

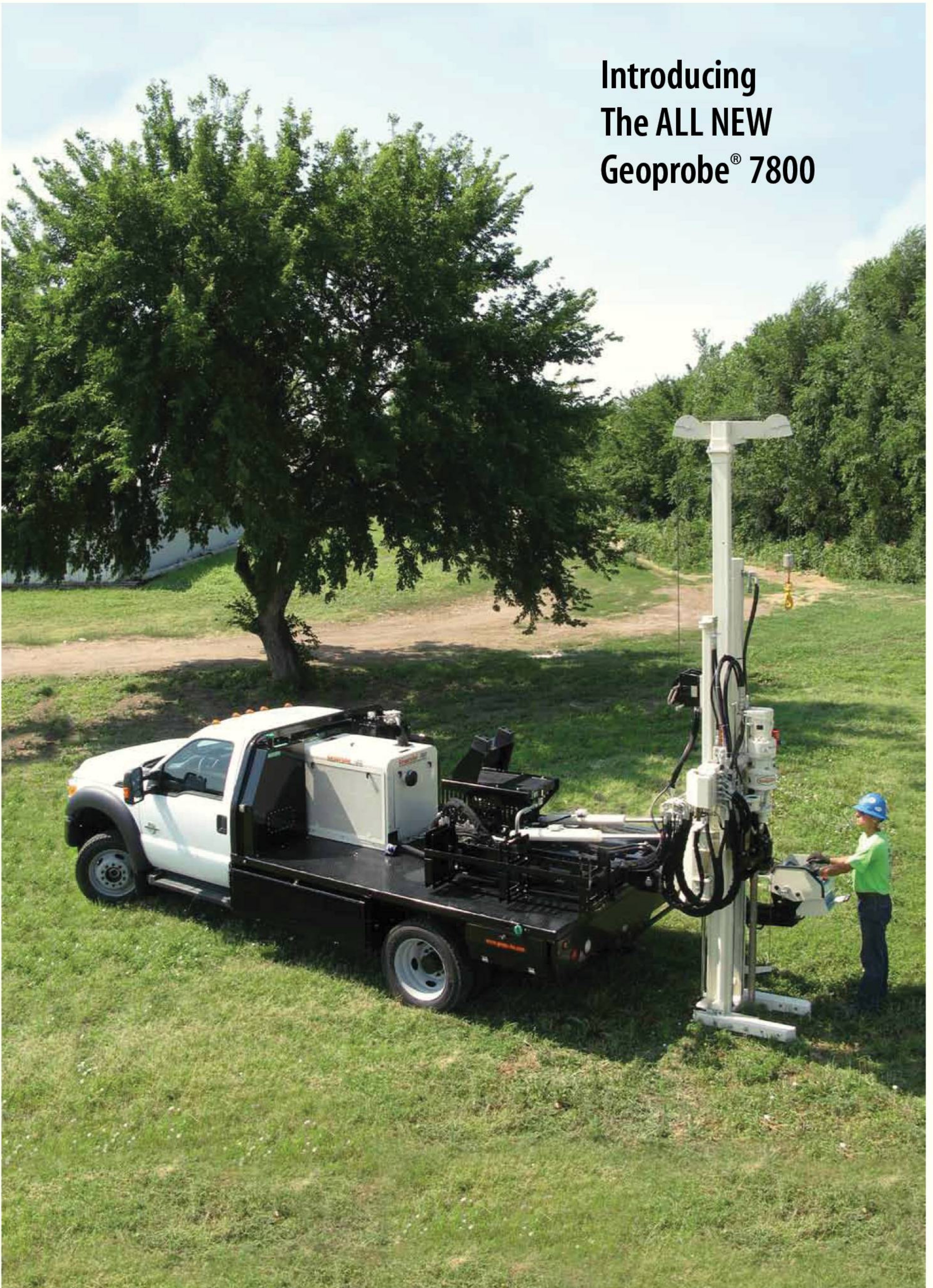
# PROBING TIMES

a publication of **Geoprobe Systems**

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

Fall 2011

## Introducing The ALL NEW Geoprobe® 7800



7822DT



# Have You Driven a Geoprobe® Lately?

Remember when the salesman handed you the keys to your first car? Was it a Saddle Brown '53

Chevy 2-door Hardtop with Fender Skirts and Chrome Lake Pipes? Or a Plum Crazy Purple 1970 Plymouth Road Runner with a 440 6-Pack? Or maybe a Yellow/Black 1970 Street Boss 302 Mustang? What a rush! We can't promise a competitive speed on the road, but when you take the keys to one of our 78 Series rigs, you'll soon experience impressive performance AND put money in your pocket.

That's something a Boss Mustang couldn't do!

With two mounting options now available for the 78 series ... either rubber tracks or mounted on the Ford F550 (or other suitable chassis) ... the 7822DT and the 7800 are designed to meet your field projects head on. Although a spoiler

or premium sound aren't on our options list, new features and specialty options have opened up a variety of field work to increase the services you offer your clients. Larger diameter augering, air rotary, pavement cutting, mud rotary, and concrete coring are taking new 78 owners to the head of the pack.

"I've purchased many drill rigs in my career, and I can say that the Geoprobe® 7822DT is a superior piece of equipment that's extremely versatile," said Donny May, Operations Manager of Vortex Drilling in San Antonio, TX.

With the release of the Model 7800 this fall, powered by the BP50 Power Unit, fans of the truck-mounted units of the past are satisfied again. "We went with the new 7800 because it's easier for us to mobilize," said Rich Koester, General Manager for Kehoe Testing and



Dark Pearl 1957 Chevy Belair 2-door Hardtop

Engineering in Huntington Beach, CA, owner's of the first 7800 off the line. "For us it's all about efficiency ... what's the most economical way to get equipment to a site and how best to use it when it's there. Truck-mounted rigs

have been popular with us in the past. Most of our work is in the greater Los Angeles/Orange County area where space is at a premium. We have

track rigs and like them; but for us, unloading a track rig at the work site then parking the transport vehicle off site isn't efficient," Rich said.

According to Tom Omli, Director of Sales for Geoprobe Systems®, the 78 Series machines make the rig attractive outside the environmental industry. "The variety of

options available for both the truck- and track-mounted models also makes them well suited for the geotechnical and mining exploration industries," Tom said. "They're just overall well-engineered equipment that we see keeping customers busy. And that's our goal."

From the GH64 Hammer with Modular Percussion Power Cell and an industry-first integrated two-speed, bi-directional rotation, to the 500 rpm at the spindle for coring bedrock,



7822DT owned by Strata Soil Sampling in Richmond Hill, Ontario (Canada).

the 78 Series machines are fast becoming the most popular model ever offered by Geoprobe Systems®.

The new 78 Series brochure, which highlights equipment features and tooling configurations for a wide

range of field applications, will be available this fall by contacting Geoprobe Systems®.

"This is a great time of year to come to Kansas and take one of the new 78 rigs for a test drive," Tom added. "It's one thing to read about a machine's capabilities on paper, but we think kicking a few tires and seeing it operate is the best way to shop and decide."

*(78 rig specifications and a partial list of options begin on page 5.)*



Concrete coring applications can now be completed using 78 Series rigs. (left) A 5-in. concrete core opens up the subsurface for sampling or monitoring well installation.



7822DT's leave the Kansas Geoprobe® manufacturing facility for the East Coast.



Soil sampling at a flood retention dike with the 7800.

7800





Major Drilling Environmental in Portland, OR, along the Willamette River in Oregon lowering their 7822DT to the worksite.



Onsite at a galvanizing facility with the 7800 rig. The 7800 is powered by a liquid-cooled Kubota, 4-cylinder turbo diesel engine, Tier 4i compliant.



Vortex Drilling in San Antonio, TX, use a 7822DT to install temporary monitoring wells along the perimeter of a wastewater lagoon.



Gregg Drilling in Signal Hill, CA, use a 7822DT while running a 4-in. downhole hammer looking for limestone near Big Bear Lake, CA.



It's all about pleasing the customer! The Shepler Well Drilling team in Manton, MI, takes delivery of their new 7822DT. (left to right) Caden Hess, Eric Shepler, Robin Kunkel, Dennis Yonkman, Randy Shepler, Travis Baker, Brandi Shepler, and Rhaeann Shepler, and the cowgirl in the front row is Morgan Shepler.



# 78 Series ... Features, Options and Rig Specs

Rig owners all have specific needs in a machine ... but not everyone sets up a rig the same way. After listening to and working with our customers, we've equipped our 78 series rigs with many 'in demand' features and made many options available to select from. And since everyone is looking for performance in the field, we've made sure that everything on either rig, from the top down, will deliver what you always expect from the Geoprobe® brand.



Wireless Remote Track Controller, standard on 7822DT

## Model 7822DT Specifications

Stroke	78 in.	1,981 mm
Weight	7,555 lb.	3,427 kg
Width	60 in.	1,524 mm
Length (folded)	133 in.	3,378 mm
Height (folded)	95 in.	2,413 mm
Height (unfolded)	184 in.	4,674 mm
Lateral Movement (side-to-side)	25 in.	635 mm
Oscillation	± 10 degrees	from vertical
Foot Travel	21 in.	533 mm
Extension	16 in.	406 mm
Down Force	36,000 lb.	160 kN
Retraction Force	48,000 lb.	214 kN
Hydraulic Pressure (system)	4,000 psi	275 bar
Hydraulic Flow Rate (system)	40 gpm	151 Lpm
Fuel Capacity (diesel)	17 gal	64 L
Engine (diesel)	Kubota, 4-cylinder turbo, Tier 4i	
Engine Power	58 hp	42 Kw
Rear Stabilizer Lift	2,000 lb.	907 kg
Ground Speed	0-5 mph	0-8 kph
Surface Load	4.6 lb/in <sup>2</sup>	0.32 kg/cm <sup>2</sup>
Winch Rating	2,350 lb.	1,067 kg
Winch Speed	0-125 fpm	0-38 m/min



Rotation speed of the GH64 hammer was designed to turn larger diameter augers.

## GH64 Hammer Specifications

Hammer System	GH64	
Percussion Rate	32 Hz	
Torque (hammer motor)	560 ft. lb.	759 Nm
Torque, forward (high torque/low speed)	450 ft. lb.	610 N-M
Torque, forward (low torque/high speed)	225 ft. lb.	305 N-M
Torque, reverse (high torque/low speed)	600 ft. lb.	813 N-M
Rotation Speed (low speed/high torque)	0-250 rpm (bi-directional)	
Rotation speed (high speed/low torque)	0-500 rpm (bi-directional)	

## Augerhead Specifications

Torque (high torque/low speed)	4,000 ft. lb.	5,423 N-M
Torque (low torque/high speed)	2,000 ft. lb.	2,711 N-M
Hex Adapter	1-5/8 in.	41 mm
Rotation Speed (low speed/high torque)	0-95 rpm	
Rotation Speed (high speed/low torque)	0-150 rpm	



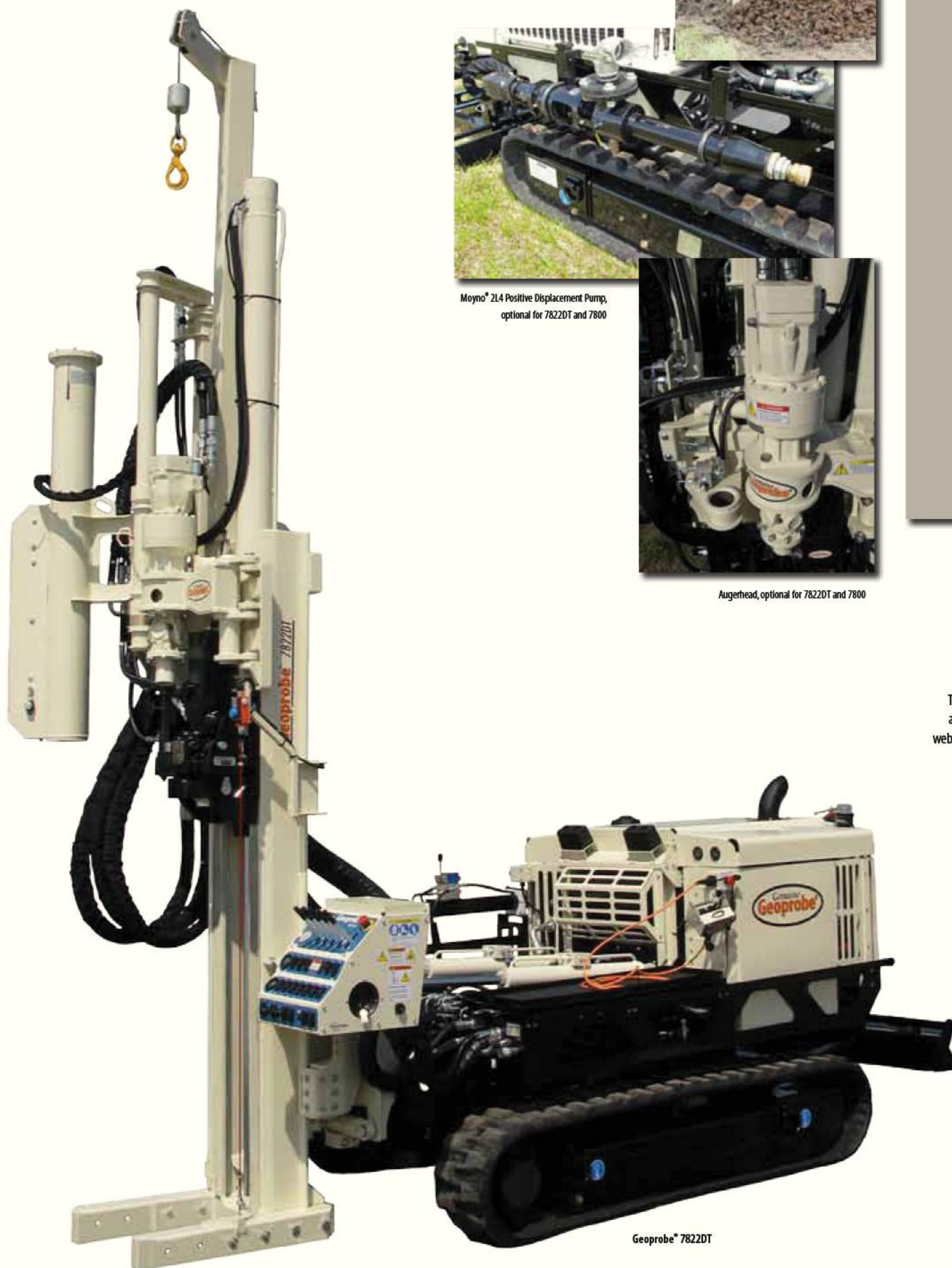
Moyno® 2L4 Positive Displacement Pump, optional for 7822DT and 7800



Augerhead, optional for 7822DT and 7800



The new 78 Brochure will be available this fall. Check our website or call 1-800-436-7762 for availability.



Geoprobe® 7822DT



### Model 7800 Specifications (does not include carrier vehicle unless stated)

Stroke.....	78 in.....	1,981 mm
Weight (rig only, apprx.).....	8,250 lb.....	3,746 kg
Weight (includes base weight of truck, apprx.).....	15,925 lb.....	7,230 kg
Width.....	96 in.....	2,438 mm
Length (folded).....	133 in.....	3,378 mm
Height (folded).....	116 in.....	2,946 mm
Height (unfolded).....	184 in.....	4,674 mm
Lateral Movement (side-to-side).....	25 in.....	635 mm
Oscillation.....	± 10 degrees from vertical	
Foot Travel.....	45 in.....	1,143 mm
Extension.....	16 in.....	406 mm
Down Force.....	36,000 lb.....	160 kN
Retraction Force.....	48,000 lb.....	214 kN
Hydraulic Pressure (system).....	4,000 psi.....	275 bar
Hydraulic Flow Rate (system).....	40 gpm.....	151 Lpm
Winch Rating.....	2,500 lb.....	1,135 kg
Winch Speed.....	0-125 fpm.....	0-35 m/min

### GH64 Hammer Specifications

Hammer System.....	GH64	
Percussion Rate.....	32 Hz	
Torque (hammer motor).....	560 ft. lb.....	759 Nm
Torque, forward (high torque/low speed).....	450 ft. lb.....	610 N-M
Torque, forward (low torque/high speed).....	225 ft. lb.....	305 N-M
Torque, reverse (high torque/low speed).....	600 ft. lb.....	813 N-M
Rotation Speed (low speed/high torque).....	0-250 rpm (bi-directional)	
Rotation speed (high speed/low torque).....	0-500 rpm (bi-directional)	

### Power Unit Specifications (BP50)

Power Unit Weight.....	1,700 lb.....	772 kg
Fuel Capacity (diesel).....	24 gal.....	91 L
Engine (diesel).....	Kubota, 4-cylinder turbo, Tier 4i	
Engine Power.....	58 hp.....	42 Kw
Cooling System.....	Liquid	
Power Unit Dimensions.....	42 in. L x 30 in. W x 30 in. H	1,067 mm L x 762 mm W x 762 mm H

### Augerhead Specifications

Torque (high torque/low speed).....	4,000 ft. lb.....	5,423 N-M
Torque (low torque/high speed).....	2,000 ft. lb.....	2,711 N-M
Hex Adapter.....	1-5/8 in.....	41 mm
Rotation Speed (low speed/high torque).....	0-95 rpm	
Rotation Speed (high speed/low torque).....	0-150 rpm	



Overhead Mast and Winch, optional for 7822DT and 7800



Drop Rack System with 25 gallon water transport, optional for 7822DT (one of several drop rack options available)



Automatic Drop Hammer, optional for 7822DT and 7800



Hydraulic Liner Extruder, optional for 7822DT and 7800



GH64 Hammer, standard for 7822DT and 7800 (see related story on pg. 18)

### Power Unit Specifications (BP50)

Power Unit Weight.....	1,700 lb.....	772 kg
Fuel Capacity (diesel).....	24 gal.....	91 L
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Cooling System.....	Liquid	
Power Unit Dimensions.....	42 in. L x 30 in. W x 30 in. H	1,067 mm L x 762 mm W x 762 mm H



BP50 Power Unit, standard for 7800



Auxiliary Hydraulic Quick Connects, standard for 7822DT and 7800

Control Panel with Integrated Electronic Diagnostic System, standard for 7800



Geoprobe® 7800



# 8040DT ... *a true combo rig*

**Bold. Powerful.  
Impressive Direct Push and Rotary Capabilities.**

A true Combo Rig. Easily and continuously core to bedrock, then shift to a coring operation to verify the rock formation. Drive large diameter casing with ease. Or use the five-function CB8 Combo Head (patent pending) to install 2.0 in. monitoring wells with no cuttings, or perform standard penetration testing or high-capacity augering. And then there's large diameter casing advancement, air and wet rotary, and rock coring ... all are part of the 8040DT package. With 59,000 pounds of downforce and 80,000 pounds of pullback the 8040DT is simply a 'must see' machine! The value of Geoprobe® engineering can be easily seen in the bold and versatile 8040DT. This machine gives the environmental, geotechnical and mining industries another cost-effective option for success. Want to see/hear more about how this rig will work for you? Call Geoprobe® Customer Service to schedule a demo of this truly awesome rig.



An 8040DT, owned by GeoTek Alaska in Anchorage, AK, works at an old coal mine.



Chris Lacko, Field Operations Manager for ARS Technologies in New Brunswick, NJ, uses their 8040DT at an abandoned manufacturing facility, continuous coring with DT325 tooling to over 100 feet.



Erco, in Sylvan Lake, Alberta (Canada) uses their 8040DT near the Canadian Rockies at Grande Cache, Alberta, and pushed DT45 tooling to collect soil samples and geotechnical information. They encountered topsoil, silt, sand, rocky material, sandstone, and shale. At one borehole they reached 105 ft. and penetrated a lens of rock-like material about 3 ft. thick at approximately 60 ft. bgs.

This 8040DT is at a Superfund site in Nassau County, NY. The rig is owned by ZEBRA Environmental in Lynbrook, NY. (see related story on pg. 13.)



**New  
Source Book  
Available From  
Geoprobe  
Systems®**



It's THE place to go for a listing and explanation of tooling available for your Geoprobe® rig. Part Numbers. Descriptions. Sizes. It's a Geoprobe® Customer's closest friend! Available this fall. Request your copy online, at [www.geoprobe.com](http://www.geoprobe.com), or call 1-800-436-7762 to request a copy.

# 8140 Rotary Sonic ...

## *Impressive Power in a Compact Package*



### 8140LC (Low Clearance) or 8140LS (Long Stroke)

Our specialty is designing equipment for the technical drilling industry. And the 8140 Rotary Sonic series is the perfect example. The Geoprobe® 8140, available either as an LC (low clearance model) or LS (long stroke model) is the result of a research and design process of nearly ten years.

This mid-sized rotary sonic offering married the proven 40DT track carrier with the Geoprobe® GV4 Rotary Sonic Head. The patented GV4 Sonic Head is designed, manufactured and supported by Geoprobe®. The GV4 oscillator drive has the dynamic force required to advance 6 in. casing to depths in excess of 100 ft. bgs. And with up to 3,500 ft.-lbf of torque and up to 130 rpm, the two-speed rotation on the GV4 has the torque needed to maintain rotation in tight formations. (It also minimizes the need to use the breakout to break the head free from the tool string.)

The GV4 would be useless without a solid machine to drive it, which is why engineers mounted it on the proven 40DT platform, the same platform used by the 8040DT, and used the same CAT® engine, the same hydraulics, the same controls, and the same tracks. In fact, from the fold point back, the machine is nearly identical to the 8040DT. So what's different? The head feed. While the 8040DT is endowed with 40 tons of pullback at the cylinders (useful for direct push applications as well as with some DTH hammer casing systems), the 8140DT trades in pullback for increased head travel speed — helping it to achieve high advancement rates in some formations.

Distinctive to Geoprobe® Sonic units is the ability to utilize our DT45 system. In unconsolidated formations, a DT45 system typically generates a better sample, with less water, less tool wear (not constantly coupling and uncoupling to the inner rod), in less time vs. the conventional 4x6 sonic drilling method. Of course if the project requires a larger casing or drilling through consolidated zones, one can always revert back to conventional sonic methods.

“Much of the feedback we hear from our customers is consistent,” Tom Omli, Director of Sales said. “They find that their Geoprobe® sonic has surprising power, numerous operator-friendly features, and unbeatable Genuine Geoprobe® service support.”

Need more information? Contact Tom Omli at 1-800-436-7762.



The Huss Drilling field team from Dade City, FL, uses the 8140 Rotary Sonic to install a monitoring well to nearly 100 ft. (see related story on pg. 9.)



The 8140LS equipped with an option Rod Handling System.



Major Drilling Environmental uses and 8140 Rotary Sonic for remote sonic drilling within mine rock dump in northern Idaho. (see related story on pg. 8.)



The operator-adjustable control panel on the 8140 rotary sonic series rigs features a well-organized, easy-to-learn control layout.



# Troutdale Formation Drilling by MAJOR Drilling with Geoprobe® Rotary Sonic



MAJOR Drilling Environmental, LLC (MDE) recently completed a deep, rotary sonic geotechnical boring to a total depth of 180 ft. within the Troutdale Formation. The Troutdale Formation is an alluvial sand and gravel deposit, characterized by cemented gravels, cobbles and Volkswagen-sized boulders. In order to penetrate this difficult formation for collection of geotechnical soil samples, MDE mobilized one of their seven Geoprobe® 8140 Rotary Sonic track rigs to complete this work.



(above) MDE uses an 8140 Rotary Sonic for drilling and installing 4-in. stainless steel wells in north Florida. Sixteen wells were installed to depths ranging from 45 ft. to 90 ft. deep each.



Two of MDE's 8140LS rigs installing remediation electrodes in Beaverton, OR, using 10.75 in. OD casing.

Recently, MDE was selected to participate in a geotechnical subsurface investigation consisting of mud rotary borings, CPT advancement, and one rotary sonic boring in support of a geotechnical engineering assessment and design for a new regional transportation bridge in Portland, OR.

The field team collected continuous 4-in. diameter soil cores to a total depth of 180 ft. below ground surface utilizing MDE's proprietary sonic tooling. A temporary 8-in. diameter conductor casing was installed to 25 ft., and the borehole was advanced to 180 ft. using 6-in. diameter casing and a 4-in. diameter core barrel.

The challenge of the Troutdale Formation drilling was further complicated by soft ground conditions (several feet of mud!) and northwest rain showers, coupled with the environmental site concern of asbestos-containing materials (ACM) in the near surface soils. All of MDE's experienced drill team are asbestos awareness trained and the work area was continuously air-monitored for ACM. The combined maneuverability and power of the Geoprobe® 8140LS rotary sonic (long stroke) and MDE's highly-trained sonic drilling operators were a great match in getting the project completed on time with accurate results.

According to Steve Zimmerman, MDE's on-site sonic operator, the Troutdale Formation threw challenges at us at every turn. "The penetration rate began to slow down at around 120 ft. due to cemented gravels," Steve said, "but the 8140LS kept going slow and steady." The rubber-tracked sonic rig enabled site access, and the sonic power of the Geoprobe®-designed GV4 Sonic Head (patent pending) helped ensure successful completion of the Troutdale Formation boring.

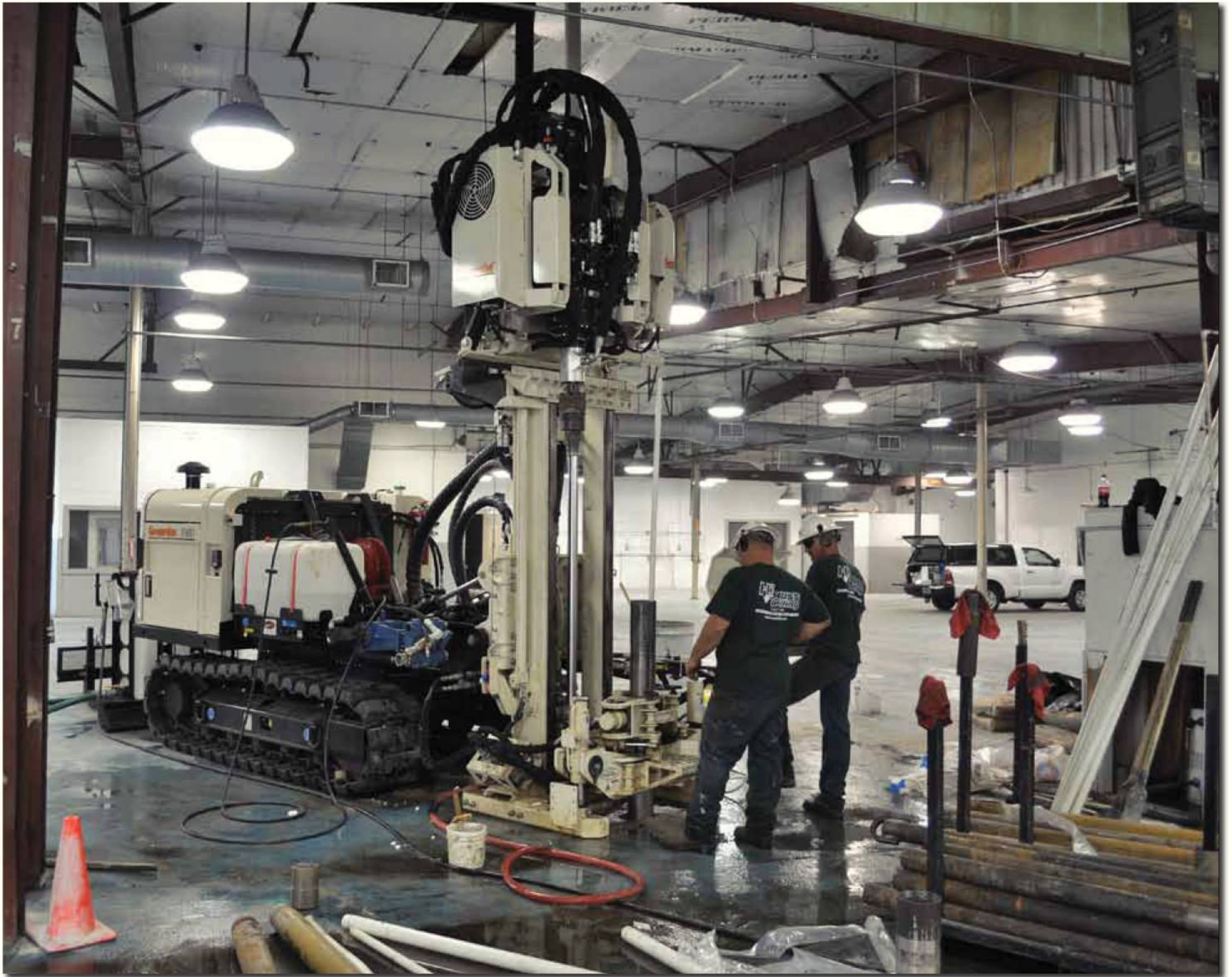
MAJOR Drilling Environmental is a full service contract drilling and sampling company that serves markets across the USA. MDE specializes in drilling for environmental, geotechnical, geothermal, aggregates and construction, clean water, and mining applications. Currently, MDE is operating a new fleet of seven Geoprobe® rotary sonic rigs, including 8140LS, 8140DT, and the all-new limited overhead access 8140LC, which can work under a 14-ft. clearance.



(above and below) MDE field team with 8140 Rotary Sonic for remote sonic drilling within mine rock dump in northern Idaho.







Kent Fowler, Driller for Huss Drilling, and Nick Boettger, Driller's Helper, drive 6.5 in. casing to start the 2-in. monitoring well installation process.

## Huss Drilling Completes Project Ahead of Schedule with Geoprobe® Rotary Sonic

In the early spring of 2011, Huss Drilling Inc. in Dade City, FL, completed a large project using their new Geoprobe® 8140DT rotary sonic rig in the Ft. Walton Beach area of Florida.

According to Ben Huss, Owner of Huss Drilling, the difficult task encompassing the project was completing most of the work inside several warehouse buildings. "The entrances were tight yet the compact nature of the 8140DT allowed us easy access to the various rooms within the building," Ben said. The rig was fitted with an exhaust piping system that pulled the fumes from the engine then discharged them outside the building. A blower was also installed that aided in pulling out the exhaust fumes. Even though outside temperatures remained cool, large shop fans were placed about the work site for added ventilation. The low overhead clearance of the Geoprobe® sonic rig provided the accessibility to perform all of the work that needed done in spite of being inside a building with a low clearance.

During the month-long drilling event, the seasoned crew of Kent Fowler and Tony Hudson performed continuous soil sampling and groundwater sampling, and installed monitoring wells up to 100 ft. below land surface. The soil sampling was performed using a 4-in. core barrel with a specially adapted bit to capture the loose flowing sands encountered on site. Groundwater samples were obtained by installing temporary screens and then retracting the sample casing at specific intervals. The monitoring wells were completed inside the various sizes of override casings depending upon the well diameters. Over 30 wells were installed during the event, many of which were located inside warehouse buildings.

Onsite engineers were extremely pleased with the performance of the Geoprobe 8140DT. "The rig performed without any lost time due to breakdowns allowing us to complete the anticipated five-week job in one month," Ben added. "We were able to provide our client the information necessary to assess the contamination levels, and place the monitoring wells in strategic locations while saving significant costs associated with the typical disposal of cuttings."



The Huss Drilling field team for the project, Kent Fowler, Driller and Tony Hudson, Operations Manager, use the 8140DT Rotary Sonic to install a monitoring well to nearly 100 ft. In spite of completing most of the work inside warehouse buildings, the mid-sized sonic rig was able to easily work inside the low overhead clearance facility.

(right above) PVC riser is lowered down the center of the 6.4 in. casing by Kent Fowler, Driller for Huss Drilling. Over 30 monitoring wells were installed during the project, most of which were inside the warehouse buildings.

(right) Kent Fowler, Huss Driller, takes advantage of the GV4 Sonic Head on the Geoprobe® 8040DT Rotary Sonic to retract casing during well installation.

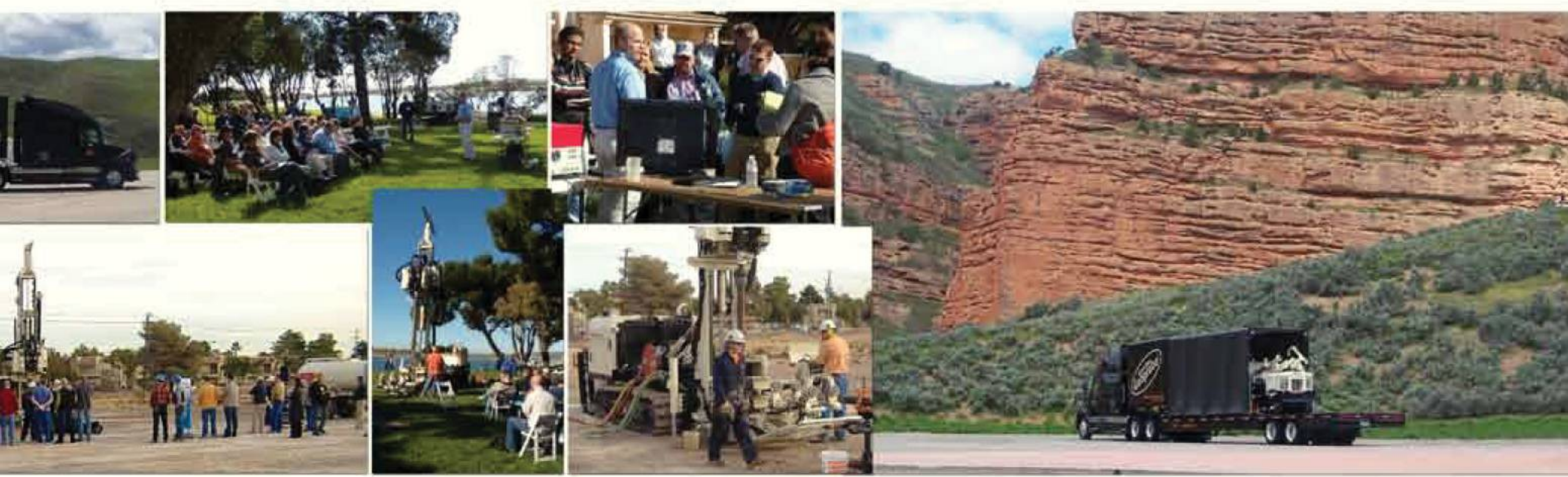




Check out the faces we met and the places we stopped at during 2011. We hope to see you in 2012! And don't miss .....

# Geoprobe





# OH12

**INNOVATION**  
for the next generation

**Geoprobe®**  
**OPEN HOUSE**  
**2012**  
APRIL 19, 2012

Be in Salina on April 19th for the third Geoprobe® Open House ... the day when Team Geoprobe® opens the doors on what's new for 2012 and what's just around the corner! It's innovation, industry-leading technology, and hospitality at its best! Registration is required. Don't get left behind! Check the website often for details.



# Terratest Sets Sail in Sydney Harbour to Collect Marine Sediments

Like many cities around the world, there is an ever increasing pressure and desire to develop former industrial sites into useable recreational space and housing. Sydney, Australia is no different.

Recently, Terratest Environmental Pty, Ltd. Granville, NSW, was approached to propose a methodology to access and accurately sample marine sediments in the upper reaches of the picturesque Sydney Harbour, commonly referred to as the most beautiful natural harbour in the world. Nearly 150 mi. (240 km) of shoreline encompass approximately 34 sq. mi. (54 sq. km) of water which translates into an enormous area for exploration and discovery. Centuries of hard industrial use, such as gas works and manufacturing plants, had seen contamination with Polycyclic Aromatic Hydrocarbons (PAH), heavy metals and semi-volatile organics that require local remediation for areas of the harbour.

“As many of our clients already know,” explained Jason Peisley, Terratest Driller, “there is no better tool for continuous sampling and contamination delineation than a Geoprobe® rig.” However, water at the site ranged from 18 in. to 20 ft. (20 cm. to 6 m.) deep with estimated sediment depths to sandstone bedrock to 26 ft. (8 m.). “That’s where our company’s original 6620DT and a small pontoon barge came into play,” he said. The low overall weight and shallow draught of this combination enabled the crew to access all 25 locations across the sampling area where traditional truck rigs on heavy barges would have grounded. Environmental concerns and a minimal environmental impact were also of extreme importance with mudflats and mangroves nearby.

Terratest effectively employed DT325 tooling to continuously sample all locations to bedrock, which in some areas reached 33 ft. (10 m.) from the sea bed. This system resulted in very little disturbance of the sediment during sampling.

“Our client and principal were suitably impressed with the quality of the sediment samples recovered and our ability to determine specific bedrock at each location,” Jason added. The results will enable future remediation options to be better explored which will include sheet piling and dredging.

A combination of drop spud bars for shallow locations and the use of a diagonal anchor line with a sharp motor punt operator allowed Terratest crew members to stay over each location accurately during project. According to Marten Sweeney, Managing Director of Terratest, “By using casing clamps we could quickly get the DT325 tooling to the sea bed and begin sampling. The inherent speed

of this tooling meant, in many cases, we were finished at a location in minutes.” Traditional surface casing and rotary mud drilling would have greatly extended the total time over each location and increased the potential for contaminated fluid loss into the harbour.

Terratest’s client had scheduled a drilling program of six days including mobilization to the site over water. The Terratest Geoprobe® crew ... consisting of Jason Peisley and Karl Hille, Driller’s Assistant ... completed the drilling scope in under four days which resulted in cost savings and earlier reporting of findings. “An under budget, efficient, and our environmentally friendly approach will ensure



Terratest Environmental secured their 6620DT to a barge to pull sediment samples from within Sydney Harbour in Australia. The once industrial landscape around the harbor is transforming into recreational areas and residential housing.



The Terratest team relied on the DT325 tooling to continuously sample all locations in the harbour to bedrock. This tooling resulted in very little disturbance of the sediment during sampling.



The experience of the Terratest crew and the ease-of-use of the DT325 tooling with the 6620DT kept the work moving along quickly. The sediment was completed ahead of schedule resulting in earlier reporting of the findings and significant cost savings to the client.

future opportunities for Terratest and our versatile Geoprobe® fleet,” Jason said.

Drilling over water is always a nice change of scenery for dirty and dusty drill crews. There are added hazards ranging from chop and swell, depending on how exposed a site is, to the frustration of close passing ferries and boats. Marten added, “With a good, accurate weather forecast each day we were able to keep the 6620DT on board the barge for the project duration, and keep it anchored and tied to a jetty each night. A simple morning re-fuel and loading of daily consumables and the crew was ready for another day’s productive sampling.” The crew was also happy to report that a new order for replacement tooling was not required as nothing was lost overboard (this time)!



# ZEBRA's Experience and Geoprobe® Fleet Right Choice for Superfund Remedial Investigation

ZEBRA Environmental in Lynbrook, NY, was selected to complete a Remedial Investigation for the New York State Department of Environmental Conservation (NYSDEC) at a Class 2 Superfund Site in Nassau County, NY. The Solvent Finishers site was a dry cleaning operation which consisted of two adjoining buildings on the 3.78-acre site. Industrial, commercial, and residential properties surround the site. Prior use of PCE by Solvent Finishers appears to have led to site contamination.

A previous investigation, by the Nassau County Department of Health, indicated that PCE was discharged directly into a drywell and sometimes on the ground. Test results from the drywell discharge revealed a PCE concentration of 20,000,000 ppb in a wastewater discharge to an on-site drywell. A site characterization investigation report, dated October 2008, reported on-site groundwater contamination with PCE ranging up to 8,500 ppb and TCE ranging up to 870 ppb, both exceeding the groundwater standard of 5 ppb.

Jessica Beattie, Senior Project Manager with Camp, Dresser & McKee in Edison, NJ; and Frank Robinson, a Senior Technical Specialist for CDM; and Heather Hallett, onsite CDM representative, were in charge of the Remedial Investigation and Feasibility Study, which began in March 2011. Analytical results from the investigation indicated that site contamination has migrated off-site to areas south of the site, so the Remedial Investigation study area was expanded.

CDM defined the scope of the work to include surface and subsurface soil sampling, soil vapor intrusion sampling, installation of groundwater monitoring wells, and collection of groundwater samples from both monitoring wells and temporary points. CDM contracted with ZEBRA Environmental to complete the borings on this site because of their specialized environmental expertise and significant fleet of Geoprobe® equipment. "Our long-standing and successful relationship with ZEBRA was key in selecting them for the work," Frank said. ZEBRA's field team for the project consisted of Evan Moraitis, Carlos Hernandez, John Diamond, Jose Garcia, and Quincy Brandt. Frank added, "We appreciate the expertise and professionalism the ZEBRA team has displayed in the past. And we wanted to draw from the fleet of Geoprobe® equipment that ZEBRA has ... the 8040DT, in particular, because it's the best technology for this work in terms of speed, efficiency, and cost effectiveness. We knew the small footprint of the 8040DT would give us more maneuverability in some very tight areas." Conditions around the building were challenging ... very tight spaces all over. The first part of the project involved a parking lot, which was a bit more open, but still a challenge in terms of having to work in sections, "as each part had to be cordoned off to simplify the operation," Frank explained. "We also knew the direct push features of the rig eliminated any spoils to get rid of, no large drums full of waste material that you would have with traditional HSA."

The contaminants of concern were Tetrachloroethene, also known as PCE, PERC, and more commonly known as dry cleaning fluid; Trichloroethene, also known as TCE, a breakdown or daughter product of PCE; and Cis-1,2-dichloroethene also known as DCE, a breakdown product of TCE and PCE. PCE, TCE and DCE have been detected in groundwater about 85 ft. bgs.

"This project was probably of 'average' size," commented Paul Fleischmann, President of ZEBRA Environmental, "however, the depth portion of the project was out of the ordinary. Much deeper than usual because of the specific type of contamination."

So far, the ZEBRA field team has collected discreet soil samples with 2.25 in. rods and SP22 groundwater samples to depths ranging from 200 to 240 ft. bgs at over 15 locations, and completed closed piston point sampling at 185 to 190 ft. bgs. The deepest depth obtained with the Electrical Conductivity probe and 2.25 in. tooling was 240 ft.

Analytical results from the investigation indicate that the contamination has migrated off-site. The Remedial Investigation should be completed in early 2012. The next phase of the project involves installing monitoring wells at the site. The ultimate goal of the plan is to ensure the protection of public health and the environment.

The project was coordinated with Rob DeCandia with the New York State Department of Environmental Conservation.



(l to r) Evan Moraitis and Jose Garcia were part of the ZEBRA Environmental field team on the Solvent Finishers site. ZEBRA used the 8040DT at the site because of its direct push capabilities and also quick set up time, usually about 20 minutes.



(l to r) Heather Hallett, CDM Project Geologist and onsite representative; and Jose Garcia and Evan Moraitis, drillers for ZEBRA Environmental with the 8040DT. Samples were retrieved from depths to 240 ft. bgs.



(above) ZEBRA Environmental's truck was designed specifically to transport their 8040DT and onsite supplies and equipment. (left) The Geoprobe® 8040DT features a Drop Rack System allowing the rig to carry tooling to the site on the rear blade. (right) More ZEBRA information on page 19 ... 100 Club.

# 54LT Trades In Tracks for Wheels and Helps Uncover Bits of the Past

A little Geoprobe® 54LT, owned by the Florida State University Department of Anthropology in Tallahassee, traded in its tracks and was fitted with wheels to more quickly move about archaeological sites, where the unit spends its work days. The wheels allow for rapid movement from one coring location to another, sometimes as much as half a mile without reloading the trailer.

According to Glen Doran, Ph.D., Professor and Chair of FSU's Anthropology Department, the university has used the 54LT for archaeological investigations for the last decade. "We've found that Geoprobe® direct push technology is an excellent approach that replaces more labor intensive, often manual, coring strategies that have dominated traditional archaeological approaches," Glen said.

Glen and his field team have used the 54LT to go to 27 ft. at a prehistoric mound, Shields Mound, in Jacksonville, FL. The Shields Mound was constructed roughly 1,000 years ago, and the primary goal was to examine internal features to gain a better understanding of the construction sequence.

In the summer of 2009 and 2010, a series of archaeological sites were sampled to be categorized as Paleoindian or Pre-Paleoindian (circa 10,000 – 13,000 + years old). "In a core from the Vero site in Florida, we were lucky and recovered an extinct Jaguar ankle bone," Glen explained, "demonstrating that there definitely is additional Pleistocene fossil material at the site." Prior to 10,000 years ago, the end of the Pleistocene, a variety of now extinct animals lived in North America, such as the mammoth, mastodon, dire wolf, etc. Fossilized skeletal remains of these species are found in deposits along the Florida Atlantic coast. At several sites, in Melbourne and Vero in particular, human skeletal material was found 'associated' with these deposits. For nearly a century anthropologists have not been able to conclusively date some of these deposits and clearly demonstrate that the human materials are truly associated with and are of the same age as the Pleistocene fossils. It's possible older Pleistocene fossil material has been mixed and redeposited with more recent, 5,000 to 3,000 year old, material. The goal at the Vero site was to attempt to identify intact deposits and examine new opportunities for more accurate dating.

Most of the sites FSU has worked in are typically less than 2000 years old. In many cases the information is used to understand site formation process as well as provide a better understanding of chronology and site features across a large area. This was this summer's goal at the Crystal River Archaeological State Park in Crystal River, FL. "The 54LT proved effective for most of the work, but for coring the largest mound at Crystal River the LT would have had trouble getting to the top of the mound," Glen added. "The 36-foot-tall access ramp running up the side and back of the mound was very steep and narrow. John Martinuzzi, Manager of the Geoprobe® southeast regional office, arranged for Jonny Heath, President of Geo-Technologies in Ocala, FL, to bring their 6620DT in to get two complete cores through the tallest part of the mound – one for strata information and the other for OSL (optically stimulated luminescent) dates. The data we get from this



(top) Glen Doran, Professor, and Bruce Albert, a pollen specialist, work with the Geoprobe® 54LT, owned by the Florida State University Department of Anthropology. The machine operates with wheels instead of traditional tracks, and is pulled by a Honda Foreman ATV. The rig has been used on over 30 archaeological sites in Florida, Tennessee, Louisiana, and Texas. (left) Glen Doran, Professor, watches as Grayall Farr, Geoprobe® technician, prepares to collect a soil core sample. (center) Sometimes FSU collects only one or two cores at a site; in other cases, 5 to 50 cores are taken, some of which are immediately sliced open and examined. (right) With a width of 35 in., the 54LT can squeeze through openings to access confined areas. John Foss, geoarchaeological consultant, helps guide the machine through a residential gate at the Bay West site on the Florida Gulf coast.

work will be very helpful in understanding this two-thousand-year-old mound and the people who once lived there."

Since the specially-designed 54LT joined the FSU staff in 2000, it has been on archaeological sites in Florida, Tennessee, Louisiana, and Texas. At the Gault Site, north of Austin, TX, soil cores were taken in order to assess the local stratigraphy of a Paleoindian occupation overlain by a burned rock midden. In Victoria, TX, cores were taken from former oxbow lakes for pollen analysis at an archaeological site dating to the Early Archaic. In Tennessee, cores were taken at low water stream crossings that contained buried archaeological deposits.

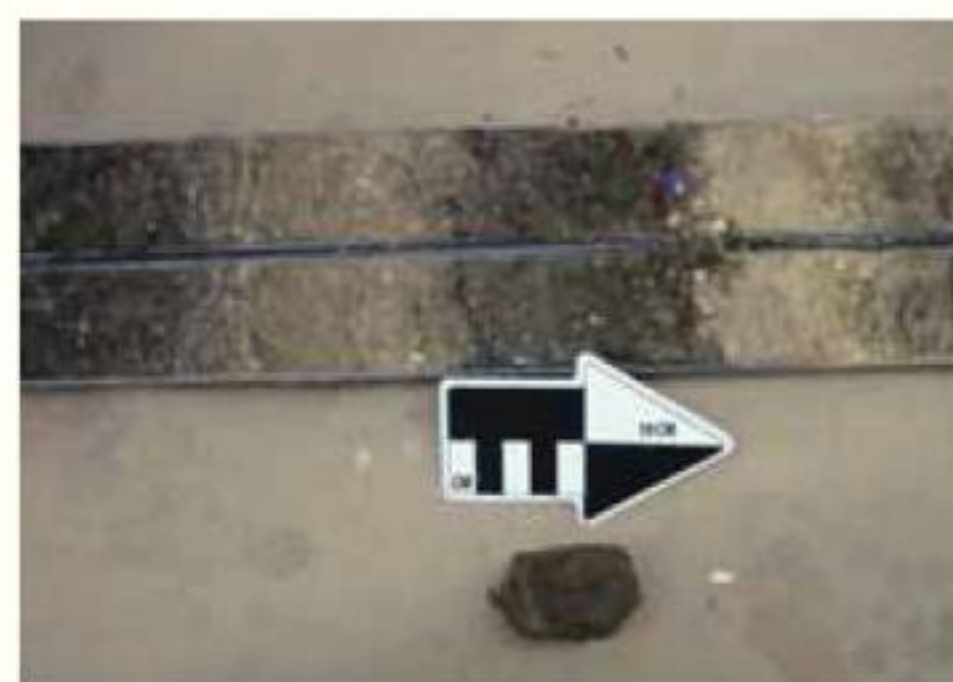
Additionally, soil cores have been taken from the base of a Mississippian-period temple mound at Shiloh National Military Park, in Shiloh, TN. Cores were also taken from a peaty borrow pit, also at Shiloh, for pollen studies. Additional work has been done at an historic Spanish Mission, Mission San Luis, in Tallahassee, FL, and at coastal archaeological sites in Okaloosa County, FL, and at remnant shell middens in Volusia County, FL.

"In all, we have looked at roughly 30 sites," Glen said. "In some cases we are sampling likely locations where sites may exist but are buried and have no surface evidence, such as low water crossings with a lot of flood deposited soil. In other cases,

and this is more typical, we are sampling known archaeological sites to answer specific research questions – internal site morphology, dating, environmental reconstruction, etc."

Glen continued. "From the very beginning I've been impressed with the equipment, the machine, the Geoprobe® tools, and supplies we purchase from your company. But enough about the quality of your materials! What's impressed me even more is the quality of your staff. Over the years I have called and corresponded with the Kansas office 20 or 30 times and talked to probably a dozen people on different issues. I must tell you that in every case, everyone I have ever talked to, dealt with, or corresponded with has, without fail, been thoroughly helpful, thoroughly professional, and a delight to deal with. This was whether it was trying to find a 'local' supplier for liners (in Texas on the way from Tennessee) or to the purchase and details of our new dual tube sampling system. It has been a pleasure working with all the folks in Salina, and I really mean it. From the get-go, John Martinuzzi in Crystal River has been a tremendous help. He always knows what tools we need, new techniques to use, how to make everything work perfectly, and how to improve what we're doing. I don't think I've ever worked with anyone so helpful in any field. I don't know whether you have an incredibly effective training program or have managed to hire people that were just absolutely top notch or what, but keep it up!

"Your staff really has been fantastic to work with and I just wanted to let you know how much it is appreciated. You have a great product and great people – a combination that's hard to beat. Keep it up!"



(left) Glen Doran, Ph.D., Professor and Chair of the Department of Anthropology at Florida State University in Tallahassee, prepares the university's 54LT at a sample site. (above) An extinct jaguar ankle bone was recovered from a sample taken at the Vero Man site in southern Florida. (right) For some projects, the FSU Anthropology Team immediately cuts open the filled sample liners to screen and inspect them for archaeological information. However, more frequently the filled liners are labeled and submitted for specialized laboratory analysis for pollen, soil petrology, OSL dates, etc.



# CPT Logging in Louisiana Marshland For New 17-Mile Elevated Roadway

Ardaman Associates Again Relys on Geoprobe® for Specialty Rig for Over 60,000 linear ft. of CPT Soundings

Route LA-1 in Lafourche Parish, in southwest Louisiana, is known as the Gateway to the Gulf where 18 percent our nation's energy production occurs. The highway is the primary evacuation route for some 35,000 residents, including 6,000 offshore workers. LA-1 also serves as the only land route to Port Fourchon, a specialty port on the southern coast, servicing over 75 percent of the gulf's deepwater oil and gas production and foreign oil imports. Louisiana's commercial and recreational fishing industries are also supported by this highway, which floods easily with severe weather and remains threatened by washout from any approaching hurricane.

The Louisiana Department of Transportation and Development (LADOTD) has proposed to construct a replacement highway between Port Fourchon and Golden Meadow consisting of 17 miles of elevated roadway with low-level and medium-level bridges, two elevated interchanges, and two fixed high-level bridges over navigable waterways.

Providing geotechnical services for a 17-mile project constructed entirely through marshland posed many challenges. In addition to the logistics, the soft, compressible soils typical of southern LA and present along the entire project alignment added technical challenges. One such challenge was the completion of the monumental field program in a sensitive marsh environment. LADOTD and the Department of Natural Resources required that substantial damage be prevented to the marsh areas where the field work was conducted. This precluded the use of marsh buggies, track-mounted drill rigs, etc.

The project team knew that readily available drilling equipment would not get the job done. "Our past association with Geoprobe Systems® and a 540UD mounted on an airboat led us to doing something similar for this project," Jim Porter, Field Services Manager for Ardaman Associates explained, "but we needed more power. With help from Geoprobe®Systems, we went with a 6600/BP49 mounted on a specially-designed 32-ft. long airboat which allowed us to work on top of the marsh grass."

Customized or add-on features are usually required when customers are setting up for marsh-based CPT work. Too much weight and size would change the dynamics of mobilizing to locations, and perhaps make it impossible if the structures are too large. "Good and frequent communication between Jim and us was extremely important," said Doug Koehler, Geoprobe® Customer Service, "and we were able to successfully support him. We provided all the elements required to set up/support his equipment, from the machine and customer-requested components to service and calibration of the cone equipment."

"We are not aware of any other geotechnical engineering companies in the southeast," Jim added, "who possess specialized drilling equipment of this scale."

Natural gas pockets, variable water depths, and the loss and subsequent retrieval of downhole CPT cone equipment and drill rod due to movement of the boats in the marsh made the project even more interesting. "I spent a lot of time addressing field challenges and a lot of time in the boat collecting CPT data," Jim said. Because of his guidance to the AAI drilling team, the field work was completed on time.

Completed in mid-August, the field exploration resulted in the collection of over 5,000 soil samples and the completion of over 50,000 linear feet of CPT soundings.

Jesse Rauser, P.E. served as Project Manager for AAI, and has been involved in the project since the initial field exploration in 2003. Dempster Thibodaux of AAI's Baton Rouge office was instrumental for his hands-on direction of the airboat design and construction.



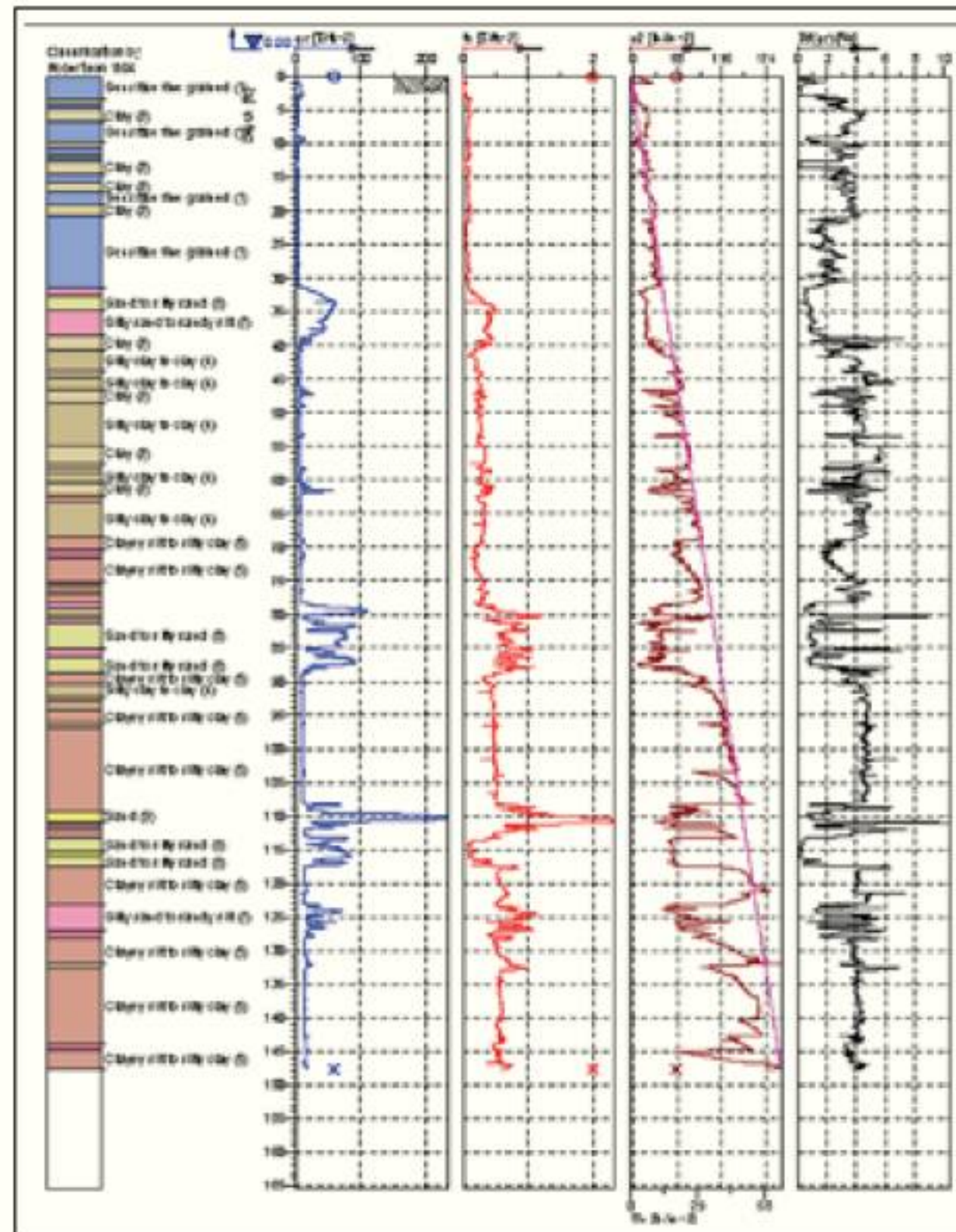
Jermaine George, Ardaman Associates Driller, and Dempsey Thibodaux, Senior Driller (kneeling), push a CPT cone to 200 ft. during the 6-month-long Port Fourchon project in Louisiana marshland.

## FIELD PROGRAM SUMMARY

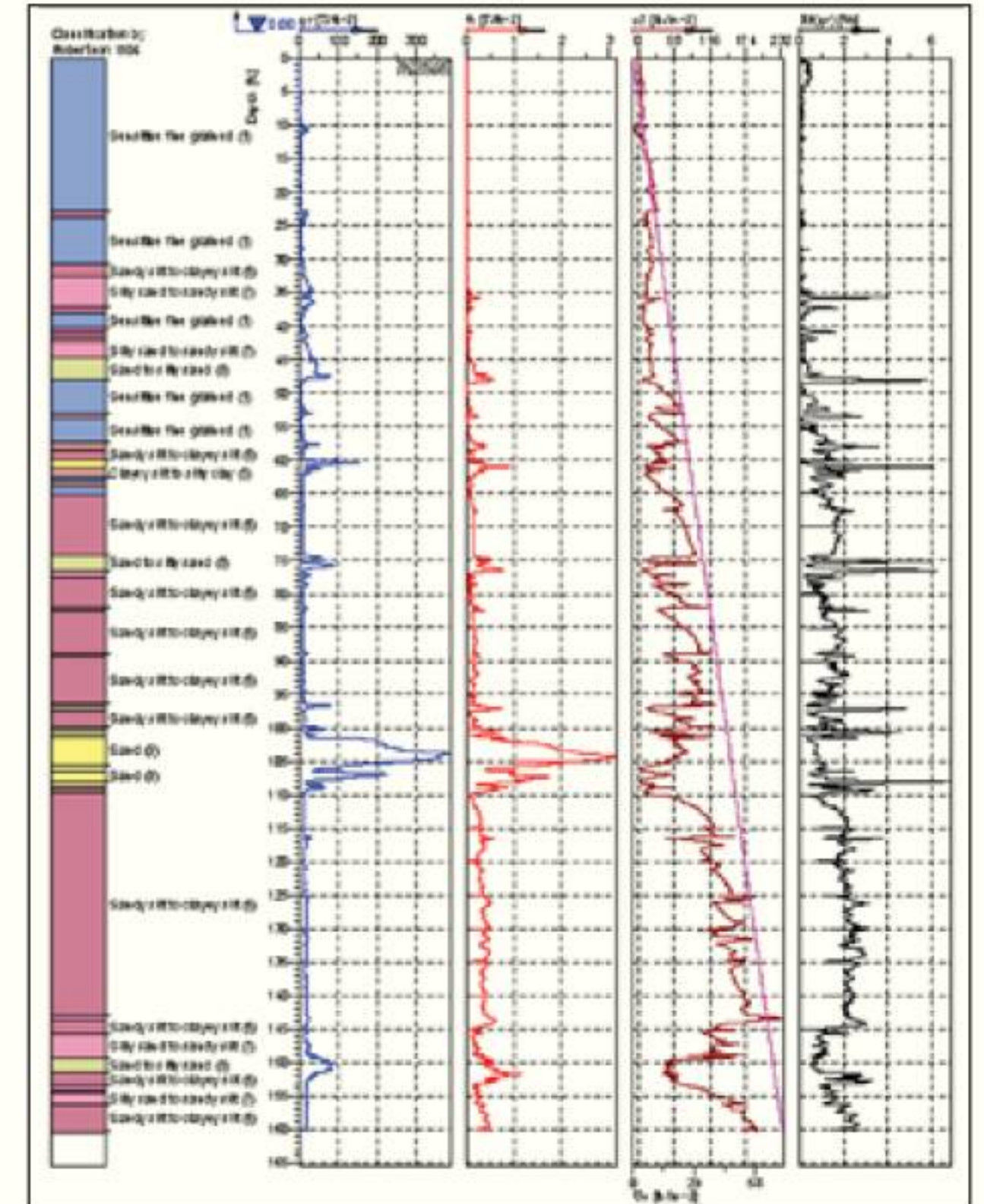
PROJECT PHASE	NO. OF SOIL BORINGS	BORING DEPTHS (ft)	NO. OF CPT SOUNDINGS	CPT DEPTHS (ft)
Phase 1	74	80 to 200	76	80 to 200
Phase 2	57	80 to 200	356	80 to 200



Ardaman Associates mounted a Geoprobe® 540UD in a smaller airboat for a 2003 project. The most recent work completed in Lafourche Parish in Louisiana required an airboat with more than twice the power of the above configuration.



Log 1: The CPT data are being used to characterize the site, locate sand layers where pile bearing is favorable, and develop shear strength parameters for the underconsolidated to normally consolidated clays. The raw CPT data can also be used to estimate pile capacity using software developed by the Louisiana Transportation Research Center (LTRC), a design tool that has been successfully employed on other phases of the project.



Log 2: The variability among the sand and silt layers are evident from log to log. This presents a challenge in developing pile lengths along the project alignment. The cone used also needed a high enough resolution to adequately characterize the very soft to soft clays that predominate the foundation soils.



Ardaman Associates staff utilized specialty airboat-mounted drilling equipment to work on top of the marsh grass. During implementation of the services for Phase 2, Jim Porter and Jesse Rauser led the design and oversaw the construction of two quad-engine, 32-ft. long airboats, and mounted a lightweight, custom-designed drill rig and a Geoprobe® 6600 machine with CPT tooling on the airboats. The design of the new boats was a direct result of AAI's experience with the field investigation during Phase 1. Each engine on the boat is capable of generating 454 horsepower in order to get the large boats up on top of the marsh grass for drilling. According to Jim, the boats have resulted in a significant improvement in the ability to access boring locations compared to Phase 1, especially in areas with extremely shallow water.



## 3,000 Hours and Still Probing Along

Nicholas Recchia, with Tri-State Drilling Technologies in Bellmore, NY, sent in this photo and these comments ...

"I like all the landscape photos of your Geoprobe® units operating with the clear skies, mountains and lakes in the background, but how do you like this? You made the 54LT to get into tight places. Well, we work mostly in old abandoned factories like this one. This was an old Glue Factory built in 1889 in Brooklyn, NY. (Yes, that was another use for horses.) We took the 54LT up a ramp system that we'd fabricated and into a freight elevator which took us down into the dark, damp basement areas ... kind of like the Roman Catacombs where we performed soil and groundwater sampling to depths over 50 ft.! The 54LT did great! And our 54LT just celebrated its 10th birthday with over 3000 hrs of use without any major repairs (we have changed the oil and replaced some hoses over the years). A few months ago we received shipment of our new 7822DT, and we're looking forward to a decade of service from it also."



John Hall with EDP Consultants in Kirtland, OH, took some liberties with a photo he'd taken while working with their 54LT at Progressive Field in downtown Cleveland. We think he hit it out of the ballpark with this one!

## On Site at Earthquake/Tsunami Ravaged Japan



On March 11, 2011, Japan experienced a magnitude 9.0 earthquake approximately 150 miles off the coast and the shift in the ocean's floor created a massive tsunami that devastated sections of northern Japan. Information from [www.earthquake-report.com](http://www.earthquake-report.com) states over 20,000 people died from the disaster. A Geoprobe® 6620DT is being used for collecting subsurface information. The affects of this disaster are staggering. Team Geoprobe® extends their prayers and support to our customers and families in the affected areas.



You've Got Questions? We've Got Answers and Information at ...

# www.geoprobe.com

- New Rig Information!
- New Tool String Configurations!
- Announcements of Events
- Service Information!
- Customer Service Faces!



Grab a cup of coffee and check out the new look of the Geoprobe® website. Updates nearly every day to keep you informed. We want to keep you ahead of the competition and in-the-know about all of the updates coming from Geoprobe Systems®.







# "I feel alive When I ride!"

Lee Shaw, Geoprobe® Customer Service and his wife, Janelle, and daughter, Mikiah, share about their experiences while riding in BAK.



The Shaw Family: Janelle, Lee and Mikiah. For the past three summers, they have participated as a family in BAK (Bicycling Across Kansas), riding bicycles from Colorado/Kansas border to the Kansas/Missouri border in a week in June. Lee has been a part of the Geoprobe® Customer Service Team since 1997.

## The Closest thing to Adult Summer Camp that One Can Get

Every year the Shaw family has an important decision to make at the end of February ... where will we vacation this summer? Will we hit the Hawaiian beaches? Siesta on the Mexican coastline? Hike the Grand Tetons? Or ride our bicycles 485+ miles across Kansas with 800 of our closest friends?

Believe it or not, some or all of our family has opted to participate in B.A.K. (Biking Across Kansas) for the last five years instead of visiting other glorious tourist destinations. Lee says it's the closest thing to adult summer camp that one can get!

Lee got us interested in BAK. While in college, Lee enjoyed evening and weekend rides on his 'cheap' Ross Signature bicycle. Lee said, "it was the bike that set me free!" He currently averages about 75 mi. per week. "When I ride I feel alive!" he said. "Janelle knows exactly what I mean when I tell her it's time to slay the dragon, then I get on my bike and go get energized."



Lee and Janelle halfway through 2005 BAK. If you can survive a week of riding across Kansas together in the summer, you can face anything together! They were married the following month!

After Lee arrived at Geoprobe Systems®, it was co-worker, Greg Shipley that introduced him to BAK. Lee and Greg rode in BAK in 2004. Since then Lee has participated in five rides. Janelle and Mikiah joined him for half of the ride in 2005. But a downpour on her first day limited Mikiah to only 15 miles, "but I was proud of myself," she said, "because I was only 9 years old". Through the years, Lee's 'girls' have learned to make their own choices about speed, as well as rain gear!

In 2006, Lee and Janelle decided to try the adventure again. Turns out it would be a year that went down in history! Day 1 was an easy 47 miles with a nice tail wind. But then .... Days 2 thru 4 had wind gusts from the east at over 30 mph. Day 2 was scheduled for 84 mi., then 70 mi. on Day 3, and finally 75 mi. on Day 4. Janelle remembers that at one point in Day 2 she was only traveling 8 mph. She completed only 53 of the 84 grueling miles.

Early the next morning,

Janelle became ill, and unfortunately during the remainder of the week many others fell to the same illness, ending their week either at home or in the hospital. It would be a couple of years before anyone in the Shaw household wanted to try again.

## I Have a Pond in My Shoe

But oh, how the mind forgets! In 2010 the family purchased a tandem bike so Mikiah could again join the 'fun'. According to her,

2010 was the most memorable year. "We can't blame the weather for everything, but in this case," she said, "it poured every day except one." There was also other typical Kansas weather during the week: wind, hail, a tornado watch, more wind, and plenty of thunder. Only ONE day of sunshine! Lee and Mikiah were on the tandem and would tell one another, 'I have a POND in my shoe!' At times it was like needles piercing the skin. And it was freezing! "It was almost like sitting in ice water it was so cold!" Janelle said. But 2010 was deemed a success because all 500+ miles were made on bicycles!

And then it was time for the 2011 event.

## You Picked the Wrong Partner for This

By the end of the eighth day of the 2011 event, with 480 miles travelled and the Missouri border in sight, Janelle and Mikiah were ready to be done! Somewhere between the GIANT hill outside of LaCy-gene and the final few miles, Janelle told Lee, "you picked the wrong partner for this and as soon as I get home I'm hanging up this bicycle FOREVER." That plan lasted all of three weeks!

As one peddles from place-to-place during BAK, there's always the hope that there will be at least one shower at the next stop with both the hot and cold water and maybe the luxury of a privacy curtain! Refreshed and refueled, each person is on his/her own to do as he/she pleases for the evening: riding your bike to the swimming pool, riding around town, riding for supplies, or napping with an i-pod and a good book! Not having enough riding time, Lee often hopped back on his bicycle while Mikiah and Janelle took a nap. Evenings bring entertainment at each town: food, music, visiting with new friends, food, movies in the park, and more food.

## A Great Locust Epidemic of Biblical Proportions

In some of the smallest towns, the BAK group was compared to a great locust epidemic of biblical proportions, swarming in to a town and landing on any open space available! Each evening the large group met to review the highlights from the day's ride and hear details for tomorrow's route including food stops, weather, local history and road/route conditions. Then the 800+ retreat to air mattresses, tents, or RVs. Ten pm means lights out so we can rise early for another day. Sounds more like an episode of 'Survivor', huh?

The great aspects of riding across the state are the brilliant sunrises and the beautiful countryside filled with majestic trees and beautiful wild flowers. The wheat is often starting to turn gold so there is a panoramic view of colors.

## Anyone Who Says Kansas is Flat Needs to Spend Time on a Bicycle

There are magnificent hills in Kansas for climbing and then flying down the east side with the sun toasting your face. At the end of a day's



On the job. Lee's bike is never far away.



A typical day of 'camp' begins at 4:45 am: time to pour into your spandex, slather on sunscreen, reload your 'home' in a suitcase, air up transportation, then hunt for a short breakfast line with the goal to be on your bicycle by 6:00 am to beat the heat of the day. Riders travel 40 to 80 miles a day. A good day allows 15 to 20 mph travel, and a bad day...oh it's painful! After arriving at the destination it's time to unload 500+ pieces of 'lightly' packed luggage, including bedding, from a U-haul. Then stake your daim to a prime piece of gymnasium real-estate for the nightly slumber party with 400 of your newest friends. Hopefully the neighbors don't snore!

ride, with all of its challenges and joys, there is a certain amount of satisfaction gained. You feel alive!!

Janelle shared that as both the wife and mother, "I entered into this year's journey with some fear and trepidation. Bicycling is as much about the mental aspects of the journey as it is your physical capabilities. I wondered how I could mentally be strong for both our daughter and myself while supporting my husband's 'need for speed.' What I found was God is God to each of us, even our children. I didn't have to carry the load of everyone. All I had to do was have faith and enjoy the journey. He protected us and gave us each the grace we needed to physically and mentally tackle individual challenges each day. And we were each inspired by Him in our own way: Lee was given the strength to 'slay the dragon'. Mikiah enjoyed new-found independence and the pride of success. And I had time to stop and smell the flowers, literally.



At the conclusion of the BAK event, tradition has it that every finisher dips his/her foot in the Missouri River.

"Why do we ride? Each of us for our own individual reasons, but we do it as a family team! And as we ride, God teaches us a great many lessons. And I am quite certain we have not learned them all yet!"



Somewhat rested after the day's ride, Lee and Janelle spend their evening in the county courthouse in Cottonwood Falls, wondering what the next day will bring.



BAK – Bicycling Across Kansas. Launched in June, 1975, BAK is a recreational and social rally for cyclists. Not an endurance contest, a race or a test of stamina, the week-long event was inspired by the 'bike boom' of the early 70s. The route, from the Colorado state line to the Missouri state line, is varied, and over the years has traversed all 105 counties of the State of Kansas. In 2011, more than 800 bicyclists participated from Kansas and 29 other states. The map above shows the 2011 BAK route. Lee and Janelle Shaw and Mikiah started the event at the Colorado border, west of Tribune, KS, and ended 451 miles and a week later at the Missouri border, east of LaCygne, KS.

# New GH64 Hammer Makes an Impact

Let's start with three easy questions:

- 1) Who designs and tests hammers for Geoprobe® rigs?
- 2) Who manufactures hammers for Geoprobe® rigs?
- 3) Who services hammers on Geoprobe® rigs?

The correct answer: Geoprobe Systems®. And it's all done at the Kansas manufacturing facility in Salina (the site of the 2012 Open House on April 19th). The hammer for every Geoprobe® rig is specifically designed to complement the features and capabilities of the rig, and to make work easier in the field.



Brian Rogers  
Geoprobe® Customer Service

When the 7822DT with the GH64 Hammer was first introduced in the spring of 2008, the hammer had two significant new features compared to its GH62 predecessor: a Modular Percussion Power Cell and integrated two-speed, bi-directional rotation. In short, the GH64 is easier to service and has increased rotational speed.

## Performance

For customers interested in turning rotational tooling, the two-speed drive system allows users up to 500 rpm on high speed. This increased speed is necessary for operating various coring tools typically required for sampling surface pavements or shallow subsurface rock formations. In some field situations, operators will also notice an increase in direct push tool advancement speed. It also empowers users to complete a wider range of projects utilizing a small/compact platform.

But let's focus on the service aspect of the GH64. What makes this hammer so great according to Brian Rogers, GH64 Hammer Specialist for the Geoprobe® Service Team? "The answer is increased serviceability and longevity," he said. "And that translates into dollar savings for our customers."

## Serviceability

During the design phase of the GH64, the Geoprobe® engineering design team spent significant effort to streamline the service aspects users would encounter in hopes of eliminating or reducing a service interval whenever possible. The Modular Percussion Power Cell technology simplifies the hammer into a two-piece assembly. The lower assembly contains the rotational grouping for accomplishing rock coring and concrete coring/breaking operations. With the two-speed bi-directional rotational motor the operator now has access to a low torque rotation of 225 ft/lb at 500 rpm; or a high torque rotation of 450 ft/lb at 250 rpm.



Concrete coring with the two-speed, bi-directional rotation feature of the GH64 Hammer on a 7822DT.

The upper assembly is comprised of the GH64 Power Cell. Unlike its predecessors, customers can now remove the percussion power cell thus simplifying field replacement. "The beauty of this design is that a replacement power cell, because of its size and weight, can now be shipped overnight," Brian said, "and replacement can be accomplished in half the time it took to replace a GH62 hammer. When you consider the overnight shipping and simplicity of field replacement; the advantages of the GH64 design quickly become evident."

## Longevity

From a longevity point of view, the Geoprobe® Service team has seen that the GH64 Hammer is out performing its predecessors as well. Design changes have helped accomplish this," he said. "But it's also important that Geoprobe® owners/operators understand that proper machine and hammer maintenance are major players in the longevity of any Geoprobe® hammer."

To sum things up, you'll see greatly increased longevity from the GH64 through proper maintenance and service of the hammer and 78 series units. When it does become necessary to replace the GH64 power cell, the ease of replacement and overnight delivery options will significantly reduce down time. "When down time is reduced, productivity is increased, and we all know that means increased success will be experienced," Brian said.

For any GH64 Hammer or 7822DT service questions, call the Geoprobe® Service Resource Center at 1-800-GEOPROBE.



GH64 Hammer with Modular Percussion Power Cell Technology



GH64 Hammer (shown here with GA4000 Augerhead) comes standard on 78 Series rigs.

## Ready for the Scrap Yard!

One of the most recent graduates of the Geoprobe® 'Refurbish Academy' is this 6610DT owned by East Coast Drilling in Moorestown, NJ. "We added this rig to our fleet in 2003, and because of its appearance I thought the rig was almost ready for the scrap pile," said Jim Duffy, President of East Coast Drilling. "But I decided to have the Geoprobe® team refurbish the rig in its entirety. The machine was completely taken apart, rebuilt, painted, and reassembled. It's back in the fleet now, and working daily. Coincidentally, the first job was at a scrap yard! We won't be leaving it there now!"



from this ↑  
.....  
↓ to this!



Schedule Your Rig Winter Maintenance Check-up TODAY!



Darren Stanley

Bryan Lorenson

Roman Burrows

Todd Ewing

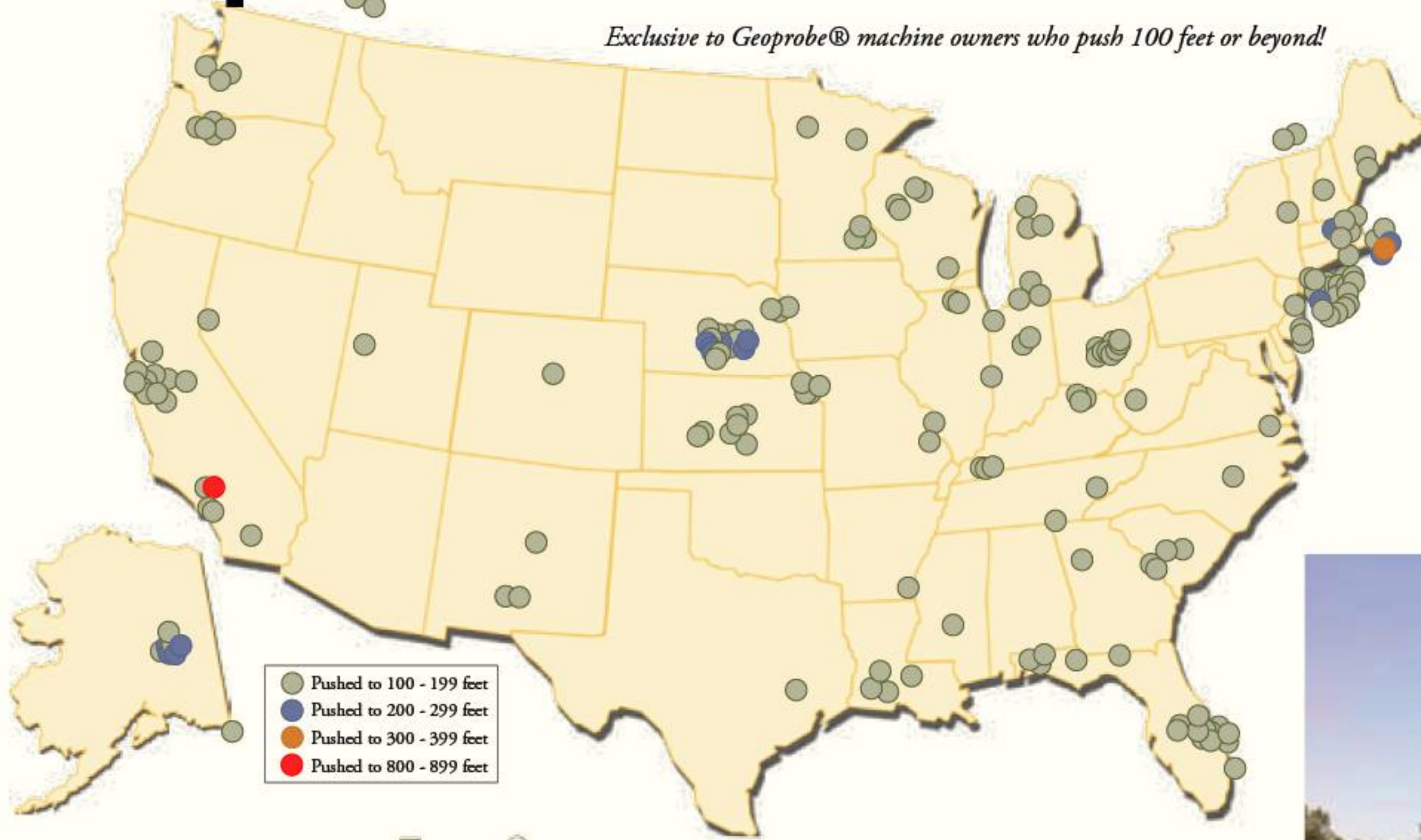
Brian Rogers

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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

## geoprobe® 100 club

125 feet

ZEBRA Environmental  
- New York



--- FIELD NOTES ---  
Field Team: (1100) Jose Garcia and Evan Moraitis  
Field Site: Westbury, NY  
Depth/Date: 125 feet / June 27, 2011  
Geoprobe® Owner: ZEBRA Environmental, Lynbrook, NY  
Field Data: Model 8040DT. Soil and groundwater sampling plus EC and installation of sub-slab vapor points via cement corer.

--- FIELD NOTES ---  
Field Team: (1100) Bill Prochaska, David Wilkinson, Scott Bergeron  
Field Site: Carlyss, LA  
Depth/Date: 117 feet / May 26, 2011  
Geoprobe® Owner: EnviroDepot, Baton Rouge, LA  
Field Data: Model 8040DT with SP16.

117 feet  
EnviroDepot  
- Louisiana



195 feet

ZEBRA Environmental  
- New York



--- FIELD NOTES ---  
Field Team: (1100) Jose Garcia and Evan Moraitis  
Field Site: Westbury, NY  
Depth/Date: 195 feet / June 2, 2011  
Geoprobe® Owner: ZEBRA Environmental, Lynbrook, NY  
Field Data: Model 8040DT. Soil and groundwater sampling plus EC and installation of sub-slab vapor points via cement corer.

## geoprobe® 200 club



Ardaman Associates - Louisiana

200 feet

--- FIELD NOTES ---  
Field Team: Jermaine George, Dempsey Thibodaux, Jesse Rausey, Jim Porter  
Field Site: Lafourche Parish, LA  
Depth/Date: 150-200 feet / Apr-Aug 2011  
Geoprobe Owner: Ardaman Associates, Baton Rouge, LA  
Field Data: 6600 mounted in Air Boat. over 60,000 linear ft. of CPT soundings. Over 130 borings.



ZEBRA Environmental  
- New York

240 feet

--- FIELD NOTES ---  
Field Team: (1100) Jose Garcia and Evan Moraitis  
Field Site: Westbury, NY  
Depth/Date: 240 feet / June 10, 2011  
Geoprobe® Owner: ZEBRA Environmental, Lynbrook, NY  
Field Data: Model 8040DT. Soil and groundwater sampling plus EC and installation of sub-slab vapor points via cement corer.

--- FIELD NOTES ---  
Field Team: (1100) Jose Garcia and Evan Moraitis  
Field Site: Westbury, NY  
Depth/Date: 200 feet / June 30, 2011  
Geoprobe® Owner: ZEBRA Environmental, Lynbrook, NY  
Field Data: Model 8040DT. Soil and groundwater sampling plus EC and installation of sub-slab vapor points via cement corer.



200 feet

ZEBRA Environmental  
- New York

## geoprobe® 300 club

320.5 feet

HydroGeologic Inc.  
- Massachusetts



--- FIELD NOTES ---  
Field Team: Kurt Lyons and Kasey Hedglin  
Field Site: Otis ANGB, Cape Cod, MA  
Depth/Date: 320.5 feet / October 2010  
Geoprobe Owner: Air Force Center for Engineering and the Environment (AFCEE)  
Field Data: 6620DT. Groundwater sampling with mill-slotted screen and 1.5 in. probe rods. (This beats their old record of 319 ft. set on Oct. 21, 2008.)

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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# OH12

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