company contacted Pennsylvania One Call and had all the utility lines marked before work began last week. "The gas line was marked, but the gas line was 17 feet away from where it was marked," he said. "We do everything we're supposed to. We do the utility one-call and we wait for that. It's just a line that was not where it was supposed to be." *Photo courtesy of Guy Wathen, Tribune-Review*

The gas company said the property owner operating an auger was responsible for hitting the main and it believed the property owner did not have utility lines marked before digging.

**RALEIGH, NC**—08/18/2010—A construction crew working on a road resurfacing project hit a water main that delayed the project's completion by a day or two due to the flooding of an intersection. The City of Raleigh responded to the leak and some brief water service interruptions occurred while repairs were taking place.

**ROBERTS COUNTY, TX**—08/25/2010—A 44-year-old Canadian man was sent to the burn unit at a Lubbock hospital after he struck a gas line while operating an excavator. The gas line exploded following the line strike which occurred about three miles south of F.M. 281. Firefighters from Ochiltree and Roberts counties responded to the blaze.

The accident occurred 10 weeks after three workers were killed in two excavation accidents involving gas pipelines in Texas. (See our special issue—*Digging Dangers 2010*)

**DAYTON, OH**—09/01/2010—Contractors removing gravel from a river bed accidentally hit a pair of unmarked sewer pipes causing raw sewage to leak for about four hours into the Great Miami River before crews were able to contain the spill with a makeshift dam. Officials said a utility worker incorrectly marked the pipes, each two feet in diameter. The EPA was on site monitoring sewage levels in the river.

**AUGUSTA, GA**—09/08/2010—A construction contractor punctured a gas line while working on a horizontal directional drilling project in front of a church. Leaking gas rose like clouds of smoke as it carried dirt from under the road and asphalt from the road into the air. Firefighters evacuated the buildings near the leak and maintained a safety zone until the leak was no longer a safety concern.

**MILWAUKEE, WI**—09/20/2010—Representing half of the state's customers for the local cable television supplier, the greater Milwaukee area lost cable television service after a fiber cable was accidentally cut, a company spokeswoman said. The cable was cut by a third party, she said.

Although TV screens went fuzzy, phone and internet service were not affected. The television outage covered an area as far north as Mequon, as far south as Oak Creek and west into Waukesha County.

**MT. PLEASANT, TX**—09/23/2010—A contractor drilled through a natural gas pipeline and also into a sewer line which allowed the leaking natural gas to enter the sewer line. In addition to the Mount Pleasant Fire Department, units from every volunteer fire department in the county were called in to assist, as well as Mount Pleasant Police Department, Texas Department of Public Safety, and the Titus County Sheriff's department. After several tension-filled hours spent checking on natural gas levels in homes and sewer manholes, residents in a 20-block area of Mount Pleasant were cleared to return to their homes.

**REXBURG, ID**—09/23/2010—Shortly before 11 a.m., building maintenance workers were pulling out tree-support poles along the sidewalk when gas began hissing from a hole. "That pole went up in the air 10 to 15 feet," said the man who pulled out the pole. The stakes had been



driven into the ground when the trees were planted one-and-a-half to two years ago, said another member of the maintenance group.

A quick 911 call got Rexburg Police and the Madison Fire Department on the scene. A short time later technicians from the gas company arrived and the leak was stopped about 45 minutes after the incident began.

**CACHE VALLEY, UT**—09/24/2010—A backhoe cut through a power line on Mount Pisgah creating an outage that affected the broadcasts of HD-TV translators, some FM radio signals, and impacted cell phone service. Repair of the severed cable was estimated to take eight hours.

**RIDGEFIELD, CT**—09/26/2010—Crews plowing the ground near the Branchville station of the Danbury-to-Norwalk Metro-North railroad line cut a cable that led to a blackout of phone and cable television service to many in the Georgetown area. The crews are doing preliminary work on a \$53 million project to modernize the signaling system along the 24-mile transit line.

A spokeswoman for Metro-North said the agency had done its due diligence with utilities to find any cable in the area before it began the work. She went on to say telecom repair crews had to splice about 600 wires together. "That's a lot of splices," she said.

The spokeswoman went on to say that the telecom provider did inspect the area before the damage but "there are so many cables that utilities have buried over the years. They're like a bone a dog buried, then forgot."

**DENISON, TX**—09/29/2010—Denison Fire officials say a city work crew was trying to repair a sewer line around 1:30 p.m. when they hit a natural gas line with a back hoe. An assistant fire chief said the gas line was improperly marked, which led to the accident. Firefighters arrived and immediately evacuated the area. The gas company was then called in to stop the leak. No one was injured.

**NEW HAVEN, CT**—10/01/2010—Workers from a construction company installing a new gas main struck a six-inch, high-pressure gas main with a power saw around 10:30 a.m., according to a gas company spokesperson.

The fire chief said this is the third time workers have hit a gas main downtown in recent memory. He said he would convene a meeting with the gas company to make sure it doesn't happen again.

**PLATTEVILLE, CO**—10/04/2010—The Platteville Fire Chief said of a man who hit a gas line while operating a trencher: "He took off running," the chief said, "and there was another explosion. We don't know if his burns came from the first or second explosion." The man was taken to North Colorado Medical Center where his injuries were not life-threatening.

Weld County Sheriff's Office spokeswoman said the trencher was fully engulfed in flames and the county roads in the area had to be temporarily closed.

**BOONE COUNTY, IA**—10/06/2010—A high pressure gas main was struck resulting in the discontinuation of gas service to a large section of the county for much of the day. A rural electric cooperative crew installing an electric service struck the gas main resulting in a large leak.

A local fire chief commenting on the leak said, "The problem is there's no real shut off on this high pressure gas main." Firefighters remained on the scene throughout the day.

**ALBUQUERQUE, NM**—10/06/2010—A water main break happened around 7 p.m. after a contractor hit a line. Repair crews spent over 15 hours repairing the leak and had to close several lanes of the roadway resulting in clogged vehicle traffic and a reduction in traffic for local businesses.

A water utility spokesperson said water pressure had been severely reduced to people living in three apartment complexes, a dialysis center and about 50 homes. The county water authority got the water pressure back up at full strength just before noon the following day.

**SAN ANTONIO, TX**—10/07/2010—A contractor struck a primary electrical cable that supplies electricity to the upper campus of Trinity University. A spokesman for Trinity said that the campus gets most of its electricity from the damaged cable. "The generator in RTT powers our main core data room," he said. "All the fiber on campus connects to that building, and we have switches in there that handle all that. So when those switches go down, the entire campus goes down. Damages will be in the tens of thousands of dollars; it's hard to predict the exact amount right now."

Trinity's crisis management team, comprised of representatives from different departments, gathered as soon as this problem was detected and took the necessary measures to ensure safety on the campus.

**PULASKI, WI**—10/07/2010—A construction crew installing cable struck a gas line forcing the evacuation of about 1,300 people from the local high school. The fire chief said the crew was digging near an area where a gas line had been marked but the immediate area where the line was struck had not been marked. "There are markings on one side of the road but they are not on the other side," according to the chief.

**CLAY, NY**—10/18/2010—The local water department said that the town's highway department was placing a sign when it struck a water main. The leak disrupted water service to approximately 50 homes for about three hours.

**RENO, NV**—10/22/2010—The repair of a city water line resulted in a damage to a city sewer line, one that was not on the city's map. Working under portable lights, city crews were out until 10 p.m. applying a temporary fix to the sewer line. The City Public Works Director said the damaged sewer pipe was an odd size causing a permanent fix to be delayed until repair parts could be ordered and received. The director said they knew about one sewer line along the street, but not the unmapped line. **UF**

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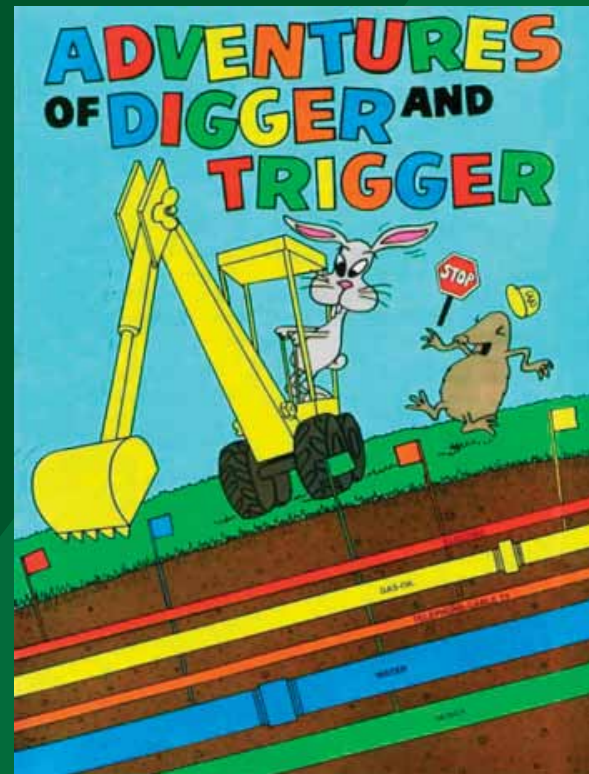
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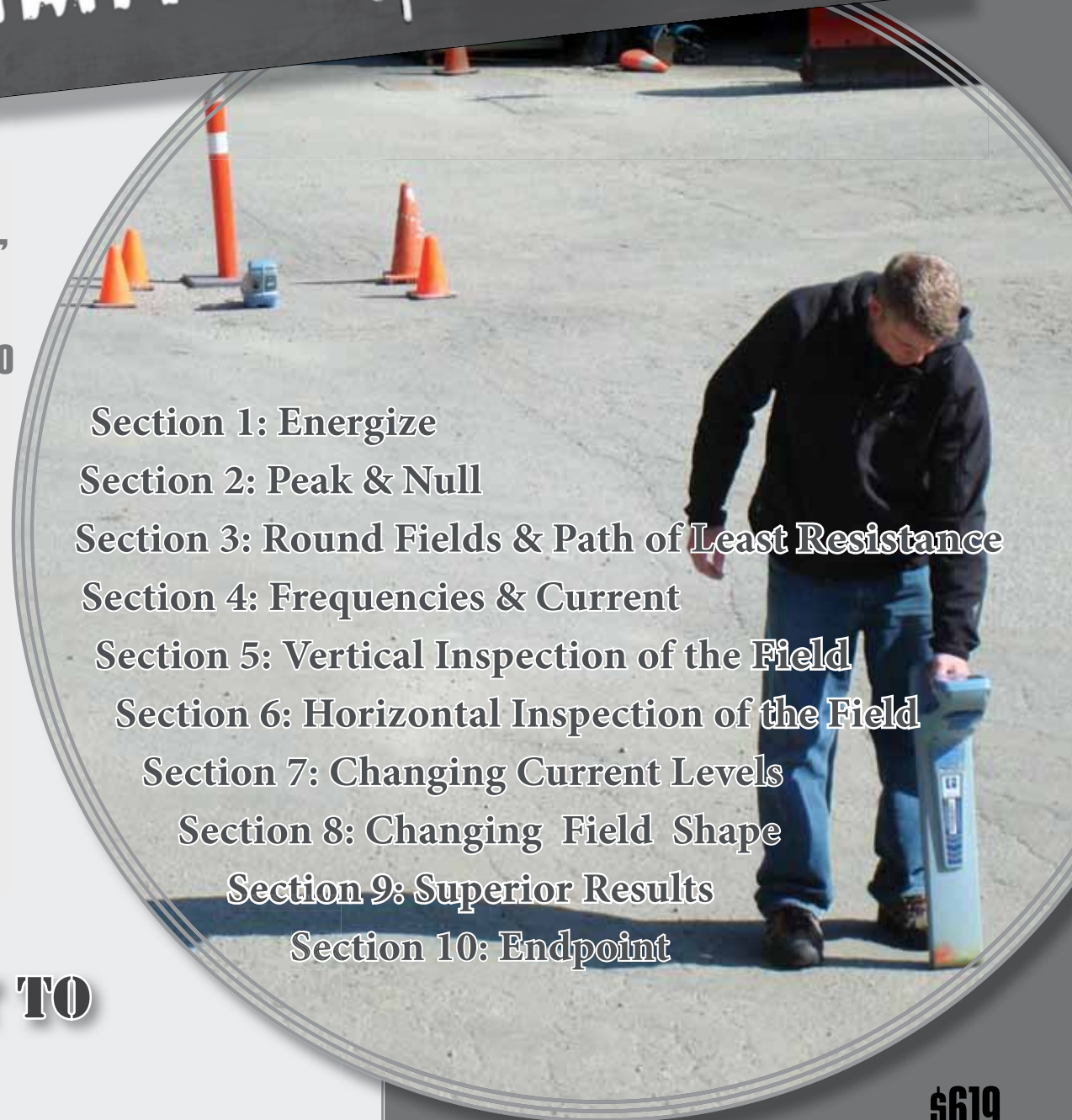
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