

# PROBING TIMES

a publication of **Geoprobe Systems**

INNOVATIVE RIGS AND EQUIPMENT FOR THE  
Environmental, Geotechnical, Geothermal and Mineral Exploration Industries

Spring 2011



Paul Werrick with Eichelbergers Inc. in Mechanicsburg, PA, uses a 7822DT set up with air rotary in southern Pennsylvania.

Look inside for the ...  
**NEW 8140LC**  
Rotary Sonic!



# Geoprobe® 8140LS and



## 8140LS ROTARY SONIC

A field team for Walker Hill Environmental, with offices in Mississippi and Louisiana, use the new Geoprobe® 8140LS (long stroke) Rotary Sonic on a gas field site.



Easy to see! The little gravel layer (right), encountered at 17 feet near Indianapolis, IN, is a great example of why the Geoprobe® DT45 sonic tooling is better than typical bagged cores. The DT45 cores accurately keep the geology changes in the actual core interval. The DT45 liners also allow easy visual construction of the formation for accurate core logging, they minimize core disturbance since it doesn't require vibration of the core during extraction, and they make the samples easier to handle and transport.



## Geoprobe® Sonic Tooling



Geoprobe® 7.625 in. sonic casing.

The Geoprobe® sonic program has been ongoing for over 10 years! During that time, our team of engineers have designed, built, and tested numerous product prototypes ... all in the pursuit to develop the best product in the sonic industry. Geoprobe® sonic rigs and sonic tooling systems have logged countless hours of testing in the most unforgiving conditions. After careful analysis of existing technologies, customer interactions and feedback, and rigorous field testing, this new Geoprobe® sonic tooling emerges as the most robust and most reliable sonic equipment on the market. The Geoprobe® sonic product lines include 3.5 in., 4.5 in., 6.0 in. and 7.625 in. casing systems, and dual tube systems including DT45.



6-in. sonic core barrel sample collected using 8140LC Rotary Sonic.



# 8140LC Rotary Sonic

**NEW!**  
**8140LC**  
ROTARY SONIC



8140LC Rotary Sonic operating under a canopy using standard 60-in. Geoprobe® sonic tooling.

*introducing the ...* **8140LC** ROTARY SONIC

Team Geoprobe® does it again! Our customers liked the new Geoprobe® Rotary Sonic rigs with the GV4 Sonic Heads, but wanted to make sonic holes in confined areas and under typical outdoor canopies. So we're introducing our newest sonic rig ... the 8140LC Rotary Sonic (low clearance). It has many of the same features of the 8140LS (long stroke) including the GV4 Sonic Head, designed and built by Geoprobe® engineers. Call us for more information!

- Exclusive GV4 Sonic Head ... Designed & Built By Geoprobe Systems®
- Complete Sonic Holes Under Most Canopies
- Equipped for Optional Rod-Handling System Upgrade
- Built on the Proven 40 Chassis
- Carries the Industry-Leading Geoprobe® Warranty
- Built by Team Geoprobe®

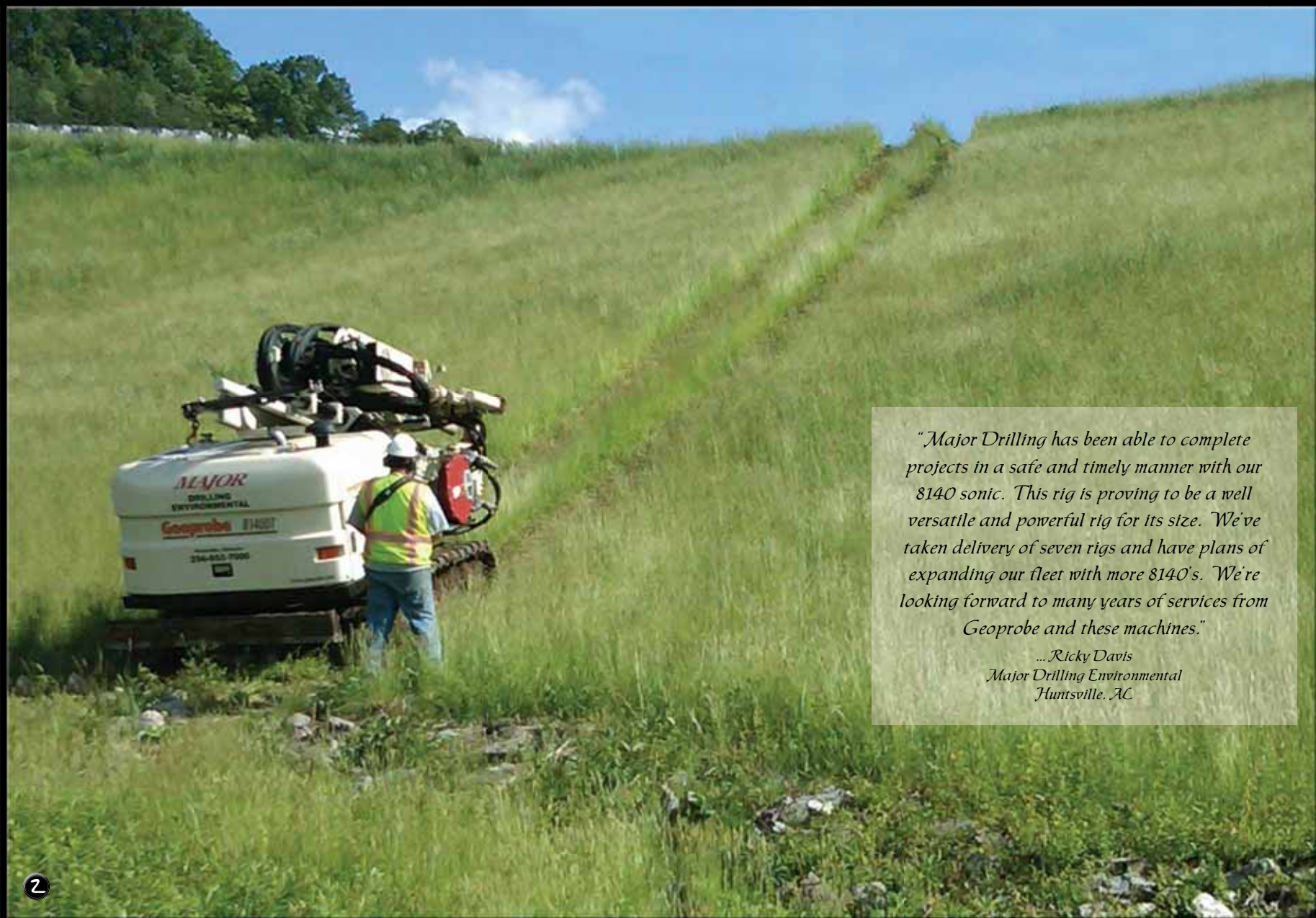


8140LS Rotary Sonic with Rod Handling System



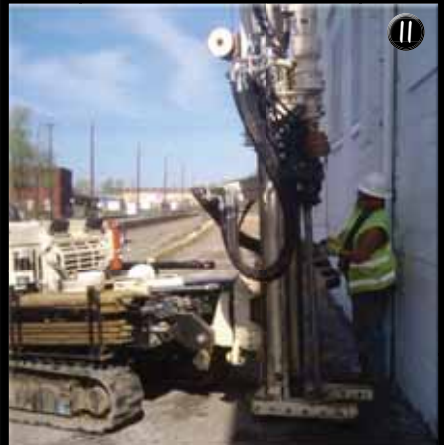
8140LC Rotary Sonic





*"Major Drilling has been able to complete projects in a safe and timely manner with our 8140 sonic. This rig is proving to be a well versatile and powerful rig for its size. We've taken delivery of seven rigs and have plans of expanding our fleet with more 8140's. We're looking forward to many years of services from Geoprobe and these machines."*

*...Ricky Davis  
Major Drilling Environmental  
Huntsville, AL*



- 1 "I love this machine! Clients love the fold-up table on the drop rack. Two words describe this machine for me: User Friendly."  
*Tim Saris, Driller Foreman, East Coast Drilling, Moorestown NJ*
- 2 "Major Drilling is currently operating seven 8140 rigs. They are proving they'll soon be a leader in the drilling industry. We're happy with the performance of the machines."  
*Ricky Davis, Field Operations Manager, Major Drilling Environmental, Huntsville, AL*
- 3 "We keep coming back to Geoprobe® due to the quality of product, both in engineering design and manufacturing. But it's not only the product, it's the people supporting the product."  
*Paul Fleischmann, President, ZEBRA Environmental, Lynbrook, NY*
- 4 "Our 8040DT has remained consistently busy up and down the West Coast. Its small footprint, abundant power, and unmatched versatility keep it consistently busy in both auger and direct push applications"  
*Darryl Metzger, Operations Manager, Cascade Drilling, Clackamas, OR*
- 5 "When it seems everyone needs more for less out of their drilling contractor, I can count on Geoprobe Systems® to meet shipments and even repairs to help us eliminate downtime in the field. Geoprobe® adds value to our team."  
*Gary Hill, Owner, Walker Hill Environmental, Foxworth, MS*
- 6 "I'm getting a lot of geotechnical work with this machine (7822DT)! It's small, it fits easily under canopies, and it's great for drilling 10- to 40-ft. geotechnical holes."  
*David Paulson, Owner, Soil Essentials, New Glarus, WI*
- 7 "The 8140 sonic rig has been performing very well. We installed monitoring wells and performed soil sampling to depths up to 125 feet inside a closed manufacturing facility. Our client was extremely pleased with the small amount of cuttings, and we were happy with the performance of the rig."  
*Ben Huss, Owner, Huss Drilling, Dade City, FL*
- 8 "In order to add to the 7822DT's impressive versatility, we added an air swivel to allow for the use of downhole air rotary hammers. Enviroprobe added the 7822DT to supplement our fleet after some of our Geoprobe equipment was sent to our new office in Hollywood, FL."  
*Timothy Gallagher, Owner, Enviroprobe Service, Moorestown, NJ*
- 9 "One of the biggest advantages of our new 8140 sonic is the ability to install angled wells. This was a big addition to our "tool box", and increased the services we provide our clients. Our operators enjoy its ease of use and the efficiency of the rig and sonic head when dealing with difficult lithology."  
*Todd Hodgson, General Manager, Groundwater Protection, Orlando, FL*
- 10 "We've been impressed with the ability of our 8140 to install monitoring wells. Our first jobsite with the rig was in dense clay. The rig went right through it. It was impressive."  
*Doug Leonhardt, President, Environmental Drilling Services, Orlando, FL*
- 11 "Innovation. Geoprobe® products and tooling are always being improved upon. And the Geoprobe® service department is second to none!"  
*Dennis Samsel, Owner, Geo Logic, New Albany, IN*
- 12 "Geoprobe® is clearly the leader in developing new technology. It's really their customer service that sets them apart. I have a strong confidence in Geoprobe®."  
*Mark Schock, Owner, Glacier Drilling, Durham, CT*
- 13 "Due to the small access and overhead wires, we put our new 7822DT on the job. We turned 8.25 in. augers to rock and drilled 8 in. air rotary to install a 4 in. monitoring well. We were impressed with the machine's performance!"  
*Dan Sponseller, Operations Manager, Eichelbergers, Mechanicsburg, PA*





# Partnering with our Customers

Geoprobe Systems® may be the pioneer of the direct push industry, but we recognize our customers as 'experts in the field.' From nearly Day One, it's been our customers who have pushed us, encouraged us, and held us accountable along the way. The result is the development of new technology and a continuously improving line of equipment and tooling that helps those same customers make money and catches the attention of people in other industries. It's a great partnership!

At Geoprobe Systems®, we're known for making high-capacity equipment for the technical drilling industry. According to Tom Omli, Sales Director for Geoprobe Systems®, "It has become increasingly popular during the last decade to equip Geoprobe® rigs with multiple features. It affords our customers numerous subsurface sampling options, from direct push, hollow stem auger, air rotary, mud rotary, and even sonic. Geoprobe® users from around the world are continually amazed at how powerful, flexible, and effective their 'small' Geoprobe® equipment is at completing difficult projects."

Our customers speak better to this than we do (some of their comments are on the facing page). They speak to power, flexibility, efficiency, profitability, and support ... all of which are important to each of them ... AND to us. And they aren't just referring to one particular Geoprobe® model. They're describing the entire Geoprobe® line including the 7822DT, 8040DT, and 8140 rotary sonic rigs.

## POWER...

"I believe, and my customers are experiencing the same, that the 8040DT is the most powerful combination rig on the market," said Victor Rotonda, Customer Service for the Mid-Atlantic region. "My customers are being asked if they have the 8040DT when new work is available. One customer was hired because they owned an 8040DT even though one of their 66 series rigs could have done the job. He also shared that when they purchased their 8040DT they saw work increase for the smaller machines in their fleet as well."

"The power of the 7822DT definitely has had an impact on my customers," said Lee Shaw, Customer Service for the Midwest Region. "One customer ordered a second 78 machine just a couple weeks after taking delivery of his first, all because of what it could do."

According to John Martinuzzi, Customer Service for the Southeast region, "our mid-sized sonics are in the field competing with larger sonic rigs and making a solid impact. And they're allowing our customers to make a statement. There's nothing better than new paint on the jobsite. People will remember who moves forward in tough economic times."

## FLEXIBILITY...

A Geoprobe® machine isn't just about direct push anymore. A first-time Geoprobe® owner couldn't believe the 78 rig was turning augers in addition to direct push. "It was his first time at the controls and he was totally impressed with what the machine could do," Lee said. "And now they're taking on geotechnical work that they weren't able to do in the past."

Another customer saw an 8040DT on a jobsite in Ohio doing air rotary work and told Victor, "I've got to have it." And now he does! They're using the rig for wet rotary geotechnical work, setting monitoring wells at bedrock.



## EFFICIENCY...

Geoprobe® engineers focus not only on the performance of a machine, but also on the ease of use and safety of the operator. "The Drop Rack System helps eliminate unnecessary lifting of heavy tooling at the jobsite," Tom explained. "The power cell of the GH64 hammer (on the 7822DT) makes service a breeze. Our user-friendly control panels provide immediate feedback to the operator as to what's going on with the machine. And all of the rigs have auxiliary hydraulic ports with on/off controls at the operator's panel. Everything to make field operations more efficient."

## PROFITABILITY...

"We offer machines that provide customers a distinct economic advantage," John added. "Our rigs are fuel efficient, require little maintenance, have an ever-expanding product line, and allow the owner to offer a wide range of services to their clients ... with just one rig. This results in high utilization rates for our rigs. We've also reduced the entry and maintenance costs of sonic rigs. That means our customers can compete in the mainstream sonic market that they previously weren't a part of. We sell an engineering-based product line not a price-driven product. In return our customers get a powerful, highly engineered, reliable product."

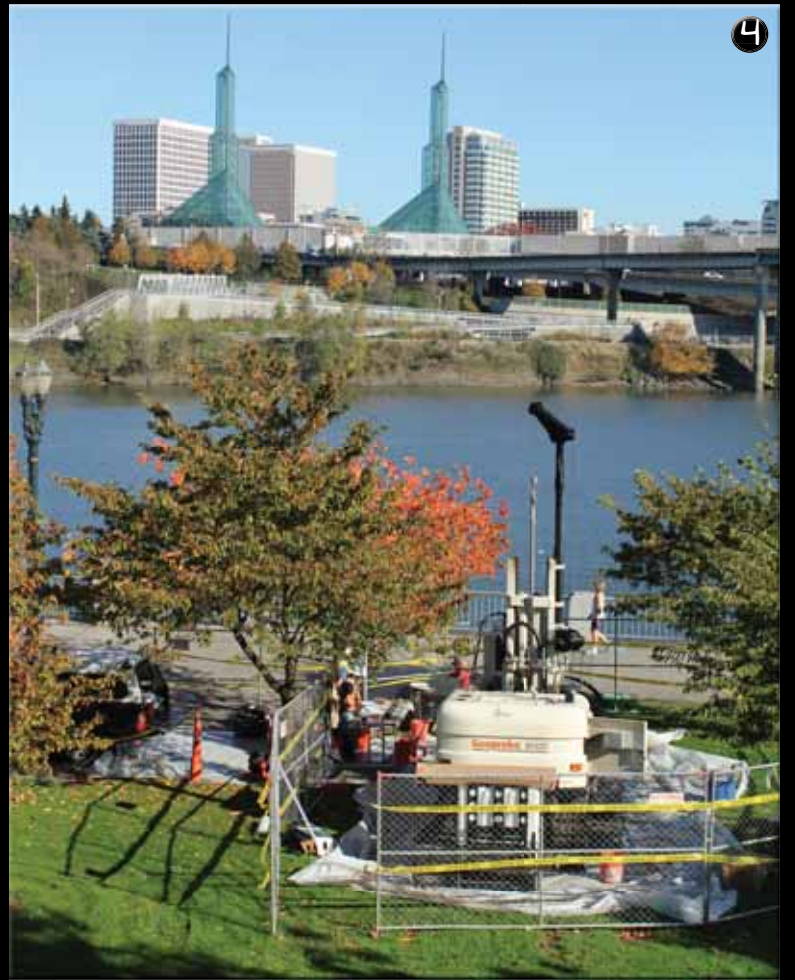
## SUPPORT...

We design the machines. We manufacture the machines. We support the machines. And there is no other company that fields a customer support team better than Team Geoprobe®.

With each project, real success is found when the most efficient, cost-effective solution is incorporated to complete the task at hand. More than ever, Geoprobe® machines and tooling systems are the best solution.

Geoprobe® sonic rigs in production combine the established 40DT tracked carrier with the proven GV4 Sonic Head designed by Geoprobe® engineers.

**78-Series  
Truck-Mounted Units Coming Soon!**  
Call 1-800-436-7762 for Details!!!



Geoprobe® Customer Service Team with the 8140LS Rotary Sonic equipped with Rod Handling System. (kneeling, l to r): Doug Koehler, Greg Johnson, Michelle Dunlap, Victor Rotonda, and Tom Omli. (standing, l to r): Joyce Smith, Bryan Lorenson, Todd Ewing, Lee Shaw, Tony Bowell, Kenny Thompson, Dave Ernst, Todd Courbot, Roman Burrows, Brian Rogers, Darren Stanley, Lori Christensen, Quinton Wilson, and John Martinuzzi.

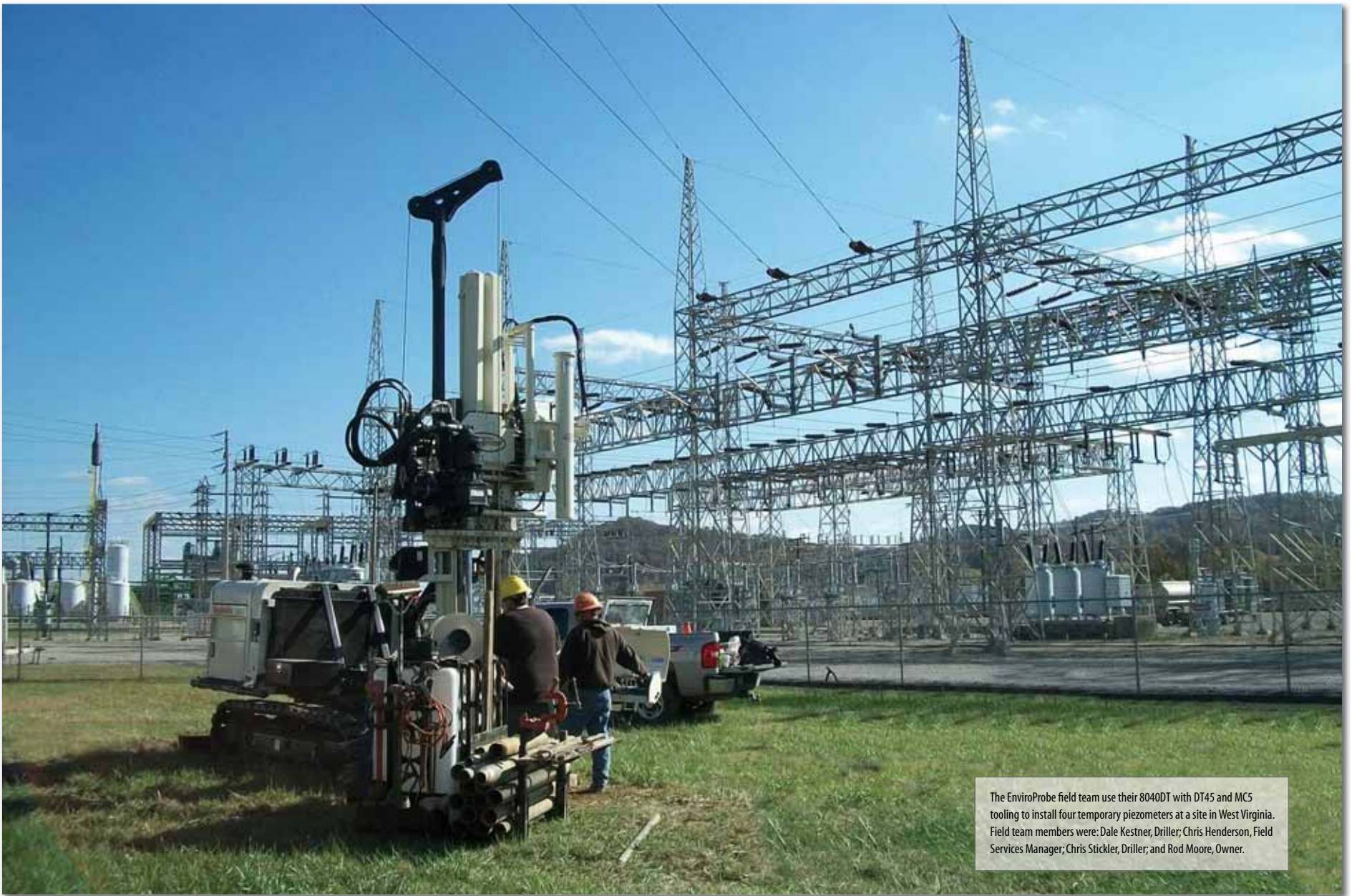
To: Geoprobe Systems®  
Attn: Tom Omli  
From: Jim Duffy, President, East Coast Drilling, Moorestown, NJ

Tom: East Coast Drilling accepted delivery of our newest Geoprobe® rig, a 7822DT, last September. Although I've worked with Geoprobe® equipment since 1995 (I saw my first Geoprobe® rig at an NGWA show in Minneapolis that year), there's always a certain amount of uncertainty with investing in a new piece of equipment and how well it will perform. The rig was equipped with the auger head, automatic drop hammer, liner extruder, Moyno® pump, and drop rack system. We also purchased 100 ft. of dual tube tooling. For the first month, the rig was scheduled every day doing our routine types of jobs ... direct push soil sampling, discrete groundwater sampling, and shallow (less than 40 ft.) monitoring well installations using hollow stem augers. From day one, the rig performed very well in all applications and did not require the typical 'working out the bugs' scenario that can be associated with new equipment.

Five weeks after our purchase, a client approached us with a discrete groundwater sampling project to a total depth of 125 feet. The project was at a private site in Atlantic County in southern New Jersey. The job consisted of several borings with discrete water samples being collected at 10-ft. intervals, from 20- to 125-ft. My initial reaction to the request was a hesitant, "Oh, great. Let's push the rig to its limits already." And on top of that, I've got to purchase more tooling of which I hope we can recover from those depths ... without incident. I was a little apprehensive since we hadn't yet drilled deeper than 40-ft with the new rig. But we secured and scheduled the job before one of our competitors 'swooped' in front of us. My nervousness was short-lived and replaced with a quiet confidence, feeling positive that my driller would perform the work successfully should the machine have enough power to do so, or that he would recognize the rig's limitations and quick and efficient work of that task. Our specific conditions in Atlantic County consisted of fine to coarse sand with some boreholes were backfilled with grout installed via the tremie method. The Moyno® pump mounted on the rig made for used to efficiently perform the work. Our specific conditions in Atlantic County consisted of fine to coarse sand with some clay streaks, and groundwater being first encountered at 20 feet. I'm glad to say the 7822DT was plenty of machine to handle the task.

The rig's footprint is still small enough to perform projects inside of buildings and on residential sites. We recently completed a residential project that required the installation of two injection wells, one recovery well, and two soil vapor extraction wells. The wells were constructed of 2- and 4-in. diameter PVC, and installed using hollow stem augers. One of the injection wells was installed on an angle beneath the resident's home. Obviously, great care must be taken when working around people's homes and inside buildings. The 7822DT is a great machine to use in those applications. From the removable drop rack system, on-board Moyno® pump, liner extruder, and user-friendly control panel, it's easy to impress customers with the 7822DT's efficiencies. Nice job by the Geoprobe® engineers and the rest of your team."  
Jim Duffy





The EnviroProbe field team use their 8040DT with DT45 and MCS tooling to install four temporary piezometers at a site in West Virginia. Field team members were: Dale Kestner, Driller; Chris Henderson, Field Services Manager; Chris Stickler, Driller; and Rod Moore, Owner.

# 8040DT Keeps WV Company Busy

## *a powerful combination rig*

EnviroProbe Integrated Solutions, Nitro, WV, was contracted to provide drilling and dual-phase extraction (DPE) pilot study services at a wood treatment facility in central West Virginia. The wood preservation operation dated back to 1973, and resulted in impact to soil and groundwater by creosote (sorbed and free phase). The prior operation of evaporation ponds and a solid waste disposal landfill by the county on this property resulted in a BTEX plume in the soil and groundwater. To complicate things, the site lies at the toe of a U.S. Army Corps of Engineers dam, and borders a popular, high-quality trout stream.

EnviroProbe had previously completed drilling and direct push sampling on the property which consisted of several soil borings and the installation of five monitoring wells using 4.25-in. hollow stem augers. A Consent Order between the owner and the U.S. EPA required the owner to assess and remediate the site, particularly the DNAPL creosote and the BTEX plume. The consultant on the project contacted EnviroProbe to complete the additional assessment and a DPE pilot test on the site using their Geoprobe® 8040DT.

On day one, EnviroProbe used the DT45 sampling system to collect continuous soil samples to 30 feet bgs. An extraction well was then installed using 6-5/8 in. HSA to a depth of 30 feet. Groundwater measurements of existing wells and surveying were also performed.

On day two, EnviroProbe installed seven observation/monitoring wells in accordance with WVDEP regulations. A 6-in. diameter expendable cutting shoe was used to meet the minimum borehole diameter for a 2-in. well in West Virginia. Once at depth, the field team knocked out the cutting shoe and installed the PVC well through the DT45 rod string. As the rods were extracted, the field team installed filter sand, a filter pack seal (bentonite), and annulus space seal.

"In about ten hours, we set up the rig and work area, installed seven PVC wells to 25 to 30 feet bgs, and cleaned up the site," Rod Moore, President of EnviroProbe said. "The rig and the guys did great! Compared to using standard HSA methodology, continuous SPT sampling, a 3-man drill crew, and 2-3 work days, this method saved our client a minimum of \$5,000 and 1-2 days field time."

Other advantages included minimal investigation-derived waste (IDW). Two drums of soil cuttings, primarily from the 4-in. extraction well installation, were generated by the 8040DT compared to the generation of an estimated 14 additional 55-gal. drums of cuttings using normal HSA drilling. "This alone saved our client at least \$3,000 in transport and disposal costs," Rod added. Using the DT45 system was also an advantage because the tooling system eliminated the heaving or flowing of sands into the rod string. Prior to this project, the HSA method had caused significant heaving/flowing sands through the liquefaction and mixing of the sandy saturated zone. "Our use of the DT45 rods eliminated the cross-contamination of shallower contaminants into the subsurface and groundwater," Rod explained.

EnviroProbe then performed two DPE pilot tests while monitoring seven new wells and up to three older wells. They are in the process of evaluating the pilot test results and designing a full-scale remediation system.

**"This rig really performs!"**  
 ... Rod Moore, PE, President,  
 EnviroProbe Integrated Solutions, Inc., Nitro, WV



Dale Kestner Driller for EnviroProbe, augers to bedrock (approximately 40 ft) using the 8040DT.

"We jumped at the opportunity to send our 8040DT out a couple weeks later for air rotary drilling," Rod said, "especially when our client mentioned drilling to 230 feet!" EnviroProbe had done some drilling and direct push sampling on the site previously and had also installed several monitoring wells in the overburden using hollow stem augers.

"The job this time was to drill a 230-ft. rock well with surface conductor pipe and 180 feet of casing. Our client had previously retained another drilling company to install similar wells using a much larger truck-mounted air rig. As it turns out, we were able to get this well installed in half the time as the other drilling company. They also required a significantly larger location for the well to be built because of the size of the rig."

EnviroProbe first installed an 8-in. diameter surface casing from the ground surface to bedrock (about 40 ft.) using hollow stem augers then cemented the casing in place. The field team drilled through the surface casing from 40- to 180-ft. bgs using a 6-in. downhole air rotary hammer with an 8-in. bit and 2-3/8-in. API IF rods. "This whole process took us about eight hours," Rod added, "and included drilling, tripping out rods, and setting (cementing) the casing."

After the casing was installed, EnviroProbe drilled a 6-in. hole to 231-ft. bgs. The goal was to install an open-hole rock well. "Due to the uncertainty of the rock stability, they decided they wanted a 2-in. PVC monitoring well installed and grouted up through the 6-in. casing," Rod explained. EnviroProbe had the materials on-hand and was able to complete the 231-ft. well.

"This site was tough for large drill rigs to access in the past because of the mountainous terrain and narrow access roads," Rod added. "And although the subsurface conditions were tough, we knew our 8040DT could handle it. And it did."



Chris Henderson, Driller for EnviroProbe, uses 6-5/8 in hollow stem augers to install an extraction well.



(left and below) EnviroProbe used a 6-in. downhole (DTH) hammer with an 8-in. bit and API IF rods to install the cased monitoring well. Dale Kestner, Driller for EnviroProbe, is at the controls of the 8040DT.





# Team Geoprobe® is On The Road Again!



**May 17 & 18th** • **Black Bear Lake Country Club** • **Clarksburg, NJ**  
457 Stage Coach Road • Milestone Township, NJ

Black Bear Lake Country Club is a great spot for our highly popular New Jersey Field Day event! We're packing the Geoprobe® transport with new machines ... including the 8140LC Rotary Sonic ... and the latest tooling systems to help you make money.

Anyone interested in subsurface investigations ... whether you're a business owner, regulator, or consultant ... is invited to the event.

Bring your field team for a morning of demonstrations and presentations. It's the best of the best for Direct Push ... Rotary Drilling ... Rotary Sonic!  
 There's no charge for the event. Registration is required. Call Lori at 1-800-436-7762 to register!



7822DT ... Impressive Power



Introducing ...  
8140LC Rotary Sonic

## Direct Image® Seminars

- NEW MIP tooling
- NEW HPT tooling
- NEW CPT tooling

SEPARATE REGISTRATION  
REQUIRED!



Driving 2.25 in. MIP Probe  
with 8040DT

**1-800-436-7762**



*Direct Push • Geotechnical • Mining & Exploration*





(inset) Just a few of the 160 multi-function wells installed at the site. (above) Matthew Muir, Rig Operator for Stone Environmental, uses 3.25 in. casing to collect soil samples at a former drum burial site in New England.

# Dynamic Well Installation Approach Saves Client Time and Money

Last August, Geosyntec Consultants of Acton, MA, and Stone Environmental of Montpelier, VT, collaborated to delineate the source area and install multi-purpose injection/monitoring wells in preparation for an in-situ chemical oxidation remedy at a former drum burial site in New England.

From 1950 to 1975, the site was used to dispose of drums containing a mixture of Volatile Organic Compounds (VOCs) and petroleum hydrocarbons. A removal action conducted in 2003 excavated 1,300 drums and approximately 3,000 tons of impacted soil at the site for offsite disposal. Residual contamination remaining in the source area at the site included chlorinated and aromatic VOCs present in the sorbed and NAPL phases.

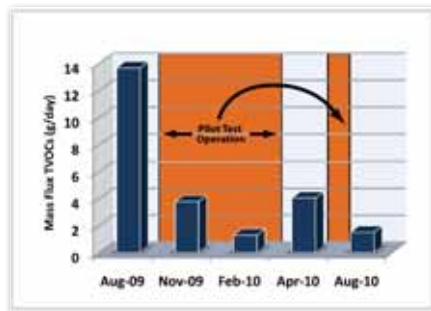
In addition, the site posed three unique drilling challenges:

- Steep topography in areas of the site required a track-mounted drill platform.
- A debris interval, consisting of concrete, re-bar, brick, and granite boulders in excess of 8-ft. thick, could not be penetrated using either direct push or HSA drilling techniques alone.
- The density of the anticipated well network required a small and maneuverable drill platform.

Geosyntec and Stone decided that these challenges could only be addressed with the versatility of the Geoprobe® 7822DT. The 7822DT was sent to the site with DT32 dual tube soil sampling tooling, 4.25 in. hollow stem augers, and a downhole hammer (DTH).

In 2009, senior engineer, Chapman Ross of Geosyntec, led the team that designed and implemented a pilot test within a sub area of the

site. Seven months of pilot test operation resulted in a marked decrease in the mass flux of VOCs in groundwater discharging from the source area. Based on the performance of the pilot test, the client decided to move forward with full-scale remediation of the site. The Geosyntec/Stone collaboration continued for full-scale implementation of this remedy.



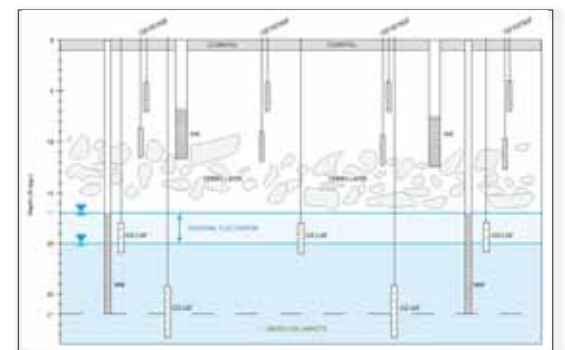
As a result of the pilot test operation, a marked decrease was found in the mass flux of VOCs in groundwater discharging from the source area.

Installation of the full-scale well network required additional source delineation and a dynamic work plan to optimize the location of the full-scale treatment area and limit the number of wells required to provide adequate treatment. To increase efficiency and reduce costs, the Project Team decided to perform the delineation concurrently with the installation of the well network. During installation of the vadose zone wells, soil samples were collected with the Geoprobe® DT32 soil sampling system. As saturated zone wells were installed, groundwater samples were collected and sent to a local analytical laboratory for 24-hr turnaround time analysis of VOCs (via EPA method 8260B). The concurrent installation and sampling allowed the results of the source area delineation to be used to adjust the extent of the well network during drilling. This dynamic well installation approach saved the client time and money by eliminating the need for remobilizing at a later date for additional well installation.

To effectively target the VOC contamination in both soil and groundwater in the source area, the well network included four discrete depth intervals ranging from 8 to 30 ft. bgs. The pilot test verified that the radius of influence of the injection wells ranged from 10 to 15 feet depending on depth. Based on these design criteria, approximately 160 multi-function wells were installed to provide distribution of ozone throughout the 13,000 sq. ft. source area. Periodic monitoring of the soil gas and groundwater at the site was essential to optimize the performance of the full-scale remedy. Each injection well was designed to also function as a monitoring point for soil gas in the vadose zone or for groundwater below the water table.

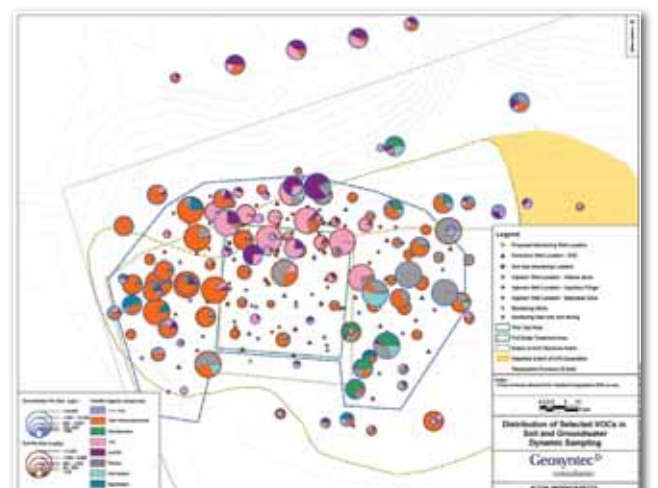
According to Michael Jordan, Drilling and Remediation Services Manager for Stone, "the well installation was a success aided by the flexibility of the 7822DT. We installed 160 wells in four weeks." The small diameter wells, ranging in depth from 7 to 14 ft. bgs, were installed in the unsaturated zone using the DT32 sampling system. Larger diameter wells were installed in the unsaturated zone through 4.25 in. HSA augers. The deeper saturated zone wells were installed by advancing HSA augers to the top of the debris interval. A downhole hammer was then used to advance the borehole through the debris layer. The DT32 casing was then used to get to the completion depth for the successful well installation ... all with the 7822DT.

Due to the rapid installation of the well infrastructure, the site is currently undergoing full-scale remediation with three ozone injection systems (designed by H2O Engineering in San Luis Obispo, CA), an air sparge system, and a soil vapor extraction system, all in operation. The fast installation of the full-scale well network, facilitated by the versatility of the 7822DT, provided for a system downtime of only five months



Conceptual cross-section of the injection/monitoring wells.

between the end of the pilot test and the full-scale system start-up. "The dynamic well installation and delineation approach facilitated by Stone gave us confidence that the well network encompassed the source area," Chapman concluded. "The density of the well network allows for uniform ozone delivery throughout the source area, and allows the performance of the systems to be closely monitored above and below the water table." The projected operating time for the full-scale remedy is two years.



Results of the dynamic sampling performed during well installations.



Michael Jordan, Rig Operator for Stone Environmental, uses a downhole air hammer with a 7822DT. Over 160 multi-function wells were installed at the site in four weeks.



*"We chose to bring our 8040DT in for this project because we felt it was ideally suited for the job. We needed its smaller footprint design and rubber tracks to protect the site, its power to ensure we could reach the required depth through the varying subsurface conditions, its ability to navigate through large gravels, and its flexibility to run multiple sampling systems in order to ensure the project would be completed successfully. Since we added the 8040DT to our fleet nearly a year ago, it has remained consistently busy up and down the West Coast for just those reasons."*

*...Darryl Metzger, Operations Manager  
Cascade Drilling LP, Clackamas, OR*

# Cascade Drilling Secures Additional Riverfront Work With 8040DT

Covering 22 blocks of river front, Waterfront Park (officially known as Governor Tom McCall Waterfront Park) is over 36 acres in size and spans the length of downtown Portland, OR. This park is a hub for many of the city's activities and events in addition to being a popular destination for Portland residents. Anchor QEA, an environmental science and engineering firm that focuses on shoreline and river projects, contracted Cascade Drilling, LP, in Clackamas, OR, to collect discrete soil and groundwater samples in the park in preparation for installing monitoring wells.

The project was overseen by the Oregon Department of Environmental Quality and in consultation with City of Portland Parks and Recreation, Urban Forestry, and the Bureau of Environmental Services (BES) because of the high-profile nature of the location.

The Cascade field team was to obtain continuous, discrete soil and groundwater samples from numerous locations to a maximum depth of 127-ft. below ground surface, while causing minimal impact or disruption to the site. Subsurface conditions in the area vary from fine, silty sands to coarse gravels. Cascade chose to use their Geoprobe® 8040DT combo rig to complete the project.

"We chose our 8040DT for this project because we felt it was ideally suited for the job and because we wanted to ensure the project would be completed successfully," said Darryl Metzger, Operations Manager for the Cascade Portland office. "We needed its smaller footprint and rubber tracks to protect the site, its power to ensure we could reach the required depth through the varying subsurface conditions, its ability to navigate through large gravels, and its flexibility to run multiple sampling systems. Since adding the



The Cascade Drilling field team used protective mats under the 8040DT to minimize site impact. The Geoprobe® Drop Rack System was also used for tools and supplies transport to minimize the number of trips made back and forth to the support vehicles. And because the park is such a popular area for Portland residents, protective fencing was installed to ensure the safety of the public. The Steel Bridge over the Willamette River can be seen in the background.

8040DT to our fleet nearly a year ago, it has remained consistently busy up and down the West Coast for just those reasons."

Upon arriving at the site, the Cascade drilling team, consisting of Eric Wilson, Tony Serniotti, and Lucas Stevens, met with the client and oversight team to determine how to best meet the site requirements for safety, site impact, and noise. Protective mats were used to ensure that surrounding trees would not be damaged, and the 8040DT drop rack system was used to transport tooling systems and materials needed for each of the sampling locations, minimizing the trips of support vehicles. After setting up the necessary fencing and the rig, the field team began exploratory sampling using the DT22 sampling system and SP22 groundwater sampling system to determine the depth necessary to case off. Once the depth was determined, the 8040DT was used to install the DT45 casing in order to ensure high-quality samples. Switching back to the DT22/SP22 sampling systems, they continued until encountering heaving sands, at which point they switched to the MC5 soil sampling system and SP22 groundwater sampling system. When the sampling was completed, the team ran 2.5-in. casing to depth and, using water from the onboard water tank to mix bentonite grout and the onboard Moyno® pump, backfilled to the surface.

"We were glad we were able to use the 8040DT for this project," Eric said, lead project driller for Cascade. "From ground level to 100-ft. bgs, we found fine to medium sand and silt with some gravel lenses. But from 100 feet to depth, we encountered coarse gravel which could have been a real problem for other rigs at that depth." This process was successfully repeated at each of the other sampling locations.

(left) Lucas Stevens and Eric Wilson (at the machine controls), drillers with Cascade Drilling, install 4.5 in. casing with the 8040DT. (right) Governor Tom McCall Waterfront Park, named in 1984 to honor the former Oregon governor, is located on the west bank of the Willamette River and spans the length of downtown Portland. The park covers 22 blocks of downtown Portland and is 36.6 acres in size.

Since Cascade Drilling added the rig to their fleet nearly a year ago, the Geoprobe® 8040DT has proven to be one of the most requested and top performing rigs in their fleet. According to Darryl, "its small footprint, abundant power, and unmatched versatility keep it consistently busy, in both auger and direct push applications. As a result, we've expanded the capabilities of the 8040DT and our large fleet of other Geoprobe® rigs by investing in tooling and training needed to run specialty Direct Image® logging equipment: MIP, CPT, HPT, EC, and PST."

*"For 16 years I have relied on Cascade Drilling to provide uncompromising service. On the Riverfront project, Cascade went above and beyond by bringing a new rig in and taking extra precautions to protect the site with minimal impact to the park. We will have Cascade back for the next phase of the project."*

*...John Renda, PG, Project Manager  
Anchor QEA, Portland, OR*



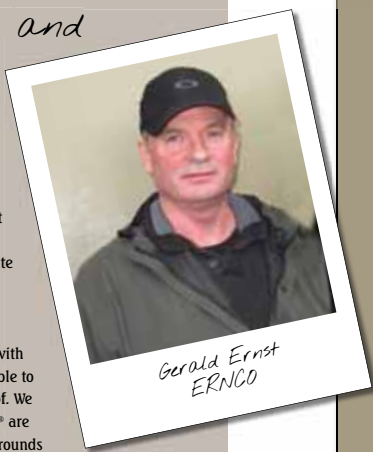


Here's what some customers have said after spending time in Kansas ...

*view new machines and new technology...*

"Although it wasn't our first time in Kansas, we had just placed a down payment on a new Geoprobe® 8040DT prior to attending the 2010 Open House. One of our primary purposes for attending the event was to view some of the new machines and technology as it actually performed in the field. Our other goal was to meet more of the people we communicate with at Geoprobe Systems® in an effort to build even more solid working relationships than we already had. Both of our goals were met! We learned that the company was very advanced with sonic technology and closer to having it available to the market, at that time, than we were aware of. We also learned that the great people at Geoprobe® are able to put on a great event even though the grounds were virtually under water because of the heavy rain. Bottom line, we are extremely proud of our Geoprobe® equipment and the technology and impressive capabilities we can offer our clients. And we value the relationships we've established because of the face-to-face meetings with the Geoprobe® people."

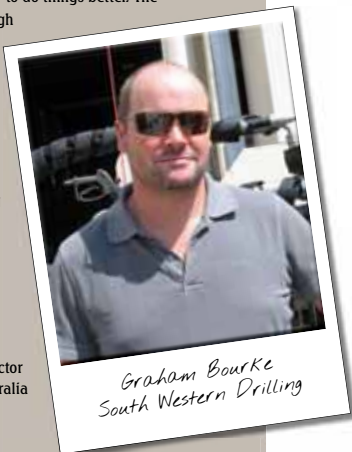
... Gerald Ernst, Manager  
ERNCO, Canada



*ongoing commitment to help customers succeed...*

"Every time I have been in Salina the Geoprobe® staff has always gone out of their way to make me feel welcome. They always take time to show us their research and development projects, and they're happy to share ideas with us on how to do things better. The company has a culture of innovation and high integrity, which is very evident when we visit, but above all they want to help us do well in the field. I can call on the Geoprobe® technical staff anytime, and if they can't give me an immediate answer, they always resolve issues within 24 hours. My impression is that the Geoprobe® team is a dedicated group of people with a strong regard to family values and an ongoing commitment to helping their customers succeed. This commitment is extended by the ongoing support we receive from the Australian Geoprobe® agent, David Downey and Site Investigation Supply."

... Graham Bourke, Managing Director  
South Western Drilling, Australia



*8040DT Loading for international shipment*



*An Evening at 'The Pond'*



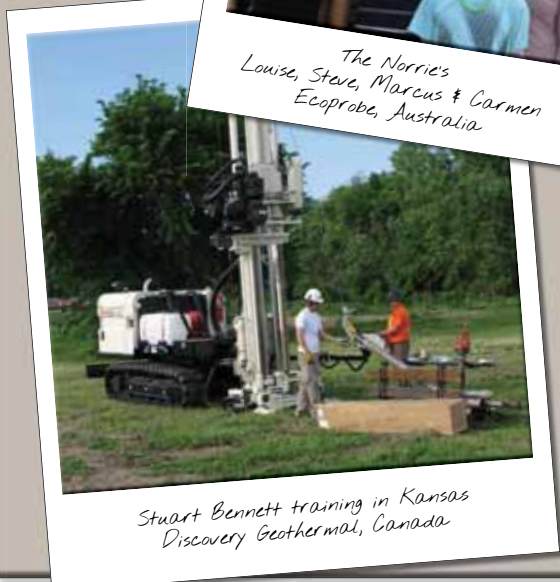
*Axel Opperman Greg Dr. Johannes Koerner  
geo-log GmbH, Germany*



*Hideyuki Sato  
Land Concierge  
Japan*



*The Norries  
Louise, Steve, Marcus & Carmen  
Ecoprobe, Australia*



*Stuart Bennett training in Kansas  
Discovery Geothermal, Canada*

# The Welcome Mat Is Always Out



Most visitors who enter the front door at Geoprobe Systems® in Salina, Kansas, whether they're from a different zip code or reside in a different hemisphere, probably have preconceived ideas of what goes on here. It's safe to say very few leave Kansas with the same perspective as when they arrived.

As the Geoprobe® product line expands and the rigs increase in size, the Geoprobe® brand is becoming more

visible in many new places around the world. Not only does that generate interest, it also increases the number of international companies who invest time and money into coming to Kansas and checking us out.

Greg Johnson, International Sales Director for Geoprobe Systems®, sees the international companies coming to Kansas as leaders in their countries. "The people we meet are the ones investing in the success and future of their organizations. They're interested in adding new technology to their services." So they come to Kansas to find out what Geoprobe® has to offer.

"We're unique in that we don't offer a 'one package fits all' approach to our tooling or rigs," Greg added. "We try to listen to what each company needs and how the laws and regulations dictate what can be done or used in their country. We provide tailored solutions. And while they're here, I like to introduce our guests to as many Geoprobe® people as possible so they feel comfortable with us. Our people know the equipment inside and out, and they don't hesitate to explain how the products work and why they were designed that way."

Another unique feature we offer, according to Tom Omli, Director of Sales, is that because of the compact size of the Geoprobe® rigs, "our new customers can literally drive the rig out of the shipping container right to the field and start work. There's no assembly required after the new rig hits the ground," Tom said.

Guests at our manufacturing facility usually spend 2-3 days here. Those days are filled with tools-in-the-ground demonstrations, hands-on machine operation, tours of the facilities, and meeting with people in engineering, service, and machine production.

And, when weather permits, our international guests are treated to an evening at Greg's pond to relax after hours.

"A trip to the Geoprobe manufacturing facilities in Kansas is sure to change the perspective our new Canadian customers have when considering the purchase of Geoprobe equipment," according to Sven Dean, Owner of Groundtech Solutions, the exclusive representative for Geoprobe Systems® in Canada. "Our customers

gain a more accurate perspective on how their association with the Geoprobe® brand will help their businesses be more successful."

Greg added, "We appreciate that our international representatives share our commitment of the importance for Kansas visits. They know they are welcome anytime and we'll do what we can to help solidify their relationship with their customer. We have a great group of people representing our products all over the world."

A complete listing of international Geoprobe® representatives is available at [www.geoprobe.com](http://www.geoprobe.com).

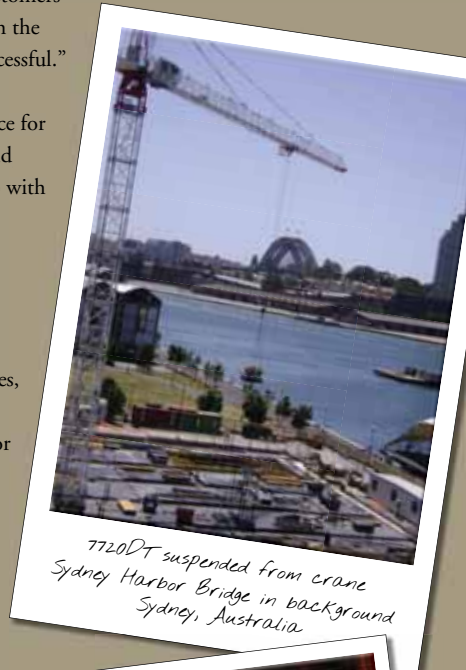
If you live outside of the U.S. and want to meet the Geoprobe® team and spend time at our facilities, Greg is the guy to call. He can be reached at [johnsong@geoprobe.com](mailto:johnsong@geoprobe.com), or by calling 785-404-1155 or 785-825-1842 to help you make the arrangements.



*660DT and CPT work  
Rainbow Bridge -- Tokyo*



*7730DT on the western shore of Denmark*



*7720DT suspended from crane  
Sydney Harbor Bridge in background  
Sydney, Australia*



*Noam Shaky  
Eco Drill*

*gives us confidence in the machines and tools...*

"We now know it was worth every cent and every minute we spent coming over all this long way to Salina. The training we received in Salina during our four intensive working days has no price. It was simply a must which we believe will give us an advantage in the Israeli market. It also gives us a lot of confidence in the machine and its abilities. One of the important benefits was knowing and using the tooling ahead of time which helped in our final decision putting the tools list together. We got all the knowledge we could get from the best professional people at Geoprobe®."

... Noam Shaky  
Eco Drill, Israel

*very high regard for Geoprobe® tooling...*

"We had no CPT experience prior to ordering your CPT rig, but we had experience and very high regard for Geoprobe® tooling. When a large project came up for tender I knew that something other than a conventional truck-mounted CPT rig was needed to do both land and marine based CPTs on dredged sand. We ordered your CPT rig, and when we finally arrived in Kansas I was confident that our order of the rig, equipment and spares, combined with Geoprobe® reliability and technical back up, would work for us back in Sydney. I can't imagine we could have received better cooperative assistance anywhere. It is a credit to Geoprobe Systems® that two of your CPT clients were prepared to help us so much. It only reinforced our positive views on Geoprobe® products and people. My visit to Kansas was so beneficial, we also arranged for a new employee, Todd Redman, to visit your facility also."

... Richard King, Principal Engineer  
Network Geotechnics Pty Ltd, Australia



*Todd Redman  
Network Geotechnics*



**Our International Geoprobe® Representatives talk about the importance of Traveling to Kansas ...**

**Western Europe ...**

"Introducing our customers face-to-face to our Kansas partners creates a good climate for business. Companies investing in Geoprobe® equipment are investing in their future. While in Kansas, our guests, whether they are a customer or a potential customer, are able to train with the service staff and learn firsthand how to maintain and service their Geoprobe® rigs. There is also plenty of time for field demonstrations and hands-on use of the rigs and tooling. The opportunity to talk and ask questions of the engineering staff is invaluable. It's also a time for me to have specific new products presented to my customers by highly skilled technicians. Geoprobe® engineers hear about conditions my customers will be dealing with so they can better address specific needs and requests as they arise. Even though it's a considerable investment for our guests, the whole experience generates a feeling of trust in the products and a respect for each other. We've never had anyone question the value of the opportunity that the Geoprobe® people extend to us when they invite us in the front door." -- Michel Rogge



*Michel Rogge  
Geoprobe® Environmental  
Technologies, s.a.r.l.  
Brussels, Belgium  
michel.rogge@geoprobe.be*

**Canada ...**

"GroundTech wants our customers to know the whole story behind the Geoprobe® brand. So, when possible, we accompany our customers to Kansas so they can learn firsthand about the conception and development of direct push technology and equipment from Geoprobe Systems®. It's important to show our customers that a very significant part of the Geoprobe® operation is comprised of engineers within the R&D group. It's a great opportunity to learn about the machines and the tools from the people that take pride in passing along the technology to people working in the industry. We're always treated with even more Kansas hospitality after the business day ends, whether it be a dinner on Main Street or an excursion to 'The Pond.' Canadians returning from Kansas are pleasantly surprised by the knowledgeable and helpful people, and the warm and enjoyable style of doing business with Geoprobe®." -- Sven Dean



*Sven Dean  
GroundTech Solutions  
Richmond Hills, AB, Canada  
svendean@groundtechsolutions.com*

**Israel ...**

"Each time we visit the Geoprobe® facilities our eyes are opened to many new technologies in existence and in development. We bring our customers here so they can experience the same excitement that we do. We are impressed by the high percentage of engineers in the company. Our customers are also impressed by the number of professionals who spend hours and days in the field, carrying all the tools we need for the machine demonstrations. And they teach with much care and all the patience in the world despite the language problems." -- Nitzan Heruti



*Nitzan Heruti  
Biotech Environmental  
Rishpon, Israel  
biotech7@zahav.net.il*

**Japan ...**

"I strongly believe our customers should know and touch the different tools and machines they cannot see here in Japan. Almost every one of our customers who has traveled to Kansas says, 'We have never seen such good tools,' or 'We did not think of a system like that.' My first trip to Geoprobe® was five years ago. I did not know the product well because I was new to our company. I found good people working in a responsible way. And I liked that Geoprobe® people put their family before their job. Our customers, and I, love Geoprobe® tools and machines." -- Hideyuki Sato

"I made several visits to Kansas with our customers during my 14 years with Land Concierge before I retired three years ago. It was important for our customers to make a visit with Geoprobe Systems® in person and see how and where the equipment is manufactured and also to know how new products are developed. They felt comfortable to know the Geoprobe® people personally in Kansas. Good communications is key for good business. Most customers were impressed by Geoprobe® people and professionalism. A couple years ago you made a very professional presentation for Geoprobe® Direct Push Days in Tokyo with the help of our company. No one else can do this type of impressive product presentation in the Japanese environmental market. Since my retirement I am enjoying golf games. I have formed a volunteer group of retired electronics engineers, computer specialists and mechanical engineers. We fix many kinds of failed toys and computer games, all free, for kids in our neighbourhood. They have big smiles when their favorite toys are repaired and returned to their hands." -- Ted Hamada, retired



*Hideyuki Sato  
Land Concierge Inc.  
Tokyo, Japan  
h\_sato@enbiotec.co.jp*



*Ted Hamada and  
Greg Johnson  
Direct Push Days in Tokyo*

**Australia ...**

"Accompanying our customers to meet the team at Geoprobe Systems® gives us a fantastic chance to show them the faces that make everything possible for their environmental and geotechnical business. The travel time allows us to develop a stronger relationship with those customers in addition to introducing them to the people who invest so much time in developing the products we work with in Australia. The process shows our customers firsthand the high quality of equipment they are purchasing which far surpasses anything we can tell them or promise them. Seeing and hearing what goes on at the design and manufacturing facility is further reassurance they are buying a product that is fully supported by an army of people that are passionate about doing things better than anyone else can." -- David Downey



*David Downey  
Site Investigation Supply  
Brooklyn, Vic, Australia  
dave@sisupply.com.au*

*the best two days were at Geoprobe®...*

"One of the most important parts of my visit to Geoprobe® was having a look through the many machine attachments and tooling options available. This allowed me to see first hand the versatility of the brand. The more products I saw the more potential uses and applications for the rigs I saw that I could offer my clients ... something my competition isn't aware of. The next best thing about being at Geoprobe Systems® was meeting the people involved with the company. Everyone was very friendly and I felt very comfortable around everyone. They were very passionate and knowledgeable about their products. Out of my total ten days in the U.S. the best two days by far were in Kansas and at Geoprobe Systems®."

... Simon Tant, Drilling Manager Chadwick T&T Pty Ltd, Australia



*Simon Tant  
Chadwick T&T*

*the company is really a partner with us...*

"I've really enjoyed my visits to the Geoprobe® facilities. We bought our first rig in 1998. The products are unique in terms of technology, safety and functionality. And by spending time at the manufacturing facility I found out that the people are unique as well. Team Geoprobe® is always ready to support our questions and our needs for tooling and replacement parts. It's much easier to establish a solid, trusting relationship with a company when you've met them and gotten to know the people. We do not see Geoprobe® as a single supplier. The company is really a partner with us in our probing, drilling and sampling business."

... Artur Quaresma Engesolos Ltda, Brazil



*Artur Quaresma  
Engesolos Ltda*



*Jayson Kennedy, Chris Winter, Don Winter  
Global Probe Technology, Canada*

*the Geoprobe® team listens to the end user...*

"With an every-growing investment in our Geoprobe® fleet, it was high time we saw where these versatile machines originated. The dedicated team at Geoprobe Systems® knows their products extremely well and can demonstrate routine and specialty applications extremely well. Our field crews really appreciate that the Geoprobe® team listens to the end user which is shown in progressive but sometimes subtle refinements to the product line. Being in Kansas at the Geoprobe® facilities introduced me to a quality and no-fuss team of professionals which shines through in well designed, reliable and value added products."

... Marten Sweeney Terratest Pty Ltd, Australia



*Marten Sweeney  
Terratest Pty Ltd*

*discussions with people about new developments...*

"The first time I personally came in contact with Geoprobe® machines was at the 2001 Field Days event you held in California. I remember Tom Christy demonstrating the 'new' Field Computer, and I remember a tasty barbeque! The event was very impressive. It's important to me to learn more about the people 'behind the show', so when I was in Kansas a few months ago I was curious to see how the machines, probes and other equipment are manufactured. I was also able to get to know the brains behind the tools and systems. It was great! It also helped to have discussions with Geoprobe® people about new developments of tools, machines and data interpretation. I was most impressed with the warm hospitality of the people and the time they took for us"

... Axel Oppermann, Director geo-log GmbH, Germany



*Axel Oppermann  
geo-log GmbH*

*employees are proud of the products...*

"I could tell from my visit to Kansas that Geoprobe Systems® spends considerable time, effort and money into the research and development of new products. The employees are proud of the products, and both employees and management seem to have a shared vision and 'read from the same hymn book.' The Geoprobe® facilities are clean, and the people are midwest Americans with core values and beliefs. Our company runs eight Geoprobe® rigs and are awaiting delivery of number 9. It's nice to have met many of the people who develop and manufacture the products we use every day."

... Chris McMullen Numac Drilling Services Australia Pty Ltd, Australia



*Chris McMullen  
Numac Drilling*



*John Cameron, Special Projects Manager  
Geotech Drilling, Canada*



*Greg Satoru Tanaka Hideyuki Sato OzaKi Kazuhiro  
Land Concierge IS Solutions*



# High Profile Nebraska Facility Constructed on Former Brownfields Site



Thiele Geotech believes their Geoprobe® rig is the “ideal tool” for working in an urban setting. According to Dennis Anderson, Vice President of the Omaha, NE, company, “Our rig can maneuver to discrete boring locations at public venues with minimal disturbance to the surroundings,” he said, “and that’s extremely important when working in high profile, urban settings. Plus, the rubber tracks of the rig made it possible for us to retrieve soil borings at several locations within a densely wooded lagoon area. It’s a good fit for us.”

The Thiele field team collected environmental groundwater samples at the Qwest Center in downtown Omaha as part of an ongoing monitoring program. The 1.1 million sq. ft. facility, which covers 100 city blocks (approximately 422 acres of land), was constructed on a Brownfield’s site that was historically utilized as a railyard for the Union Pacific Railroad.

Thiele Geotech used their 6620DT and the SP16 groundwater sampler to collect discrete samples at 16 sites around the facility. Samples were collected to bedrock; approximately 22 to 28 feet.

At a site near Omaha, Thiele Geotech investigated an area historically used to store incinerated sludge. The incinerator and lagoon cells were in operation between 1964 and 1978. Since that time the lagoons have become densely vegetated with overgrown brush and trees. “Our 6620DT worked very well at this site because the area was so difficult to access and maneuver around in,” said Dan Thiele, President of Thiele Geotech. “We were able to easily move across the rugged topography to get to the boring locations in the densely wooded lagoon area.”

The area is proposed for redevelopment for improvements to the existing Missouri River Wastewater Treatment Plant.

The proposed construction will involve the excavation and disposal of approximately 8,200 cubic yards of soil from the lagoons. “The intent of the investigation was to characterize the subsurface soils to determine proper handling and disposal procedures during the construction activities,” Dan added.

The MC5 soil sampling system was utilized to advance the soil borings installed during this investigation and facilitate soil sampling. The DT325 sampling system was used for bulk sampling.



(top and above) Thiele Geotech retrieves SP16 groundwater samples as part of an ongoing monitoring program at the 1.1 million sq. ft. Qwest Center in Omaha, NE. The facility was built on a Brownfield’s site that was historically used as a railyard for the Union Pacific Railroad. Construction for the \$290 million arena and convention center, which covers 100 city blocks, was completed in 2003. Cory Bachman, Driller, and Kyle Gappa, Driller’s Assistant, operate their Geoprobe® 6620DT. (right) Thiele Geotech’s field team and 6620DT completed geotechnical drilling services at the Creighton University Ryan Athletic Center in downtown Omaha. Six-inch augers were used to advance Shelby tubes to 20 ft.



(below and lower right) Thiele Geotech uses their 6620DT to retrieve soil samples at the former Ash Lagoons near Omaha, NE. Redevelopment construction of the area will involve the excavation and disposal of approximately 8,200 cubic yards of soil. The field team members were Cory Bachman, Driller; James Beutler, Driller’s Assistant; and Dennis Anderson, Senior Geologist.





# Limited Access Sampling Key To Project Success in Texas

## Fire Badly Damages Historical San Antonio Educational Landmark

In May of 2008, a four-alarm fire severely damaged the Main Building of Our Lady of the Lake University in San Antonio, TX. No one was injured, but the 112-year-old structure and renowned silver gothic spires on top sustained \$15 million in damages that evening. An extensive renovation project began almost immediately.



A Geoprobe® 54LT served as an outside power source while the GeoTest Services field team collected soil samples with a 420M inside the building.

As part of the renovation project, GeoTest Services in San Antonio was contacted to provide limited access soil samples with their Geoprobe® 420M. According to Paul Wolf, Owner of the company, "Our Geoprobe® direct push capabilities, together with our foundation repair business, is a great combination. Our expertise in geotechnical work, including rehabs, redesigns, and failure investigations, coupled with our ability to produce quality subsurface samples in limited access or confined conditions, gives our clients the necessary information to get these projects completed."

"Although our 54LT could have fit, the Project Manager requested that we use our two-wheeled 420M to collect geotechnical samples for the new elevator shaft inside the building," Paul explained. "Maneuvering through the narrow hallways with the 420M was easy, and the machine performed flawlessly. There was no reduction in sample quality using the smaller machine."

The 5,000 lb. right spire (which can be seen falling in a photo to the right) was replaced in April of 2010, and work continues today to bring the structure back to life.



An early-evening fire on May 6, 2008, caused \$15 million damage to the Main Building at Our Lady of the Lake University in San Antonio. More than 100 firefighters battled the blaze that destroyed the roof and fourth floor of the stately stone structure, including one of the silver gothic spires. The first, second and third floors sustained substantial water and smoke damage. Officials believe the accidental electrical fire started in the attic. The University has been a part of San Antonio history since the late 1800's. Construction on the Main Building, which serves as the welcoming place for students and the community, began in 1895. Our Lady of the Lake University is an independent Catholic university, founded by the Sisters of the Congregation of Divine Providence which originated in France.



The GeoTest team operates a 420M in the building's basement to obtain geotechnical samples as part of the structural design requirements for a new elevator shaft.



Because of its small size, the 54LT can easily maneuver within confined spaces ...inside and out...allowing the GeoTest field team to efficiently collect high-quality, limited access soil samples. (above) Alex Forhertz, GeoTest rig operator, uses the 54LT near the base of the former grain silo. The brewery's renovated smoke stack, constructed of curved clay tile, stands to the right. (right) At 34-inches wide, the 54LT fits easily through standard doorways. Ray Meinhardt (left) and Alex Forhertz, retrieve MCS soil samples through the concrete floor between the brewery's beer fermentation structures.

## GeoTest Taps Into A Stout Solution

Historic buildings can present unusual challenges, and the 128-year-old Pearl Brewery north of downtown San Antonio was no exception. Established in 1883, the Pearl Brewery was at one time, according to some sources, the largest brewery in Texas. The facility closed in 2001. Most all of the structures remain standing today, some of which have undergone extensive renovation as part of a planned development of the area. GeoTest Services was contacted to collect soil samples in and around the 23-acre site in preparation for the redevelopment of a new hotel, office space, and condos while preserving the original architecture of the brewery structures. The renovation is planned to coincide with revitalization efforts of northern downtown San Antonio and expansion of the River Walk to the north.

The project required twelve borings and two deep excavations from limited access areas inside the old brew house. "This foundation investigation was an ideal fit for us," said Paul Wolf, Owner of GeoTest Services in San Antonio. The confined area required that GeoTest use their track-mounted 54LT and the two-wheeled 420M.

"We were able to navigate around several large storage tanks to retrieve the soil samples for laboratory testing."

"Over the years, we've found that the small size of our Geoprobe® machines compliment the geotechnical type of projects we want to continue working on ... limited access sampling," Paul explained. "We're known in the San Antonio area for our

expertise in foundation repair, water leak investigations, limited access excavations, foundation design sampling, and concrete/asphalt coring."



GeoTest used their 54LT to collect soil samples on the Pearl Brewery site. The machine was easy to maneuver around the buildings and did not pose a danger of disturbing the original 128-year-old architecture.



The 'Pearl' beer name for the Pearl Brewery came from a German brewmaster that thought the bubbles in a freshly poured glass of the beer resembled pearls.



# In-Situ Remediation of TCE Plume Showing Positive Results

Active Environmental Technologies, Mount Holly, NJ, was contracted by Arrow Safety Device to delineate groundwater impacts and remediate groundwater contamination at a former manufacturing facility in New Jersey. The facility fabricated and painted metals used as housing units for vehicle safety lighting systems, (i.e. turn signals for fire engines). Arrow Safety used electronically-operated presses and stamping machines to fabricate the metal. Chemical baths of Trichloroethylene (TCE) were utilized to clean metal components prior to being electrostatically painted. The TCE was accidentally discharged to the ground surface where it contaminated soil and groundwater.

TCE concentrations at the site range from non-detect to as high as 635 parts per billion (ppb). As shown in the table below, the leading edge of the plume has a TCE concentration of 2.32 ppb to 7.17 ppb.

The hydrogeologic cross section (right) identifies the site's hydrogeologic condition. The contamination is limited to an unconsolidated water table aquifer.

The New Jersey Department of Environmental Protection



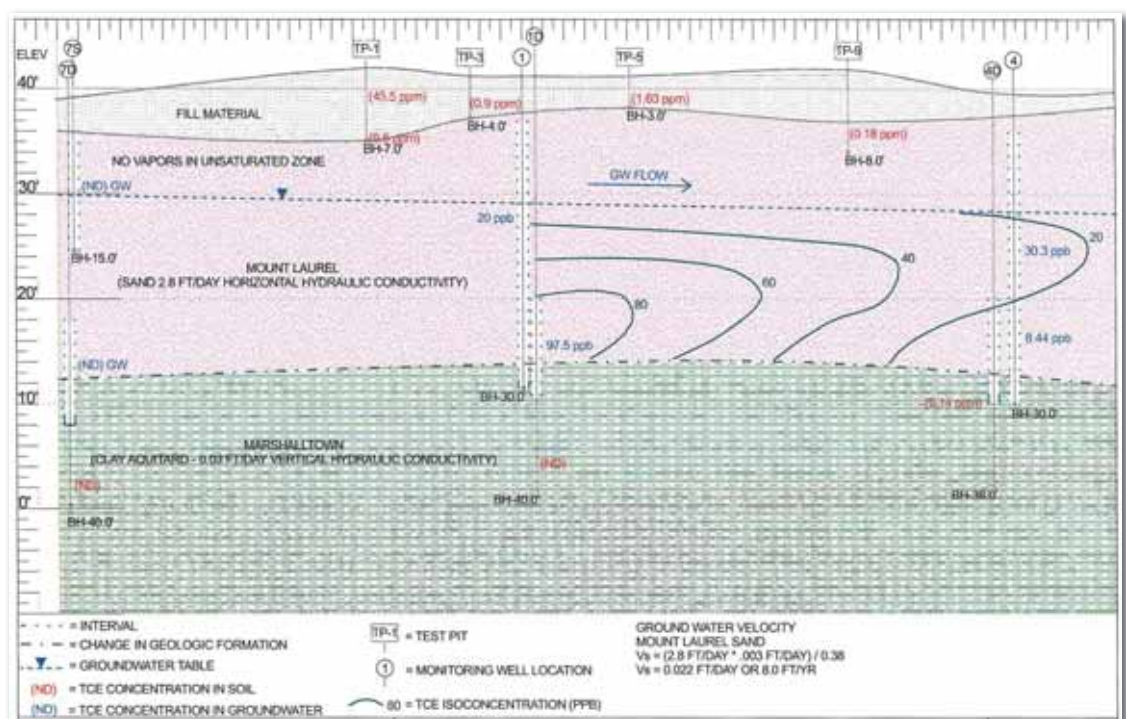
Approximately 60,000 gallons of EHC<sup>®</sup> slurry was injected during a 30-day period at a TCE contaminated site in New Jersey. An EHC<sup>®</sup> slurry was injected in grid patterns across three main targeted areas with approximately 400 gallons of slurry injected per location.

POST INJECTION TCE RESULTS			
MW LOCATION	TCE CONCENTRATION (PPB) 9/9/2010	TCE CONCENTRATION (PPB) 12/10/10	REMARKS
MW-1S	635	30.9	
MW-1D	24.5	14.7	
MW-6S	10.2	27.4	Mobilizing TCE
MW-6D	0.880	ND	Compliance
MW-12S	325.0	108.0	
MW-12D	190.0	47.5	
MW-13S	98.1	234.0	Mobilizing TCE
MW-13D	124.0	216.0	Mobilizing TCE
MW-14S	6.0	2.3	Sentinel Well
MW-14D	3.7	7.1	Sentinel Well

(NJDEP) granted their approval for Active Environmental to perform a pilot study in the area of MW-6S and MW-6D for in-situ chemical reduction (ISCR) through bioremediation and zero-valent iron (ZVI) using EHC<sup>®</sup>. After the EHC<sup>®</sup> was injected into the formation, laboratory analytical results from the pilot test showed TCE concentrations decreased significantly from 41.7 ppb to 28.3 ppb in MW-6S; and from 0.880 ppb to non-detectable (ND) in MW-6D over the five-month sampling period. Additional decreasing trends are expected to continue resulting in a reduction of TCE in the groundwater by 90 percent or more. The results of the pilot test indicated that TCE concentrations were reduced by approximately 40 percent during the test period without accumulation of daughter products. The injection of EHC<sup>®</sup> also resulted in treatment of the unsaturated soils. A full scale injection plan was then developed.

S&S Subsurface Investigations in Egg Harbor, NJ, was also involved with the project. Art Salvatore and Pete Dudley, certified drillers, used a Geoprobe<sup>®</sup> 7720DT and 66DT for materials injection. The injection depth ranged from 30 to 10 feet bgs. A bottom-up injection plan was formulated using a 30-percent-by-volume slurry.

A relatively low injection rate of ten gallons per minute was used to minimize day lighting and excessive back pressure. Back pressures were as high as 100 psi. In anticipation of back pressure, five drill strings and five retractable, perforated screens were used. A total of 150 injection locations were completed and over 40,000 pounds of EHC<sup>®</sup> powder (mixed with water) was used. The EHC<sup>®</sup> slurry were



Hydrogeologic Cross Section. The pink shaded area identifies the extent of the TCE plume caused by the accidental discharge of chemical baths to the ground surface where it contaminated soil and groundwater. The Upper Mount Laurel Sand is 30-ft. thick at the site, and is underlain by the Marshalltown Aquitard at a depth of 30 feet. The Marshalltown is approximately 50 feet thick, has an extremely low hydraulic conductivity value of 10-7 cm/sec, and is an effective aquitard (i.e. Shelby tube samples were collected of the Marshalltown and evaluated by a geotechnical laboratory for vertical permeability determination). The Mount Laurel Sand is an unconfined unit and has a hydraulic conductivity of 10-3 cm/sec, has a porosity of 38 percent, and a shallow gradient of 0.003 ft/ft to the northeast. The depth to groundwater is ten feet bgs. Thus the groundwater impacted zone is 20 feet thick (depth of aquitard is 30 feet minus the depth to groundwater).

injected in grid patterns across three main targeted areas. Approximately 400 gallons of slurry were injected per location; over 60,000 gallons of slurry was injected at the site. The injection activity began on May 10, 2010, and took approximately one month to complete. According to Thomas J. O'Brien, PG, Technical Director for Active Environmental, "as anyone who has done injection work with a 30-percent-by-volume slurry will attest, this injection rate was remarkable."

The performance of the In-Situ injections at the source area, passive reactive barrier (PRB), and down gradient is accomplished by monitoring the quality of the groundwater to ensure an anaerobic condition exists and, more importantly, that the concentration of TCE continues to decrease over time. Six months after the initial

injection was completed, the groundwater was showing improvements in most areas. At times, as shown in the table, the TCE is mobilized prior to being reduced.

According to Thomas J. O'Brien, Mark T. Hart, and Christopher Gerding with Active Environmental, who provided this project summary, the company will continue to monitor the groundwater on a semi-annual basis for three years. A 90 percent or more reduction in TCE concentration is expected. They will work with NJDEP and either apply for a No Further Action (NFA) Variance Request or a Classification Exemption Area (CEA) Natural Attenuation.

Active Environmental is a consulting and construction company specializing in innovative solutions for environmental remediation.



## HOW EHC<sup>®</sup> WORKS

Dr. Ravi Srirangam with Adventus Americas of Union, NJ, provided the patented EHC<sup>®</sup> remediation materials and technical assistance at the Arrow Safety site. The controlled-release solid carbon and zero valent iron (ZVI) particles are used to yield a highly-effective material (EHC<sup>®</sup>) for stimulating the reductive dechlorination of otherwise persistent organic solvents present in groundwater. Based on hydrogeologic conditions at the New Jersey site, EHC<sup>®</sup> was employed as a permeable reactive barrier (PRB), injected into groundwater at the contaminant source zone, and also injected down gradient. Following placement of EHC<sup>®</sup> into the subsurface, indigenous heterotrophic bacteria consume the organic component of EHC<sup>®</sup> and consume dissolved oxygen thereby reducing the redox potential in groundwater. In addition, these bacteria ferment carbon and release a variety of volatile fatty acids into the groundwater plume which serve as electron donors for other bacteria, including dehalogenators and halo-respiring species. Finally, the small ZVI particles provide substantial reactive surface area that stimulates direct chemical dechlorination and an additional drop in the redox potential of the groundwater. These physical, chemical, and biological processes combine to create a strongly reducing environment that stimulates both chemical and microbiological dechlorination of TCE solvent in groundwater.

EHC<sup>®</sup> is a registered trademark of Adventus Americas, Inc., Union, New Jersey.

Current conditions are shown in this aerial photo of the former Arrow Safety manufacturing facility in New Jersey. Trichloroethylene (TCE), used to clean metal components at the facility, was accidentally discharged to the ground surface where it contaminated soil and groundwater. (Photo courtesy Flying Media of Pennsylvania.)



# No Caribbean Vacation!

Collecting soil cores from 50-ft. bgs seems routine, but packing supplies for a two-week job in a landfill in the Caribbean country of Haiti, nearly 800 miles from home, required some thought and planning. Especially since a 7.0 magnitude earthquake had hit the area just a few months earlier and caused major devastation to your destination. Such was the task for EnviroTek in Tampa, FL, who provided drilling and direct push services at the Truitier Landfill near Haiti's capital city of Port-au-Prince.

An environmental site assessment of the Truitier Landfill was conducted over the course of two weeks. The scope of work consisted of collecting over 30 soil samples, ranging in depth from 25- to 75-ft bgs, throughout the landfill. A number of groundwater wells were also installed to assess the water quality at the site and to determine the direction of groundwater flow. Soil vapor wells were installed at various locations to assess soil gas concentration.

The work conditions were extreme. Temperatures were 100 degrees F or above with a heat index of 112 degrees F or higher. "In spite of the high temperatures and working in a culture which was entirely different than anything our crew had ever experienced, the job was a great success," explained Fred McKay, Project Manager for EnviroTek, "The data gathered will hopefully help the effort to make Haiti a better place to live for so many unfortunate people who have endured so much. Our field team found the people to be very kind and hospitable considering the circumstances."



Curious onlookers. The Geoprobe® 6610DT drew a crowd while groundwater wells were installed to assess the water quality at the Truitier Landfill. Ernesto Garcia (white hard hat), Drilling Assistant for Enviro Tek, operates the rig.

The EnviroTek field team consisted of Omar Velazquez, Geoprobe® machine operator; Jason Wilke, Drilling Assistant; Ernesto Garcia, Drilling Assistant; and the company's Geoprobe® 6610DT.

"The logistics of exporting the equipment and all the materials to Haiti was an enormous task," Fred said. "We appreciated that John Martinuzzi (Manager of the Geoprobe® southeast regional office) made a special trip to our office to personally go over the equipment and materials list. An overnight delivery of forgotten liners would have been out of the question!"

The goal of the project was to collect information and establish a database of current conditions at the landfill as well as collect lithology data that was unavailable before the project team arrived in country.

According to Fred, "This was a very unique experience for us; not our typical day-in-the-field. We completed a very worthwhile project for a country in dire need. We hope our work will help 'right the ship' and get things moving in a positive direction for the future of Haiti. It was a gratifying feeling to know that we were doing something positive and that it will have an impact as to how things will be done to protect the Haitian people and their resources."



Omar Velazquez, EnviroTek's Geoprobe® rig operator, collects another soil core from the 500-acre Truitier Landfill near Port-au-Prince while a Haitian family watches. Over 90 acres of the landfill are currently used for the city's 1.3 million population and earthquake rubble.



(above) Jason Wilkie, Drilling Assistant for EnviroTek. (below) Some of the families who lost their homes in the 2010 earthquake now reside in make-shift structures within the boundaries of the landfill.



## A Quick Look At Haiti

- The small country of Haiti (left of red line) shares the Caribbean Island of Hispaniola with the Dominican Republic (center) and Puerto Rico (far right).
- The Atlantic Ocean borders the northern coast of the island and the Caribbean Sea borders the coastline on the south.
- The size of Haiti is approximately 17,250 sq. mi. (27,750 sq. km.), roughly the size of Massachusetts.
  - Haiti is 90 mi. (145 km) south of Cuba.
- Port-au-Prince, the capitol of Haiti, located near the center of the country, is approximately 785 nautical mi. (1,263 km.) from Orlando, FL.
  - Approximately 10 million people live in Haiti.
- The Haitian government estimates the 7.0 magnitude earthquake on Jan. 12, 2010 killed 230,000 people, injured 300,000, and left over a million people homeless.





# Indiana University Archaeology Lab Bores into U.S. History at Thomas Jefferson's Home

A visit to Monticello, the home of Thomas Jefferson near Charlottesville, VA, is a trip back into the world just as Jefferson knew it. Or not.

Over the centuries, various landscaping efforts have obscured and buried features of the original Monticello landscape, so members of the Glenn A. Black Laboratory of Archaeology at Indiana University Bloomington are working with Monticello archaeological staff to help restore Monticello to its appearance as it was during Jefferson's lifetime.

During a recent research trip, the Laboratory team, led by Interim Director, Dr. William (Bill) Monaghan, and funded by the Thomas Jefferson Foundation, helped document 18th-century landscape modifications undertaken by Jefferson during and after the construction of Monticello. Bill, a senior scientist and geoarchaeologist, was assisted by IU Bloomington undergraduate students, Joel Marshall and Luke Walker. The team conducted a landscape study to find evidence of two lost roads: a 'kitchen road' that serviced the Monticello kitchen, and a formal carriageway that circled along the Ellipse Fence marking the edge of the East Lawn and the formal landscape in front of Monticello.

The team used Glenn Black Lab equipment, including a resistivity profiler (a geophysical instrument used to map subsurface soil variations), and a Geoprobe® 54TR machine and direct push tooling to collect small-diameter continuous soil cores.

"The solid-earth cores, brought to the surface using the DT22 sampling system, actually showed the properties and layers of the fills and natural sediments that make up the landscape created by Jefferson," Bill said. "In many cases, we could clearly see the ground surface that existed before Jefferson built Monticello, buried under several feet of the 'fill' that Jefferson brought in to shape the landscape.

During the project, the thickness and characteristics of the historic fills that underlie the southern end of the East Lawn were documented. The IU research team determined that four to six feet of fill underlies the East Lawn. "This was a surprise because it is two to three times thicker and much more extensive than previously believed," Bill noted. "We purchased the 54TR for shallow sampling archaeology projects. It performed very well onsite and caused little disturbance to the landscaping and ground cover."

The Monticello Plantation Survey, to which IU's team has contributed, is part of a long-term effort to complete an inventory of the archaeological resources located on the 2,000-acre tract currently owned by the Thomas Jefferson Foundation. The 1,000-acre Monticello home farm has been the focus of survey fieldwork to date. By examining road traces, sediment deposits, and more, Mon-



Indiana University students Joel Marshall (left) and Luke Walker use the 54TR on the East Lawn at Monticello to collect discrete soil samples using DT22 tooling. The samples will help document 18th century landscape modifications made by Monticello's former resident, President Thomas Jefferson. It's all part of the Monticello Plantation Survey, a long-term effort to complete an inventory of the archaeological resources located on the 2,000-acre tract currently owned by the Thomas Jefferson Foundation.



Dr. William Monaghan, Interim Director of the Glenn Black Laboratory at Indiana University Bloomington, examines DT22 soil cores on the East Lawn of Monticello as IU students collect additional cores. The field team is also using one of the Laboratory's resistivity profilers to discover long-buried roads around the historic Virginia home.



The IU field team collects samples near the privy vent tunnel outlet at Monticello, coring for evidence of the Kitchen Road at the base of the East Lawn. Luke Walker, IU student, is at the controls of the 54TR as Dr. William Monaghan, Interim Director of the Glenn A. Black Laboratory of Archaeology at IU, and another student watch.



This poster documenting the Monticello project was presented at the Society for Historical Archaeology meeting in Austin, TX, earlier this year by Dr. William Monaghan, Interim Director of the Glenn A. Black Laboratory of Archaeology at Indiana University Bloomington.

ticello archaeologists are building a cumulative record of land use that reveals a more complete historical picture of Monticello than the documentary record left by Thomas Jefferson.

"The results of our research will be used by the Monticello archaeological and restoration staff to document the changes made by Jefferson to the Monticello landscape," Bill said. "Analysis of samples of the fill also may allow them to accurately reconstruct what the area looked like before Jefferson arrived."

The project was coordinated by Frasier Neiman, Director of the Thomas Jefferson Foundation Archaeology Department; Sara Bon Harper, Archaeological Research Manager at Monticello; and Dan Hayes, a private consultant in Charlottesville. The Thomas Jefferson Foundation provided funding for the project.

In recent years the Glenn Black Laboratory has undertaken other Plantation Survey projects with Monticello archaeologists, including investigating questions about the types of vegetation that existed at Monticello prior to Jefferson's arrival, the timing of when he cleared the forests on Monticello Mountain, and what crops he grew. The Glenn Black Lab staff plans to continue working with Monticello archaeologists to document landscaping on the entire East Lawn as well as to address questions related to clay sources and manufacturing technologies for the bricks used in Jefferson's home.

Information for this article was made available through IU's website and Dr. William Monaghan.



# When Being a 'Yes' Man (Woman) is Good!

It had been a long, hot day. I was finally able to enjoy a cool ocean breeze while I sat under a single lightbulb reading a book. The light started to flicker, then slowly faded to complete darkness. As I was groping for a flashlight, keys, and some water for the quarter-mile walk to the powerhouse, I wondered what might have gone wrong since I'd spent most of my day working in the powerhouse. It didn't take long to determine the fuel tank for the genset was dry, and the engine had simply run out of diesel. I pumped in some fuel from the bulk tank and quickly had the West Africa mission community back on the grid.

It was a simple fix, and as I walked back home I mentally made a list of 'why' this might have happened. If this had been my first trip to Africa, I would have quickly decided it was because the mission didn't have the funds for fuel, or someone had failed to follow instructions. Certainly funds were tight and there had been times when the fuel wasn't available, and it's also true that language or cultural differences have allowed for a communication lapse. But with several West Africa trips under my belt I realized there must be more to the story.

I spoke with the powerhouse manager, the staff, and the missionaries, and the answer to my 'why' became clearer. All agreed there was one person on call who was responsible for keeping things going at the powerhouse. However, he wasn't given specific instructions to pump diesel into the genset's fuel tank, so he had chosen to leave it alone. Over the years I'd gotten to know this person, and I considered him to be loyal and honest. So after work one day, while we were sitting on an abandoned power pole laying across the yard, we had a long and friendly conversation which included asking him about the power outage. It was clear he was aware the genset tank had been low on fuel. He knew the nightshift was his responsibility. And on the topic of adding fuel to the genset, he said it was better to run out of fuel. What? I didn't understand. How could it be good to let a hot engine come to an immediate stop? How could it be good to let the entire campus lose electricity? How could it be good on refrigerators, air conditioners, and other electrical devices to go through the stress of a power drop? It just didn't make sense to me. His response was, "Times are hard; funds and resources are scarce. In the past I have chosen to put fuel in the genset to keep it running only to find out there was a more critical need for that fuel somewhere else. So now, if I wait until it runs out of fuel, no one will complain if I add a little to get it running the rest of the night." As it turns out, the mission is often running very close on fuel, so if he puts too much in a particular genset tank, it could complicate other projects that might be needing the fuel.

I didn't agree with his decision, but I did appreciate his logical argument, especially since he had obviously been through the situation before. I considered his world. His country has paid dearly for its years of civil unrest and war. Many of the capable leaders have had to flee for safety. Formal education halted during the war, so most of the people have minimal or no education. Unemployment is the norm. Products and services are scarce, and much of the country's infrastructure has been set back decades. I realized that their world is so full of limits they have become accustomed to living with the negative ... No's.

The concept of being boxed into a 'No' mindset grabbed my attention. And I quickly realized that a 'No' mindset is one that's easy to slip into. It's easy to see that uncertainty seems to be our growing new norm today. There are conflicts all over the world. There's a deficit so large, and growing so fast, we can't comprehend it. There's a steady stream of new regulations and demands from our government to abide by; the list seems endless.

I thought about people I've known, admired, and respected, and how they are managing a 'No' society. I realized they seem to be 'Yes' people. They see opportunities, not closed doors. A good coach doesn't develop a winning team by focusing on what the team can't do; he finds the team's strengths and capitalizes on those attributes. A race car driver doesn't win a race by focusing on the brakes; he looks for ways to get more power out of his engine and how to step on the throttle quicker than his competitor. A child won't excel in school without books in their hands, food in their stomachs, and encouragement from their teachers and parents. 'No' stifles productivity, achievement, and advancement.

One of my nephews also seems aware of the power of 'No'. His goal each day is to find four ways to encourage (say 'yes') a child for each time he says 'no.' It's not his attempt to simply build self-esteem. Yes, he wants them to gain appreciation for boundaries and adhere to them; but just as important, he wants them to develop skills and set high expectations for themselves. He wants his kids to learn to move the focus away from what they can't do to what they can do.

It seemed my nephew was on to something. Whether it's our job, our business, our families, or a mission in West Africa, we need to find ways to say 'Yes' if we want to reach goals and aspirations and to encourage others to do the same. The world has always been full of uncertainty. It's wise to account for and appreciate the 'Nos' in our life because they help us understand our boundaries. But let's develop our skills, set high expectations for ourselves, and not be afraid to step outside our comfort zone. God has a big world out there to be explored.

Years ago, I read a biography about R.G. LeTourneau. He was known for his development of earth moving equipment which was made to tackle the world's biggest challenges of his day. He once said, "There are no big jobs, only small machines."

May we have eyes to see the 'Yes' opportunities around us.

.... Mel Kejr, President, Geoprobe Systems®



(above) The powerhouse at the mission community in West Africa. (right) Mel Kejr (on table) and brother, Steve, work on an engine used at the mission. Mel and Steve have worked at the mission many times and have become accustomed to 'making do' with older tools and used supplies leftover from previous projects.



(left) Mel Kejr uses his mechanical skills to help repair equipment used in the powerhouse, and also instructs the staff on how to diagnose problems and complete routine maintenance on the equipment. (below) One of three of the gensets the West African community uses to power day-to-day operations.



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Customers should call Tony at 1-800-GEOPROBE with their point-of-contact information and an email address to get your company signed up. From then on, the shipping confirmations are automatic with each order. It's that easy! And it's another free, value-added feature included with the Geoprobe® brand.



Tony Bowell  
Geoprobe® Customer Service

4.5 in. tooling getting prepped for shipment



## Steve Jebo Fought the Good Fight

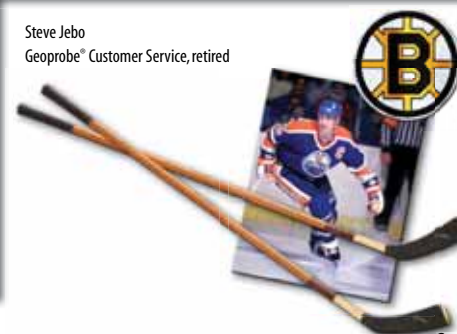
It is with heavy hearts that we share with you the passing of our good friend and co-worker, Steve Jebo. Steve died on March 11th. He worked in Geoprobe® customer service for 15 years, and his friendly voice always made customers feel welcome until his retirement in May of 2007. He was the ultimate prankster and unmatched joke-teller. But Steve was also a knowledgeable and capable ambassador for Team Geoprobe®. He leaves behind his footprint of integrity, honesty, and friendship on a large circle of customers and co-workers. Steve met every customer eye-to-eye and totally focused on their needs and how best to take care of them. Always friendly, Steve's genuine smile and firm handshake let them know they were in good hands. His belief in Geoprobe® products and people was unwavering and always evident. We remember his Christmas songs in the summer, his using the company intercom as his own personal radio station, and his familiar greeting, "if I were any better I'd have to take a pill for it." He will be greatly missed.

We encourage you to read Steve's Caring Bridge site that he journaled during his battle with cancer (<http://www.caringbridge.org/visit/stephenjebo/journal/1>). Even during the times when his chemo treatments were the toughest, Steve always found ways to praise God for his blessings.

If any of you are interested in sending a note to his wife, Karen, and his family, please email your message to [laceyg@geoprobe.com](mailto:laceyg@geoprobe.com) and it will be forwarded on to Karen.



Steve Jebo  
Geoprobe® Customer Service, retired





# Geoprobe® Service Resource Center

The Geoprobe® Service Team is dedicated to your success in the field. They know that the best way to keep your investment paying dividends is with proper maintenance and repair. Darren, Bryan, Roman, Todd, and Brian are always ready to assist with questions, replacement parts, or just a little encouragement on a bad day.

Think about scheduling your older rig for a facelift after the summer schedule slows down. It's not too early to reserve a slot on the service calendar for some serious sprucing up this fall or winter. Your customers will notice when your older rig pulls in with new paint. The Geoprobe® factory refurb process takes the rig down to the 'bare bones', and includes the addition of many unit specific improvements that weren't available on older units. It's guaranteed to increase your machine's performance and value. Keep your fleet in optimum performance. Call 1-800-436-7762 for more information and ask about our FREE 15-point inspection offer.



## Machine Refurbish



This 6610DT definitely turned some heads when the Geoprobe® Service Team finished with the refurb process. Geoprobe® rigs completing this process receive factory-documented updates. The service team also maintains maintenance records for you and can help keep track of all service functions performed for each of your rigs ... at no charge to you. Call 1-800-GEOPROBE to find out more.



## Machine Maintenance



Field Service Kit, SV2240  
(center) upper tray  
(right) lower tray

### Field Service Kit

The Geoprobe® Service Team doesn't go on a service call without the new Field Service Kit, designed specifically to keep 7822DT and 40 series machines (8040DT, 8140DT, and 8140LS) running in the field. It's a great 'tool' designed to help diagnose problems on the spot. The kit is stocked with hydraulic caps and plugs to change any hydraulic line, electrical terminal ends and connectors to make repairs to electrical connections, spare fuses and relays, a Voltage Output Meter (VOM), and much, much more. Ask for SV2240.



### High-Pressure Filter QC Assembly

Clean oil is essential to the long-term success of the hydraulic components in your machine. The inline High-Pressure Filter assembly uses a 3 micron high-pressure filter which allows your machine to quickly and efficiently filter itself. This assembly allows you to filter the oil on any Geoprobe® rig that has auxiliary quick connects (QCs). It's easy and it's clean. There's no need to take apart any hydraulic lines ... just plug the assembly into the auxiliary QCs. The cleaner the oil the better. The Geoprobe® Service Team recommends using this filter in conjunction with standard service intervals and procedures (500 hrs or one year) and then once in between normal service intervals (250 hrs or 6 months). Take a sample of the oil before and after filtering, then send it to the Geoprobe® Service Resource Center for analysis. We'll email you slides of the samples and send along our recommendation. Call the Service Team, 1-800-436-7762, for more information.

## Technical Support

One of the easiest to overlook services ... but one of the most important that Geoprobe Systems® offers ... is technical support for all Geoprobe® rig owners. Whether you're in the shop with a wear part question or in the field with a problem, the Geoprobe® Service Team is literally at the other end of the phone, ready to walk you through a solution. These guys know your machine inside and out. They want your rig running and productive.

The *Probing Times* is the official newsletter of Geoprobe Systems®. Suggestions for future newsletter articles or submission of 100 Club information are encouraged. Call Gayle Lacey at 1-800-436-7762 or email [probingtimes@geoprobe.com](mailto:probingtimes@geoprobe.com). An online version of the newsletter is available at [www.probingtimes.com](http://www.probingtimes.com)

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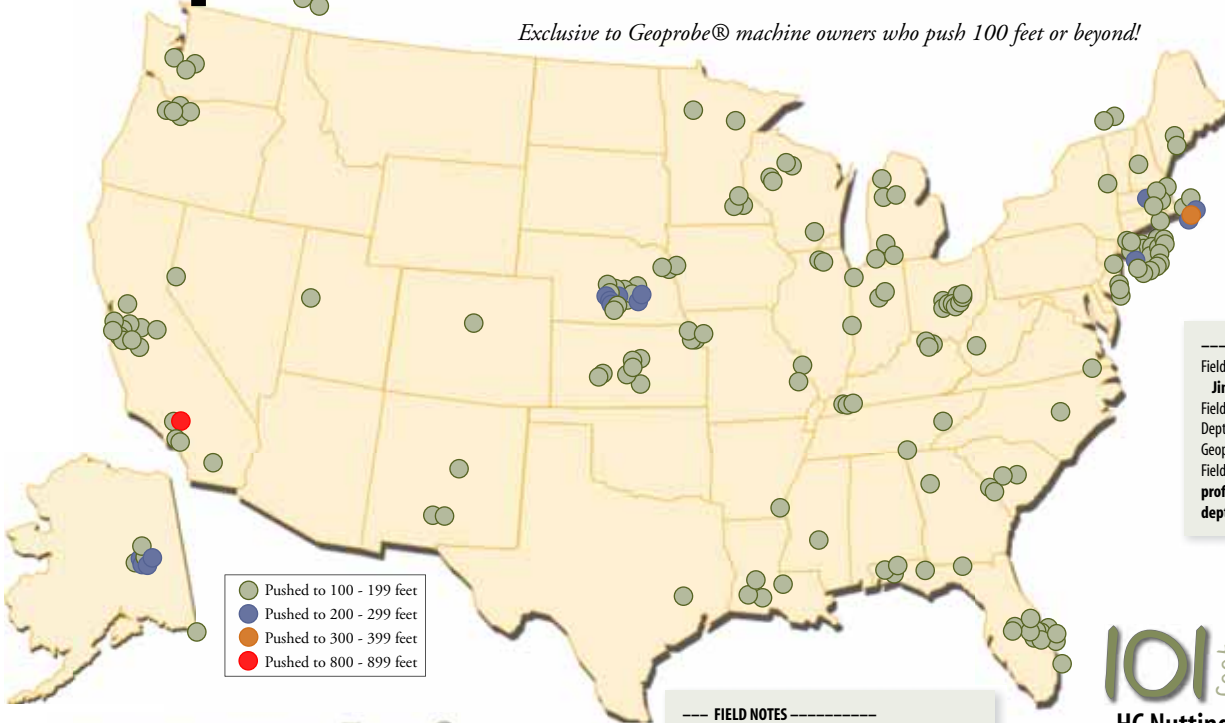
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# Geoprobe® "100" Club

Exclusive to Geoprobe® machine owners who push 100 feet or beyond!



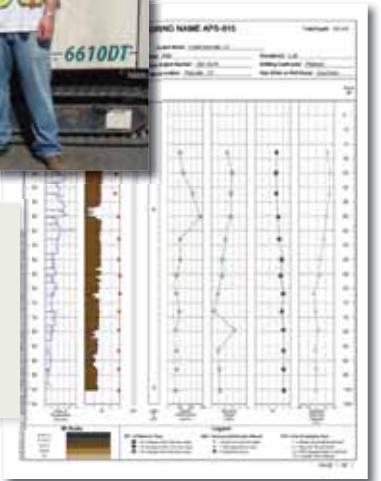
- Pushed to 100 - 199 feet
- Pushed to 200 - 299 feet
- Pushed to 300 - 399 feet
- Pushed to 800 - 899 feet

104 feet

Stone Environmental  
- Vermont



**FIELD NOTES**  
Field Team: (1 to 3) Michael Jordan and Lee Rosberg, and Jim Allen (with ERM)  
Field Site: Southern Connecticut  
Depth/Date: 101, 102 and 104 feet / May 27-28, 2010  
Geoprobe® Owner: Stone Environmental, Montpelier, VT  
Field Data: Model 6610DT. Performing groundwater profiling using 1.75 in. OD rod and profiling tip. Target depth was achieved in a single push.



104 feet



Direct Push Analytical  
- Illinois

**FIELD NOTES**  
Field Team: Kevin Collins  
Field Site: Hagerstown, IN  
Depth/Date: 104 feet / Jan 7, 2011  
Geoprobe® Owner: Direct Push Analytical, St. Charles, IL  
Field Data: Model 6620DT. Used SP16 groundwater sampler.

101 feet  
HC Nutting - Ohio



**FIELD NOTES**  
Field Team: (1 to 2) Nick Biddinger and Deron Buchanan  
Field Site: Trigg County, KY  
Depth/Date: 101.2 feet / Sep 29, 2010  
Geoprobe® Owner: HC Nutting, Cincinnati, OH  
Field Data: Model 5400. Pushed CPT to 101.2 ft. Field team was on US Highway 68/KY 80 on the west causeway of the Lawrence Memorial Bridge over Lake Barkley.

## geoprobe® 100 club



**FIELD NOTES**  
Field Team: (1 to 3) Matthew Ruf, Zach Callahan & Tom Koester. Not pictured: Justin Kowalkosi with ROUX.  
Field Site: North New Jersey  
Depth/Date: 100 feet / Sep 29, 2010  
Geoprobe® Owner: S2C2, Raritan, NJ  
Field Data: Model 6600. MIP Logging. After logs were completed, pulled rods and drove back down to tremmie grout the hole. Then offset collected three depth discrete groundwater samples with SP16 and tremmie grouted the holes ... all within 8 hours.

100 feet  
S2C2 - New Jersey

**FIELD NOTES**  
Field Team: Gene Grenier  
Field Site: Hastings, NE  
Depth/Date: 170 feet / June, 2009  
Geoprobe Owner: Vironex, Golden, CO  
Field Data: 6620DT.



170 feet  
Vironex - Colorado

154 feet  
Geo-Tech - Florida



**FIELD NOTES**  
Field Team: (1 to 2) Robert Stewart & Jimmy Burton  
Field Site: Ocala, FL  
Depth/Date: 154 feet / Nov 2, 2010  
Geoprobe Owner: Geo-Tech, Ocala, FL  
Field Data: 6620DT and DH100 auto drop hammer. SPT to 154 ft for a residential subsurface investigation.

110.5 feet  
S2C2 - New Jersey

**FIELD NOTES**  
Field Team: Tom Koester.  
Not pictured: Todd Morgan.  
Field Site: Devens, MA  
Depth/Date: 110.5 feet / June, 2010  
Geoprobe® Owner: S2C2, Raritan, NJ  
Field Data: Model 6620DT. Vertical groundwater profiling at a landfill. Sampled every 10 ft. from the water table (approx. 30 ft.) to bedrock refusal with a combination of the SP16 and mill-slotted groundwater samplers.



170 feet  
Vironex - Colorado

**FIELD NOTES**  
Field Team: TJ Haley  
Field Site: Hastings, NE  
Depth/Date: 170 feet / June, 2009  
Geoprobe Owner: Vironex, Golden, CO  
Field Data: 6620DT.

125 feet  
Cascade Drilling - Oregon

**FIELD NOTES**  
Field Team: Eric Wilson, Tony Serniotti, & Lucas Stevens  
Field Site: Waterfront Park in Portland, OR  
Depth/Date: 125 feet / Oct, 2010  
Geoprobe® Owner: Cascade Drilling, Clackamas, OR  
Field Data: Model 8040DT. Four trips down to 125 ft. for soil and discrete water sampling.



150 feet  
Groundwater Protection - Florida

**FIELD NOTES**  
Field Team: Kevin Valentino and David Longino  
Field Site: Kennedy Space Center, FL  
Depth/Date: 150 feet / Nov, 2010  
Geoprobe® Owner: Groundwater Protection, Orlando, FL  
Field Data: Model 8140DT Rotary Sonic. Continuous 4x6 soil coring at one of the launch facilities for NASA. Client was impressed with the crew and with the rigs' efficiency and the quality of samples provided for observation of the lithology at the site.



## geoprobe® 200 club

EnviroProbe Integrated Solutions  
- W. Virginia

**FIELD NOTES**  
Field Team: (1 to 2) Chris Stickler and Dale Kestner.  
Not pictured: Chris Henderson and Rod Moore.  
Depth/Date: 231 feet / Nov, 2010  
Geoprobe Owner: EnviroProbe Integrated Solutions, Nitro, WV  
Field Data: Model 8040DT. Installed a 230-ft. rock well with surface conductor pipe and 180 ft. of casing. First installed 8-in. diameter surface casing from ground surface to bedrock (approx. 40 ft.) using HSA. 8-in. ID PVC was cemented in place. Then drilled through surface casing from 40 ft. bgs to 180 ft. bgs using a 6-in. downhole hammer (air rotary) with a 7-in. bit. Drilling, tripping rods, and setting the casing (cemented in) took about 8 hours. Then installed a 231-ft. 2-in. PVC monitoring well.

231 feet



270.5 feet  
GeoTek Alaska - Alaska

**FIELD NOTES**  
Field Team: (1 to 3) Elliot Wilson, Jeff Rezin & Russell Butler. Clients: Dave Ward, Colin Macheel and Gabe Bailey.  
Field Site: Eielson AFB, North Pole, AK  
Depth/Date: 270.5 feet / Oct 24, 2010  
Geoprobe Owner: GeoTek Alaska, Anchorage, AK  
Field Data: Model 8040DT. Used DT35 and 4.25 in. HSA to complete four holes ranging from 130 ft. to 270.5 ft. to collect soil logs as well as install 1.0 in. thermistor wells.

**FIELD NOTES**  
Field Team: (1 to 2) Joel Christy & Dave Golden  
Field Site: backyard at Geoprobe® HQ  
Depth/Date: 230 feet / Jan. 26, 2011  
Geoprobe Owner: Geoprobe Systems®, Salina, KS  
Field Data: Model 8140LS Rotary Sonic. Pushed 3.5 in. OD 10-ft. casing to 200 feet in 1.5 hours. Final 30 ft. in 30 minutes.

230 feet  
Geoprobe Systems®  
- Kansas



**FIELD NOTES**  
Field Team: Nick Clem and TJ Haley  
Field Site: Hastings, NE  
Depth/Date: 212 feet / June, 2009  
Geoprobe Owner: Vironex, Golden, CO  
Field Data: 6620DT.

Vironex - Colorado

212 feet



**FIELD NOTES**  
Field Team: Sean Lance and Corey Gamwell  
Field Site: Hastings, NE  
Depth/Date: 219 feet / June, 2009  
Geoprobe Owner: Vironex, Golden, CO  
Field Data: 6620DT.

219 feet



# www.geoprobeused.com

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Doug Koehler  
Geoprobe® Customer Service



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