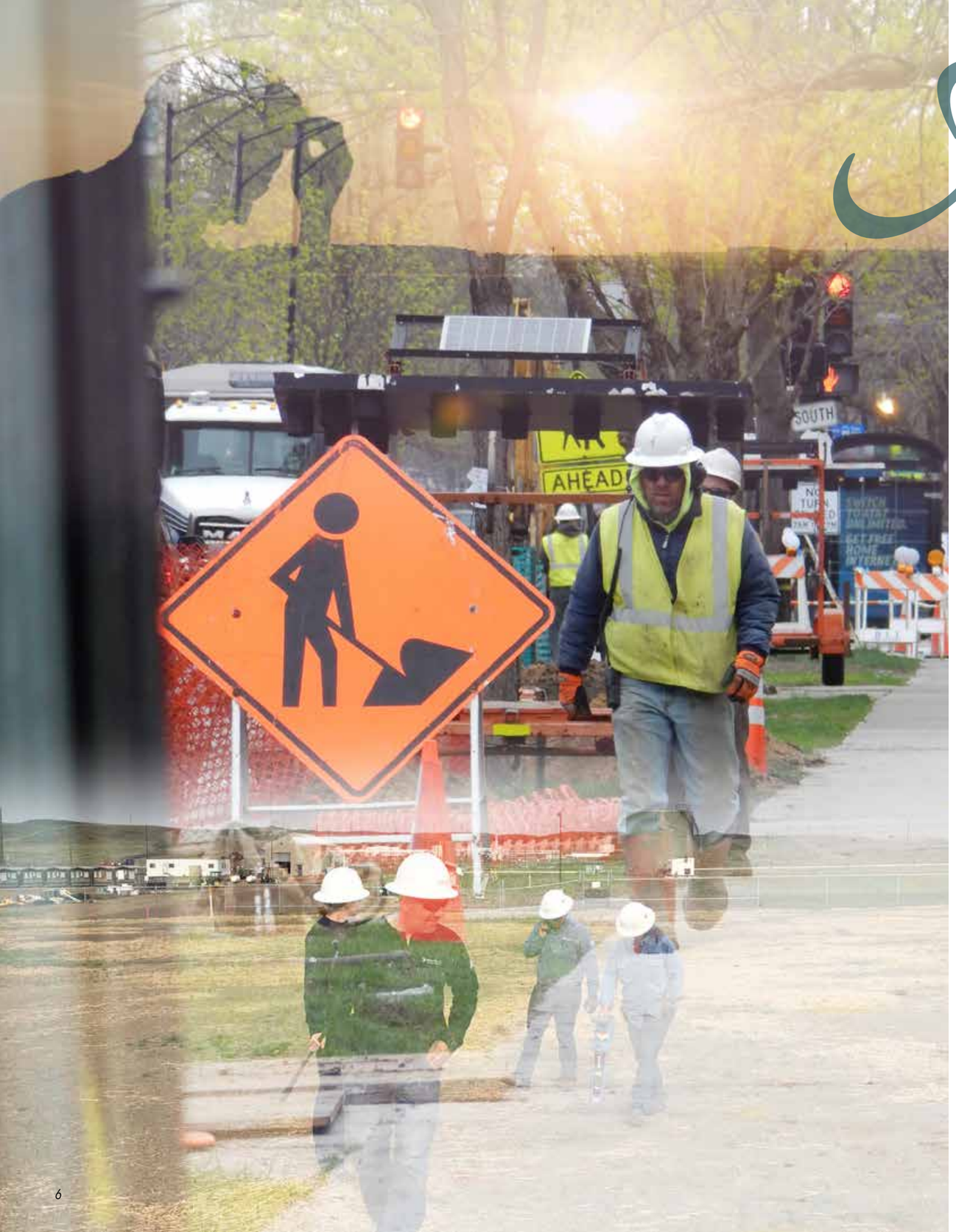


A New Mindset FOR DAMAGE PREVENTION

By: Fred LeSage, Senior Construction Risk Engineer, XL Catlin

Ever wonder what commercial insurance has to do with buried facility damage prevention?

As a Construction Risk Engineer, loss prevention and risk mitigation is what I focus on every day with our customers. When a contractor insured by my company strikes a buried facility, it often results in a general liability claim. My company then has to work with our insured contractor to research the case involving the strike, and when the contractor is at fault, pay the facility owner and others for property damage and injuries caused by the contractor's work. Most of the time, the claims are small and we pay damages that cost us a few hundred or a few thousand dollars. But sometimes the checks that insurers write to pay for damages are very large.

Costly Claims

It's usually not a big deal when one of our insured excavators hits a telecommunication line. Of course we may pay to have the line repaired, and at times, for affected customer or customers' business interruption expenses. Most times, even a strike that cuts a buried high voltage power line or a gas main results in just minor repair costs. Sometimes it's much worse. On occasion, this can result in massive property damage, multiple injuries, or even death, with insurance companies paying millions of dollars to those affected. See what happened in Canton, IL in 2016 (https://www.youtube.com/watch?v=EpdqhrlWxKI) or in 2017 on the Outer Banks of North Carolina (https://ocracokeobserver.com/2018/03/16/settlement-calls-for-bridge-builder-to-pay-10-million-for-blackout/).

Helping Customers Reduce Their Risks

As an insurer, why do we care about all this? Well, we're in the business of helping excavators manage risk. Every time they put a shovel in the ground, take a scoop with a track hoe, or push the rods of a drill rig through the underground, they risk hitting existing utilities. They risk causing damage on a par with Canton, IL or the Outer Banks. Few contractors have the financial wherewithal to pay off losses like these, so instead they pay insurance premiums to limit their financial exposure as a result of a strike.

As a Risk Engineer, I work with our customers directly every day. I spend time in the field on their job sites, see what they're up against, and try to help them implement what we see as the best practices being done across the construction industry. That includes implementing best practices in buried utility damage prevention. If they're successful, then we're successful.

Lessons Learned

Throughout my 14 year insurance career, I've had experiences with insurance claims, interactions with contractors, locators and utility employees in the field, and many conversations with participants in Planet Underground's Roundtable events. Through these experiences, I've learned a lot, and have identified several areas that can be improved upon.

First, I think the damage prevention world is currently fundamentally flawed in its approach. Today's system is currently set up not to prevent damages, but rather to define who pays for the damages when they occur. So why do I say that? It has to do with a lot of things, that taken alone might not lead you to that conclusion, but in aggregate make it a reality.

> **"...I think the damage prevention world is currently fundamentally flawed in its approach. Today's system is currently set up not to prevent damages, but rather to define who pays for the damages when they occur."**
>
> *-Fred LeSage*

I was in a recent meeting with an insured contractor and gas utility representatives. The gas company representatives told the contractor that in the event they had trouble finding a buried gas line when potholing, they could call the gas company to send someone to help them locate it. While the gas company has drawings showing where the lines are, they refused to share them with the contractors. If truly interested in preventing strikes, why wouldn't they provide every possible piece of information to the company trying to avoid hitting them? You see, the utility probably fears that if it shared those drawings with an excavator, who then used the information contained in them but struck a buried line anyway, they might be found liable for the strike. Maybe they're right. It's not hard to imagine a court case where an attorney argues that the utility that owned the facility and provided an inaccurate location of it on a drawing should be at least partially liable for the excavator hitting it. In the current environment, however, such a strike will almost always be found to be the fault of a contracted locator or the excavator. And it will be the locator, the excavator and/or their insurer that pays for the damages.

In discussions with equipment representatives, contractors and utility companies, I've heard similar stories. At last year's Planet Underground Roundtable, a gas company representative said that his company had offered to place RFID marker balls for other utilities when those other utilities were exposed by gas company excavations. They had no takers. The other

utilities weren't interested. And then there is the drill rig manufacturer whose equipment will produce a post installation map with 3D coordinates showing the exact location of where their machine has installed a buried line. Contractors using their machines have offered the maps to the utility companies and municipalities they work for, but the utilities and municipalities declined the offer. Why don't these facility owners want to know exactly where their lines are buried? To me, there's only one plausible answer. They fear they'll be held liable for knowing where the facility is, and in the event of a disastrous strike on their facility, for not sharing that knowledge with the excavator. As long as they don't know, it's not their fault.

Lessons From Around the World

In the U.S., we've set up the one-call system theoretically to help us avoid utility strikes. Typically, excavators contact the call center at 811 and facility owners (or more likely their contracted locators) go out and mark on the surface the approximate location of their buried lines. Excavators then (again, theoretically) rely on those marks to help them avoid striking the lines. Our colleagues from other parts of the world look at this as a rather ridiculous system. In Australia, for example, excavators who call in a one-call dig ticket are provided with utility drawings and are expected to locate buried lines themselves and not hit them with their excavating equipment. The idea is that you give the excavator all the information you can possibly provide to keep him from hitting a buried line.

> "There are other things about current 811 law that are costly, and in many cases unfair to excavators. It's the guilty until proven innocent part."
>
> *-Fred LeSage*

The Australian process comes with a lot of side benefits. The contractor keeps his trained locator with his excavation crews so they only locate the places where active excavation is taking place. If the excavator needs help locating a line while he's potholing, the trained locator is right there on the crew to assist in the process. It makes the whole process more efficient and is generally more collaborative. In the U.S., while there is some collaboration, the utilities, excavators and locators operate in self-protect mode. Each organization executes its part of the damage prevention equation in a way to minimize their own financial liability. However, when a strike happens, the result is a lot of finger pointing. "He dug on an expired ticket," "The marks were off by four feet," or "The utility buried their line too shallow" are all common responses. And they might all be correct at different times, but when you've blown up a building or injured members of the public, does it really matter whose fault it is? Well it does if you're only concerned about who is going to pay for it.

The 411 on 811

There's been an interesting development in the U.S. as a result of the current environment. Many utility installers are engaging in post-811 locating. That is, they employ their own locators with their own excavation crews to verify the marks put down by locators responding to one-call tickets. It's a "trust but verify" situation where installers realize, that in the end, it's worth the extra step to make sure they don't strike a buried facility.

Current 811 laws set penalties for those who fail to meet the requirements of the law. Penalties include fines that are used to create funding for promoting damage prevention. Promotions include things like TV commercials, radio commercials and participation in public events to remind folks to call 811 before they dig. In the most recent year that Illinois' 811 operation JULIE has provided data (2015), there were 267 enforcement cases resulting in about $88,000 in fines. The vast majority of these penalties were assessed against excavators with just 28 violations assessed against locators.

The thing to remember, is that enforcement action doesn't happen on every utility strike or even on most of them. In most cases, the law was followed but the strike happened anyway. Why then spend the money raised from fines on TV and radio ads? The vast majority of excavators, locators and facility owners all know the law and truly try to follow it. Another problem that could be skewing the balance of violations, is that most contractors are unlikely to file a complaint about the performance of a utility or its locators. It usually isn't worth their time, and since they might one day want to work for the utility, they aren't going to bite the hand that might one day feed them.

Impact on Excavators

There are other things about current 811 law that are costly, and in many cases unfair to excavators. It's the "guilty until proven innocent" part. Sometimes, strikes on utilities are discovered many months or even years after they occurred. This may happen when a telecom fiber or electric line eventually fails, long after its outer sheath was damaged by a strike.

My company frequently sees insurance claims come in from our customers where a facility owner alleges that an insured contractor was responsible for one of these "ancient" facility strikes. Usually what happens is, the utility goes back to the most recent dig ticket for the location of the damage and accuses the excavator of unknowingly hitting their line. Our excavator client then has to have an employee dig through records of old jobs until they can establish whether or not they were even close to where the damage occurred. Remarkably, the excavator is often able to show that their work was on the other side of the street or provide photographs of potholes that show them cleanly crossing the damaged line. When a claim is denied on the basis of this evidence, the utility backs off the claim.

In recent years, we've received increased calls from law firms trying to collect on such damages where the utilities have agreed to pay them a percentage of whatever they can recover. So what happens next? Does the utility go to the next oldest dig ticket and try to recover damages from that excavator? Does some excavator eventually pay the bill because he can't prove it wasn't him? Don't forget, guilty or innocent, the accused excavator has to have expended the hours and wages of some employee or employees on trying to defend himself. Again, it's much more about who is going to pay for the damage than preventing the strike in the first place.

Changing the Mindset Through the Pipes Act

What can we do to change the mindset from "Who's going to pay for the damage?" to damage prevention. Changes to the law will help. The Pipes Act of 2016 has some good first steps, although it is limited to rules on pipelines. We don't have anything yet to begin addressing telecommunications and electrical facilities. Here are some ideas to move the industry forward:

- **The Pipes Act has a provision to research and produce a secure database** of buried pipelines that is shared with stakeholders. While a good start, it should address all underground facilities, not just pipelines.
- **Buried facility owners should be responsible for knowing where their facilities are.** In the days before directional drilling when every buried line was installed in an open trench, it was relatively easy to create accurate as-built drawings. It's still possible today with this method of installation. Directional drilling systems exist today that allow similar as-built information to be produced quickly and easily. Every time an existing utility is exposed, its location should be recorded and/or marked with an RFID tag. For a time, we'll still have to deal with unlocated (and in some cases unlocatable) facilities, but this will improve as years go by.
- **Buried facility owners should be responsible for knowing where their abandoned facilities are** or for removing those lines when they are no longer needed. Many utility strikes occur because excavators misidentify an abandoned line as the live line they have attempted to positively locate. Abandoned lines have the effect of creating decoys that lead excavators to incorrect decisions. Utilities should communicate the existence of those abandoned facilities to give the excavator a better chance to avoid a live line strike.
- **Utility owners should be required to share their maps and facility location information** with excavators if requested. The excavator should be given every opportunity to do his work safely. Openly sharing the information is one way to do that. Not only would it would make the system fairer, but it would also improve public safety.
- **Project owners should carry some financial responsibility for damages** that occur on their projects. In most cases, their contractors carry this burden due to contract indemnity clauses and must balance the pressure from the owner to complete the project with the need to avoid strikes on existing facilities. Owners should bear a portion of this burden to ensure their active participation in the avoidance of strikes on existing buried facilities.

There's probably a lot more we could do. Maybe at some point we should turn all the locating over to the contractors themselves like our friends from Australia do. And maybe we need a uniform database or map system that shows where every underground facility is. While I really believe we need to change the mindset to damage prevention versus determination of financial responsibility for damages, the financial responsibility piece cannot go away. When someone gets hurt or killed or property is damaged or destroyed, there needs to be a way to compensate the injured parties. But we need to recognize that when a Canton, IL or Outer Banks, NC event happens, it's not just one contractor or utility or locator who failed, it's the existing system that failed to adequately protect the public.

Contractual Indemnification

Terms to Learn!

That's a couple of big words put together. What they mean is that when a facility owner or general contractor hires another company to do work for them, the contract will require that company to pay expenses and legal defense costs associated with anything that goes wrong during the performance of the work.

For example, if a gas utility employs a locating firm to do its one-call locates, the contract will require the locating firm to indemnify the gas utility for any damages arising out of the work associated with the locates it performs. Another example would be where a telecom company employs a general contractor to install miles of fiber and the general contractor employs subcontractors to directionally drill the fiber installations. The contract between the telecom firm and general contractor will require the general contractor to indemnify the telecom firm. The contracts between the general contractor and the drill rig firms will require them to indemnify the general contractor and the telecom firm.

PLANET UNDERGROUND.TV

Vermeer: A Tradition of Global Innovation

After driving for nearly an hour through the green, hilly farmlands of eastern and central Iowa, we suddenly came upon an unusual site: a series of large rectangular buildings set side by side, almost a "country mile" in length, situated on the outskirts of the charming small town of Pella. This complex of buildings rising out of the endless horizons of farm country constitutes the corporate headquarters of Vermeer, one of the world's largest manufacturers of agricultural and industrial equipment.

In a true manifestation of the Horatio Alger myth, and in the spirit of immigrant stories throughout this country's history, young Gary Vermeer's family came over from the Netherlands and landed in a small, central Iowa farm in the early 20th century. By 1943, Gary was running the family farm and listening to the problems and issues facing his fellow farmers, including having to deal with the arduous task of emptying corn from the back of a grain wagon by hand. Soon, Gary developed and manufactured a mechanical hoist for the wagon that made this chore a thing of the past. When his neighbors saw it in action, they wanted one for themselves, and to meet the demand for this revolutionary new product, Gary created Vermeer Manufacturing Company in 1948. Vermeer then began a campaign of almost continuous growth and expansion, spearheaded by a series of innovative products and designs that have become commonplace tools in the farming and construction industries.

Brenda Kelderman gives our team a tour of the Vermeer museum

"Gary Vermeer created Vermeer Manufacturing Company in 1948. The company has continued its growth and expansion, spearheaded by a series of innovative designs that have become commonplace tools in farming and construction." *-Editor*

Global innovation is a hallmark of Vermeer's design and development

Automation and Communication

During Planet Underground's two-day visit to Vermeer, we got to meet a lot of the people that are integral to the success of the company and see first-hand the culture that keeps a company like this at the forefront of the industry. First, we were given a fascinating guided tour of Plant 7's factory floor by Continuous Improvement Manager Matt Paschal. Here many of Vermeer's signature products are made, including their horizontal directional drills. Starting in the central receiving bay, we got to see some fully automated guided vehicles (AGVs) in action, robotic carts that travel between work areas and deliver pieces and parts to their proper location. As Matt explains, "The AGVs have installed software so that each unit knows where it is in the plant, as it follows the layout of the shop floor. Whenever an operator is ready for something, they can hit a button and send the AGV to pick up a cart full of supplies and deliver it to the line."

Continuous Improvement Manager Matt Paschal points out some of the highlights of Plant 7's factory floor where parts for their Navigator HDDs are made and assembled.

We then saw the "supermarket" that provides finished pieces and parts for Vermeer's small and large tractor lines, as well as their small and medium Navigator® HDDs. As with everything in the plant, efficiency and ease-of-use is key, and the parts are placed together according to the finished item that they will make. "Typically, these parts are set up by the area and the cart that it goes to," says Paschal. "So, if this was for the hood of the D23, everything will be right here, so we don't go back and forth and back and forth. We don't want to be walking eight miles a day trying to pick parts."

Despite the use of automation in the plant, human workforces make up most of the labor, and keeping open lines of communication with the workers on the floor is vital. Employees are cross-trained three deep on the lines, not only to dissuade monotony and boredom, but to make sure all areas can be covered if someone falls ill, or goes on leave. Listening closely to everyday workers is important as well, and helps run a smooth and efficient plant, especially when compiling feedback about potential issues or problems on the lines. "When you cross-train people, it actually brings up those kinds of issues, and we will want to take care of them," says Paschal. "We don't want to hide our problems, we want to be able to fix them."

Matt shows us their factory Managing for Daily Improvement (MDI) Board where key items such as quality, safety, delivery, and cost control are continuously monitored. The 5S column contains a check list of daily tasks and tracking of any problems that may arise on the floor.

Training the Operators

Next, we left the busy factory floor and headed outside to a large field on the outskirts of the Vermeer compound. Here we got an up close view of the HDD Circuit Training Site, where a group of eight students were currently being trained on a row of four horizontal directional drills as part of a two-week program. Vermeer offers a two-week course on everything related to properly operating their HDDs, and according to Customer Training Manager Dan Vroom, they are already booked for the rest of the year. As he explains, this is due to "the high demand for qualified operators to fill the pipelines for all of the upcoming work."

> "We don't want to hide our problems, we want to be able to fix them." *-Matt Paschal, Vermeer*

Launched in November 2015, this program also allows students to get hours of hands-on training on an HDD without being out in the field, and without putting wear and tear and taking off warranty hours from a jobsite unit. The class starts with a brief test to gauge the knowledge base of the students. "From there we have a six-hour classroom session that covers safety, mud-mixing, drill fluid mixing, and some of the common components that they would see on a rig," says Vroom. "Day two, we cover DCI locating equipment, the rebar sonde, and some of the latest technologies that the guys will be exposed to out there."

But perhaps the most crucial part of this HDD training course, is learning how to write up and prepare a bore plan. "The key takeaway to the success of our program is showing our students how to draw out a bore. They learn

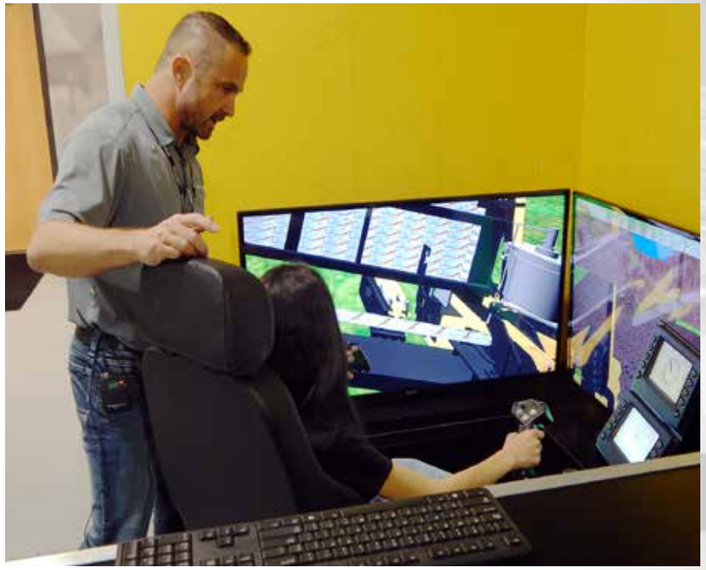
Top: Dan Vroom, Vermeer Customer Training Manager, talks with us about the high demand for their HDD Circuit Training

Background: Vermeer's HDD Circuit Training spans two weeks of intensive hands-on field work

how pitch affects the depth, and then will calculate a 300 ft. bore and write it in their tally books. They come out to the jobsite with a plan and then execute that plan." Because of that focus, they can bring students to the outdoor site here, and they can start using their plan immediately their first day on the drill, even with no prior HDD experience. With the remaining six days repeating these lessons of drilling, mud-mixing and locating, the students gain the confidence necessary to go back out in the field when they get home. "That type of repetition, it allows them to trust their judgement abilities on the fly and get them where they need to be over two weeks."

HDD Simulator

While nothing may be able to truly replace hands-on training and experience, Vermeer has developed and created a very realistic, accurate experience of operating the controls on their horizontal directional drill with their Navigator HDD Simulator. Like the HDD circuit training, the simulator, which looks like something out of a 1980s video game arcade, allows operators to train on a unit without real-world worries, and without putting usage on an expensive piece of equipment. It also comes in handy when considering space and situational needs, especially in more crowded urban areas where one might not be able to set up HDDs for proper training use. As Training & Development Specialist Zach Pickard explains, "We've seen a large number of these go out to our customers and our dealer networks that are trying to get hands-on experience without having to actually find space to put the drills in the ground."



Above: Zach Pickard, Training & Development Specialist for Vermeer, gave our team a trial run working the controls of the Navigator HDD Simulator.

> "A guy can get on this thing and do a lot of repetition work, and then jump right on a drill of ours and it would be a limited amount of time before he is up to speed and drilling in real life."
>
> *-Zach Pickard, Vermeer*

Again, while it might be difficult to exactly replicate a real-world drilling experience, the ability to endlessly and safely train in a controlled environment is invaluable. Pickard adds, "This machine does very well in trying to get repetition of use. Sure, you don't feel the pressures of the ground and some of the underground structures that are there, but you do get a very good sense of trying to run the sticks and the controls."

And if a customer can't make it to Pella, Iowa to take a two-week HDD training course? Well, the HDD Simulator, accompanied with dealer provided training, can be the next best thing. "We've had a number of successes with these machines with our customers and dealers, because they often have new employees or personnel that they are trying to get up to speed on the HDDs," says Pickard. "The beauty of Vermeer's S3 line is that the seats and the buttons are the same throughout the entire line, and the HDD Simulator has that exact same set up. A guy can get on this thing and do a lot of repetition work, and then jump right on a drill of ours, and it would be a limited amount of time before he is up to speed and drilling in real life."

Above and Beyond

It would be easy enough for a company like Vermeer to simply churn out HDDs and other products and turn a blind eye to their customer and user base, but that is not how they operate. After seeing firsthand the careful and efficient creation of these machines, and then all the extra hours put into training their operators, it's clear that Vermeer goes above and beyond what would normally be required of them.

The entire time we were at Vermeer, I never came across an employee who seemed tired, bored or resentful of where they worked. Everyone seemed engaged in what they were doing, dedicated to the company and their position within it, and excited to be a part of Vermeer's future. Is this the legacy of Gary Vermeer, who started with nothing and built an empire in the endless cornfields of central Iowa? If inspiration leads to innovation, then surely it must be so.

We'd like to extend a special thank-you to everyone at Vermeer for making us feel welcome at their facility, and an extra special thanks to Cory Mass, Kipp Ulferts, and Brenda Kelderman for their kindness and patience during our visit!

As we prepared to go to press, we learned of a devastating tornado that hit the Vermeer Corporation headquarters in Pella IA, July 19th. Our hearts go out to all those affected. We are confident in their strength and perseverance to rebuild and come back even stronger!

Background: Vermeer headquarters' expansive exhibition hall houses the HDD Simulator and provides a staging ground and testing area for newly built equipment

Vermeer's Navigator HDD Simulator

Excavation Safety

National Excavator Initiative - Part 2: Lights...Camera...811!

Mike Rowe

In our last issue (Vol. 32 Issue 2) of American Locator, Lindsay Sander of the National Excavator Initiative (NEI) was kind enough to give us an overview of the important work that the Sander Resources' team was involved in to bring greater awareness of calling 811 and providing excavators with as much information as possible to ensure they had the best tools and resources for damage prevention.

In Part 2 of our coverage on the NEI, Lindsay reveals some exciting news about her team's collaboration with TV celebrity, Mike Rowe (of *Dirty Jobs* on the Discovery Channel and his new web series *Returning the Favor*) to help promote 811 awareness, some of the additional steps that all involved with excavation should be undertaking, and the importance of our public infrastructure. Persevering through personal and business challenges on the road to making this unique collaboration possible, Lindsay shares with us what comes next as filming commences in California on a series of PSA and awareness videos.

Lindsay, so how did your involvement with Mike Rowe first come about?

We have been involved in damage prevention and 811 related efforts since I started my career nearly two decades ago. Several years ago, we began raising money to support a national media buy to air the Common Ground Alliance public service announcements on National 811 Day in August. Over the course of these efforts, we raised about $2 million on a pro bono basis. During planning activities for 2016, Mike's name was brought up in terms of sponsoring his new podcast. That wasn't possible at the time, because the timing wasn't right. However, we knew from that very moment we wanted to get Mike involved. He was the right person to help move the ball forward. We couldn't think of a better person who would resonate with our audience, the professional excavator, and the American public in general. They trust and love him.

As soon as we got off the phone call on which Mike's podcast was discussed, I wanted to reach out to him. Sarah pulled me back and made several of us conduct extensive research on Mike to make sure we wouldn't be surprised by anything in his background. The more we read, the more we liked him and knew he was the right guy. He gets it, and our target audience loves him.

After a couple of months of research, we wrote Mike a letter explaining why we felt this issue was so important to everyone, especially those who had followed him for years from the *Dirty Jobs* perspective, and the importance of the workforce issue to our industry. We were stunned but thrilled when Mike's team reached back out to us. They have been wonderful and very patient as the utility and pipeline industry operates slowly compared to their world. Mike is as genuine in person as he is on TV, has a great way of connecting with people, and he sees the importance of the issues we face. He has a saying that "civilization is connected with pipes," and he's absolutely correct. If we don't have our underground infrastructure, the everyday things that we've come to depend on go away.

Tell us about the recent filming with Mike. What type of planning went into finally putting this together?

Pulling all of this together has been a tremendous amount of work, and we are really just getting started. We contacted Mike and his team almost two years ago. 811 is not a simple concept. There are so many players involved. There's not one central organization that oversees it, and every state law is a little different.

In some respects, this is one of the most complex puzzles you can put together. I give his team credit for juggling everything they do. It is an absolute art, and they are extremely good at what they do. Once you agree to the concepts and deliverables, the real work begins. The creative development and refinement process moves forward, the production team engages, and all the logistics for everything from food, to securing the locations for the filming, gets underway. It is an enormous team effort.

> "We couldn't think of a better person who would resonate with our audience, the professional excavator, and the American public in general." *-Lindsay Sander*

When will the final videos be released?

The website will go live in July, but most of the media will not be available until later in the year. The videos filmed in July will be released to supporters of the Initiative late this year, and the campaign will run through late 2019. And you know we are obviously looking for companies to support and engage with this as well as other activities that are ongoing. The more people who support this effort financially, the more people we can reach. It is really that simple.

Have you had the chance to talk with Mike about why he's been interested in being involved with this project?

When our team began researching Mike, we learned that he believes that everything comes down to two core industries: agriculture or mining. And from our experience, most don't have an appreciation for how the lights come on every day, or how their water gets to their house, or how their natural gas gets to their home for cooking or to gas stations to fuel their cars. By making people aware that underground facilities exist, and why they are there, it can hopefully help educate people more as to what we depend on every day to make our lives work and the safety steps necessary to protect that infrastructure and themselves. I will defer to Mike on why he was willing to get involved in the project. I have a feeling before this is done he will share his perspective.

On a personal note, I also want to pay tribute to Sarah Shamla and her efforts to bring this effort forward. Sarah passed away unexpectedly at the age of 42 just hours after the contract with Mike's group was signed. She had worked tirelessly on all aspects of NEI for the past two years. She was loved by all and will be missed more than anyone can imagine. Please keep her family in your thoughts and prayers.

Filming at the San Diego Gas & Electric training center