

## WELCOME . . .

... to the introductory issue of "The Gregg Geo News". The Geo News is being published to provide current information on the services we offer, equipment & technologies utilized and project experience.

In addition we plan to feature an on-going forum in which Dr. Peter Robertson will address topics pertaining to the latest technological advances within our industry.

The Geo News will soon become available in electronic form which can be emailed directly to you. If you wish to become a subscriber and are not currently on our mailing list simply visit our web site and register to receive Geo News.

## QUICK FACT

Gregg Drilling offers a full suite of in situ testing services. In addition to Cone Penetration Testing, we also provide the following:

- Vane Shear Testing
- Dilatometer Testing - Flat & Rock
- Pressuremeter Testing
- SPT Energy Testing
- Settlement Monitoring
- Goodman Jack Testing

## Off-Shore Drilling: A Trip to Puerto Libertad, Mexico

October of 2005 brought the perfect escape for a lucky number of Gregg employees as they started work in the Sea of Cortez off the coast of Mexico. The site investigation was for a proposed LNG Facility for El Paso Energy. Gregg Drilling worked for Fugro West to complete 12 boreholes and 12 CPT's up to a maximum depth of 100 feet below the mud level in water ranging from 30 to 60 feet deep. (cont. on reverse...)



*El Puma - the vessel used by Gregg Drilling for off shore investigations in the Sea of Cortez.*

## New Line of Coring Rigs



*Gregg Drilling's truck mounted Fraste rig.*

In recent years, Gregg Drilling has taken delivery of a new line of mud rotary drilling rigs. Manufactured in Italy by Fraste, these rigs boast top head drive configuration which is excellent for soil and rock coring. With two tracked drills in Southern California and one truck and one track drill at Pitcher Drilling in Northern California, Gregg has dramatically increased their coring capabilities on the West Coast. (cont. on reverse...)

## Robertson's Remarks - Myths of the CPT -

Welcome to Robertson's Remarks! My name is Peter Robertson and many of you may know me as an academic/researcher (c/o University of British Columbia then University of Alberta, Canada) via my publications about in-situ testing, especially the Cone Penetration Test (CPT). Hopefully, you may have also read the CPT book "CPT in Geotechnical Practice" which I co-authored with Tom Lunne and John Powell. I recently joined Gregg Drilling & Testing in their southern California location (Signal Hill) and take this opportunity to contribute to the Gregg Geo News via this regular column.

This first column is about a pet peeve of mine. Engineers often state: "the biggest disadvantage of the CPT is that it does not collect soil samples". In the strictest sense this statement is true; during a Cone Penetration Test (CPT) you do not collect soil samples. However, it is possible to collect small diameter, disturbed soil samples with the same CPT pushing equipment immediately after the CPT. A common problem with conventional drilling and sampling is that samples are usually taken at regular depth intervals, commonly every 5 feet. This often results in many samples being obtained in soil layers that do not represent the critical layers for the given project. The preferred way to take soil samples is immediately following the CPT, when the soil stratigraphy is known in great detail. Then samples can be collected in an intelligent selective manner based on the actual soil profile, as defined by the CPT. (cont. on reverse...)

It is common in North America that the CPT is performed using customized CPT trucks. These are usually 20 to 25 ton push capacity vehicles designed to push cones in a highly efficient and effective (cont. on reverse...)



*Dr. P.K. Robertson*



*B-80 Drill rig during investigation in Puerto Libertad, Mexico.*

*Offshore Drilling cont...* Borings were drilled with Gregg's mud rotary B-80 drill rig mounted on a vessel borrowed from the National Autonomous University of Mexico (UNAM). This 200 foot research vessel named El Puma had a crew of 15, to which Gregg added 6 drillers (2 crews consisting of 3 men each) as well as 4 client representatives. This group of over 20 "vacationers" worked round the clock for 10 days in order to complete the project. Only one 12 hour shift was lost due to weather delays and Gregg was able to successfully transport their B-80 drill rig across the border and back with little difficulty or time delay. It's safe to say that everyone wanted a real vacation after completing this logistically challenging, yet rewarding project!

**QUICK FACT**

**Pitcher Drilling is a wholly owned subsidiary of Gregg Drilling and operates out of Palo Alto, CA.**

*New Coring Rigs cont...* Gregg's track mounted Fraste is mounted on rubber tracks that make it effective for difficult access sites but easily mobilized in urban areas. Pair the track mounted rig with a tracked support unit for a complete investigation on all difficult access sites.

The Fraste rigs work with Gregg's 101mm and Pitcher Barrel sampling systems for soil coring and easily move to NQ, HQ, PQ, and BQ systems for coring through rock. Along with the extensive coring capabilities these rigs offer, they are also equipped with standard 140lb automatic hammers for Standard Penetration Testing and can be used

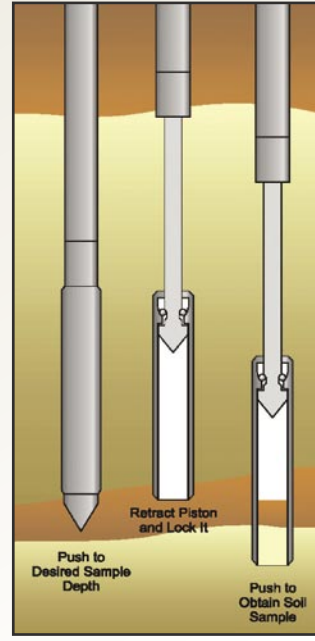


*Track mounted Fraste rig working in a difficult access location.*

with a wide range of samplers for various soil tests. Each Fraste rig also comes outfitted with an ENVI drill rig monitoring system to give added information regarding torque, mud pressure, down pressure and the rate of penetration. These added measurements can help our clients gain a better understanding of the in situ behavior of the soil.

As Gregg Drilling prides itself in using the best and most efficient equipment available, it is always our highly experienced personnel that provide our clients with the quality service and samples that they require.

*Robertson's Remarks cont...* manner, where 600-800 feet of CPT can be carried out in one day! What many engineers and geologists often don't know is that most CPT trucks are also equipped to push soil samplers. These are often small diameter tube samples that resemble a standard 10 or 15 cm<sup>2</sup> cone penetrometer but without the internal electronics. After a standard CPT, the truck can be moved a short distance to one side (typically a few feet) to obtain selected samples based on the detailed CPT profile. The sampler is pushed closed-ended to the desired sample depth and the push-rod is retracted a short distance to expose the open-ended small diameter sample tube. The sample tube is then pushed to obtain the soil sample and the complete tube and push-rod retracted to the ground surface to retrieve the sample. A schematic of a direct-push soil sampler is shown below. Further soil samples can be retrieved from greater depths by pushing the sampler back down the same hole. Although the samples are disturbed, they are ideal for soil classification. If high quality undisturbed soil samples are needed, boreholes are generally required, but again, boreholes and sampling should be carried out after a sufficient number of CPT's to define the detailed soil stratigraphy at the site. Another poorly known fact is that the CPT can be performed using drilling



*Piston Soil Sampler*

equipment. Auger rigs are easily modified to perform CPT in a highly effective manner. Total production is usually less than that of a customized CPT truck due to a slightly slower set-up time (approx. 20-30 min.). Push capacity can be increased by using a single flight of auger to anchor the drill rig before pushing the CPT. Hence, high quality undisturbed soil samples can be obtained using the same drill rig as used to push CPT.

Some may know that Gregg Drilling & Testing mobilize a support rig to site with each CPT truck. These support rigs have a small auger rig on the rear, which can also be used to obtain soil samples. Hence, when you pay for one day of CPT, you also get a 'free' auger rig that can be used to obtain a small number selected soil samples. What great value for you money!

*Contact Peter with any questions or comments at: [probertson@greggdrilling.com](mailto:probertson@greggdrilling.com)*

**QUICK FACT**

**Gregg Drilling recently became incorporated in Mexico.**



Did you know our web site is your link to information on:

- Our services and equipment
- Specialty seminars
- Project profiles
- Technical, regulatory & hydrogeologic references



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