



# GRL NEWSLETTER No. 17

INFORMATION GATHERED BY THE ENGINEERS OF  
GOBLE RAUSCHE LIKINS AND ASSOCIATES, INC. **DECEMBER 1991**

## 1991 USERS DAYS SHOW POWERFUL EQUIPMENT AND SOFTWARE IN CLEVELAND, OH AND LONDON, UK

Some of the world's best dynamic pile testers, from about 20 different countries, met for a friendly exchange of ideas and experiences. They were treated to a breathtaking show of state-of-the-art test equipment and ever more powerful software. Of course, they also presented their own views, suggestions and experiences. The events were held in Cleveland headquarters on August 22-24 and in Horsley, Suffolk, UK on September 9-11. Please note the 1992 Users Days announcement on our Calendar of Events. Anyone with high interest in participating may contact GRL.

At the Users Days, **Pile Dynamics, Inc. (PDI)** unveiled the newest **Pile Driving Analyzer™; Model K**, in short, the **PAK™**. This unit is briefcase size and weighs only about 10 kg, yet it contains more data channels than the very popular Model GCPC. The GCPC will remain in production.



*PDA users gather around two proto-type PAK's. From left Yves Robert, Terratech Ltd., Montreal; Antonio Mendez, Pruebas Dinamicas en Pilotes S.A., Mexico; Jorge Beim, PDI Engenharia, Rio de Janeiro; Jim Dessoffy, Pile Dynamics Inc., Cleveland; Tseng Yao-Hslen and Huang Ting-Tsai, BES Engineering Corporation, Taiwan.*

The demonstrations included another revolutionary piece of equipment: the palm-sized **P.I.T.-Collector** for low strain **Pile Integrity Testing** of piles and drilled shafts. The basic idea behind this development was to produce an extremely rugged unit and to make field work as quick and convenient for one person as possible. The **P.I.T.-Collector** performs a complete data analysis including time amplification and outputs report quality results directly to plotters. Data can be easily transferred from the **P.I.T.-Collector** to a PC at the end of the day for permanent storage or further processing. Descriptive literature for both **PAK** and **P.I.T.-Collector** will be sent out with our next newsletter.

## SEASONS GREETINGS

*You may have noticed (we hope you did) that our newsletter is a few months late. This delay happened because of the heavy work load, Users Day preparations and associated travel. But now the memorably hot, dry and busy summer of 1991 has passed and so did a most beautiful autumn in Ohio and now the first snow is on the ground. That reminds us though that the end of 1991 is near.*

*We hope that 1991 has been a successful year for you. Last year we had to worry about the world crises and whether we could enjoy a peaceful holiday season. This year we can be more optimistic and we wish that all our readers will be able to enjoy a prosperous 1992 in best health and in a peaceful and healthy environment.*

The 1991 GRL software developments were another major topic. **GRLWEAP** had been sent out earlier and improvements and first experiences with the new code were discussed. The 1991 **CAPWAP** also contains many new analyses and convenience features and so does the new **P.I.T.WAP** for the analysis of low strain **P.I.T.** records. Both include a simpler input and expanded automatic operation capability. Hands-on workshops allowed the PDA Users to get a feel for the state-of-the-art.

The presentations included new results obtained from SPT and the Becker Drill (see reverse side). In fact, at the Cleveland Users Days, PDA measurements were demonstrated on a cat head, rope and safety hammer driven sampler and rod. In addition, several presentations were made on both PDA and **P.I.T.** tests of drilled shafts.

## GRLWEAP NEWS

The 1991 GRLWEAP has received a friendly reception. Pat Hannigan of STS, Chicago was the first user to alert us about the fact that the stroke did not vary as input as a function of depth in the drivability option. We also found a slight output problem for capacities less than hammer and pile weight and for analysis depth equal to pile length in the same option. These problems are now corrected and immediately available on request. Updates will be shipped in 1992. Please let us know whether you have found any other problems.

## GRL ENGINEERS IN PUERTO RICO CLASS A PREDICTION

Starting in August, GRL engineers have been on a continuous assignment at the 2.3 km long Manati River bridge near Barceloneta, Puerto Rico. Using the PDA for construction control, pile lengths were optimized by stopping in a deep soft silt deposit, above the weathered limestone bedrock. Pile installation therefore posed interesting challenges for Dr. P. Jimenez, the P.R. Highway Authority, and KSY, the project manager. The Class A prediction by **CAPWAP** was within 3% of the static test load.

**1991-1992 CALENDAR OF EVENTS**  
PLEASE NOTE OUR 1992 PDA USERS DAYS ANNOUNCEMENTS

- Dec 4-6 **Annual Geotechnical Seminar**, Hershey, Pennsylvania; Art or Cari Hoffman 717-763-7211.
- Dec 9-13 **9th Asian Regional Conference on Soil Mechanics and Foundation Engineering**, Imperial Hotel, Bangkok, Thailand; Prof. A.S. Balasubramaniam fax (66-2) 516-2126.
- Jan 12-16 **Transportation Research Board 71st Annual Meeting**, Washington, D.C.
- Feb 27-28 **Integration of Dynamic Testing into Pile Driving Practice, Wave Equation Workshop**, Boulder, Colorado; Jay Berger 303-494-0702. See Enclosure.
- Mar 2-6 **16th Annual Fundamentals of Deep Foundation**, University of Missouri-Rolla, Cocoa Beach, FL; Prof. N.O. Schmidt 314-341-4461.
- Mar 16-20 **Behavior of Deep Foundations**, University of Texas, Austin, Prof. Roy Olson 512-471-4929.
- Mar 20-21 **PDA Users Days**, Singapore; ABV Technology, fax (65)7469934.
- Mar 23-24 **PDA Users Days**, Nanjing, China; Earth Products Hong Kong, fax 5776062.
- Mar 25-27 **International Symposium on Soil Improvement and Pile Foundation**, Jinling Hotel, Nanjing, China.
- Apr 7-9 **Piling Europe**, The Royal Garden Hotel, Kensington, London.
- Sep 18-19 **PDA Users Days**, Amsterdam; Pile Dynamics, Cleveland, 216-831-6131.
- Sep 21-24 **Fourth International Conference on Application of Stress Wave Theory to Piles**; The Hague; Prof. F. Barends (31)703919890, fax (31)703919840.
- October **PDA Users Days**, Cleveland, USA. Date to be announced.

**GRL RECEIVES GRANT**

GRL was awarded a grant by the Federal Highway Administration entitled: **Determination of Pile Drivability and Capacity from Penetration Tests**. This grant requires GRL to develop an improved soil resistance model for the prediction of bearing capacity and drivability by wave equation analysis.

**GRL TESTS BECKER DRILL**

*G.G. Goble and Jay Berger* were assisted by *Hasan Aboumatar* in testing on a Becker Drill at two sites in California. The work was conducted for the U.S. Army Corps of Engineers. The Becker Drill consists of a small diesel pile driving hammer, a 6¼ inch casing and a compressor for air lifting of spoils. The Becker Drill has been used in very coarse grained soils where SPT sampling is difficult. The dynamic tests are to yield in-situ shaft and toe soil strength data. Similar tests can now be routinely made, to extract more information from SPT. The photograph to the right shows a Cleveland Users Day demonstration.

**NEW HAMMER DATA**

International Foundations Ltd. has sent hammer data for their complete line of BSP hammers to GRL. The data had been prepared by Queen Mary and Westfield College. It will be included in the early 1992 GRLWEAP update. New data also has been received from Birmingham and Menck.



*G.E. Likins demonstrates PDA measurements on an SPT rig in GRL's yard.*

**IX PANAMERICAN GEOTECHNICAL CONFERENCE (CPMSIF)**

*Jorge Beim*, PDI Engenharia reports great interest in dynamic pile test methods among delegates from the Americas in Viña del Mar, Chile.

**PDA/CAPWAP TRAINING**

Engineers of both Williams and Associates, Clearwater, FL and the Louisiana DOT took first courses in PDA testing. Century Engineering and Delaware DOT personnel came to Cleveland for CAPWAP training while the staff of Schmertmann and Crapps spent a weekend in an advanced CAPWAP workshop in Gainesville, FL.

**GRL AT PILETALK INTERNATIONAL**

*Mohamad Hussein* conducted a two plus week tour visiting Hong Kong, Singapore, Malaysia, China and Taiwan. The trip was prompted by the Piletalk International '91 in Kuala Lumpur, Malaysia where he presented a paper entitled **Bearing Capacity of Deep Foundations from Dynamic Measurements and Static Tests - Ten Correlation Cases**. Mohamad also met with several clients and presented short lectures in several cities.

**PILE TESTING EGYPT FORMED**

Managing director *Dr. Mohsen Baligh* reports first test results on 600 and 900 mm diameter cast in place shafts using their PDA and P.I.T. equipment. Dynamic pile testing training of their engineering staff was accomplished during two weeks in August.

**Goble Rausche Likins and Associates, Inc.**  
Specializing in the dynamic testing and analyses of piles

4535 Emery Industrial Parkway  
Cleveland, OH 44128 USA  
Telex: 985-662

	Phone	Fax
Cleveland:	216-831-6131	216-831-0916
Denver:	303-494-0702	303-494-0704
Orlando:	407-826-9539	407-859-8121
Philadelphia:	215-544-2770	215-543-0843
Seattle:	206-624-0220	206-871-5483