



GRL NEWSLETTER

No. 10

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

MARCH 1989

LONDON, CLEVELAND PDA USERS' DAYS SLATED

Following the DFI Symposium in London (see "Future Events... on page 2) a PDA Users' Days will be held in London, UK. The date is **May 22 and 23, 1989**. The 1989 North American Users' Days will be held at the GRL headquarters in Cleveland, Ohio on **June 16 and 17, 1989**.

As always, all engineers using the Pile Driving Analyzer™ or CAPWAPC™ are cordially invited to attend. The invitation is also extended to those clients who frequently specify and/or use the PDA results.

The PDA Users' Days are intended to provide the engineer involved in dynamic pile testing with

- Continued education and proficiency in the application of wave mechanics and Wave Equation concepts.
- Review of recommended testing and analysis procedures.
- Familiarity with newly developed methods and equipment.
- An opportunity for the exchange of ideas and experiences.
- Assistance with any particular technical problems.
- A certificate of Users' Days attendance.

In order to meet these objectives, the 1989 Users' Days will include presentations dealing with Case Method, CAPWAPC, PDA, P.I.T. and general measurement techniques. The users are also encouraged to make their own presentations. Contact GRL for additional information and registration.

GRL PERSONNEL NEWS

On December 16, 1989 all GRL engineers gathered in Cleveland to discuss the challenges of modern measurement and analysis techniques. The technical discussions lasted through the weekend. Both simple and complex cases were presented and the basis for the 1989 Users' Days was laid. We were particularly happy to welcome *Bengt* and *Carl John Gravare* from Europile in Gothenburg, Sweden and former GRL Colorado manager *Bert Miner* who took a few days off from his graduate studies at the University of Texas, Austin. PDI electronics engineers, *Dean Cotton* and *Jim Dessoffy* presented information on PDA safety and troubleshooting. Systems engineer, *Dave Peterman* reported on the finer details of the PDA and P.I.T. software. An important contribution was also made by GRL Philadelphia manager *Wondem Teferra* who had researched the topic of allowable dynamic and static pile stresses for various pile materials.

Carl Webb III, who had represented PDI in Brazil during the installation of seven offshore structures for Petrobras commenced his work with GRL in the USA. The comprehensive technical review of December 16-18 was a fitting start. In the meantime, Carl has established a GRL branch office in Houston, Texas. His background also includes the preparation of software for the simulation of offshore structure installation.

GRLWEAP NEWS

Among the frequently asked questions is the modeling of a simple drop hammer. GRL suggests the following:

Use a *Hammer ID* IHAM=0 on the option line.

In the hammer data input, after a description of make and model of the drop hammer:

Hammer Type: 3,

No. of Ram Segments: integer value of approximately {Ram Length divided by (1.5m or 5ft)} - min. value 1

Ram Weight: obvious.

Ram Length and Diameter: input approximate values for stiffness calculations. For square or rectangular shapes, enter an equivalent diameter.

Stroke: obvious.

Efficiency: should reflect hammer type. For free release 0.95, for cable hoisted hammers 0.67.

No *Assembly* or other information is necessary.

If you have any questions, comments and/or suggestions on GRLWEAP, please contact us.

NEWS FROM PILE DYNAMICS (PDI)

A new model *GCS Pile Driving Analyzer™ (PDA)* has been designed to make the routine testing process quicker and simpler. The GCS model is simpler ("S" for simple) to operate because 14 switches, knobs or dials were removed from the GCX front panel with many settings being configured in the software. The model GCX Pile Driving Analyzer will still be produced for users who desire all of its features.

Pile Dynamics, Inc. has successfully used battery backed-up memory in the Pile Driving Analyzer. This will allow digital recording by the PDA and may make it unnecessary to carry any additional recording device to the site.

The *Pile Integrity Tester™ (P.I.T.)* now has been successfully employed on many sites around the world. Both equipment and software are extremely flexible, user friendly and affordable. The enclosure describes the P.I.T. method.

The new *Saximeter™*, nicknamed the Mini-Sax, is attractive to many users because of its small size and long battery life. The *SaximeterII™* is still available for those desiring a printed output.

FUTURE EVENTS IN 1989 WITH GRL-PDI PARTICIPATION

- May 16-20 Deep Foundations Institute (DFI) Third International Conference on Piling and Deep Foundations. A paper entitled *Bearing Capacity of Piles in Soils with Time Dependent Characteristics* by M. Preim, R. March (both of S&ME, Inc.) and M. Hussein (GRL) will be presented.
- May 22-23 PDA Users' Days, London, UK; GRL suggests that PDA users attending the DFI conference spend a leisurely weekend in London and on Monday and Tuesday participate in the exchange of ideas with other PDA testers and Capwappers.
- June 16-17 PDA Users' Days at GRL's headquarters in Cleveland, Ohio.
- June 25-29 ASCE Geotechnical Division, Foundation Engineering Congress, Northwestern University, Evanston, Illinois.
- Aug. 13-18 ISSMFE, XII International Conference of Geotechnical Engineering, Rio de Janeiro. GRL and PDI will exhibit together with PDI Engenharia.
- Aug. 21-25 International Symposium on Offshore Engineering-Brazil Offshore '89, Rio de Janeiro. A paper jointly authored by G. and J. Beim (both of PDI Engenharia, Brazil) and M. Hussein (GRL) will be presented.

JAPAN

GRL Florida's *M. Hussein* demonstrated the Pile Driving Analyzer and related equipment and software to 102 engineers at the Science University of Japan on January 26. The event was entitled "Pile Driveability and Stress Wave Measurements".

PUERTO RICO

The DOT of Puerto Rico recently acquired a complete set of dynamic testing equipment and analysis software. *Garland Likins* held a training course in San Juan during January.

UNITED KINGDOM

In January *Fugro McClelland's* manager of dynamic pile testing *Ray Wood* invited *F. Rausche* to conduct a one week PDA-CAPWAPC training at Canary Wharf, London, one of Europe's largest construction sites. Several PDA systems are in continuous use to monitor four different IHC S90 hammers on steel pipe piles.

Branch managers of *Roger Bullivant, Ltd.* also gathered for a three day course with *F. Rausche* in January in Drakelow, UK to learn more about dynamic pile testing methods.

FLORIDA

On February 8, in Orlando, *G. G. Goble* lectured on Wave Equation Analyses and Dynamic Monitoring techniques at the 13th Annual Continuing Education Course on "Fundamentals of Deep Foundation Design" arranged by of the University of Missouri-Rolla. PDA and other dynamic pile testing equipment were demonstrated by *M. Hussein*.

Also in Florida, on January 20, *M. Hussein* conducted a one day Wave Equation Seminar. Eighty engineers and inspectors of both Florida DOT and local consultants attended.

NEBRASKA

The Nebraska Department of Roads decided to complement their dynamic test equipment with CAPWAPC. *C. M. Morgano* trained Geotechnical Engineer *M. Jamshidi*.

NEW GRL NEWSLETTER FORMAT

This Newsletter has been composed using Wordperfect 5.0. It's fun! Only problem: It now takes many long engineering hours to achieve a result that previously was quickly made with scissors and paste...

PLEASE...

Return the enclosed card if we have not heard from you recently or if our mailing label to you needs correction.

TEXAS

Former GRL Colorado office manager *Bert Miner* hopes to finish his studies at the University of Texas in Austin this summer. He recently lectured for several class periods and conducted laboratory sessions with WEAP86 and CAPWAPC. L. P. Gilvin Professor of Civil Engineering *Roy E. Olson* in a letter to GRL stated:

...I think he (Bert) not only impressed us all with his own knowledge and abilities, but he also represented GRL very well. He left us all with the impression that GRL is a thoroughly professional firm with an interest in advancing technology and the kind of professional attitudes that all engineering firms should have...

We hope that Bert will soon return to GRL and settle in the Seattle area to start a new GRL branch office.

WAVE EQUATION COURSE TO BE HELD IN SEATTLE

A one day Wave Equation Course will be offered on March 29, 1989 in Seattle, WA. Attendees will have the opportunity for hands-on experience in the use of WEAP. More information can be obtained by calling the instructor, Professor *George G. Goble*, at 303-492-8433.

CLEVELAND

GRL engineers *C.M. Morgano* and *S. Abe*, with the help of PDI's *Greg Tenik* and *Paul Kicher*, performed four dynamic bearing capacity and more than 100 low strain integrity P.I.T. tests on 16" dia. auger cast piles. The site was an old powerhouse which will be part of an entertainment area in the "New Cleveland". Only the decorative outer brick walls and the massive chimneys will remain of the old building.

MINNESOTA

On March 3, the 37th Annual Geotechnical Conference was held at the University of Minnesota in Minneapolis. *G. G. Goble* lectured on benefits and limitations of dynamic pile testing.

ANTHONY'S LAW OF FORCE
Don't force it, get a larger hammer.

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