



GRL NEWSLETTER

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

NUMBER 4

FEBRUARY 1987

GRL Joins National Engineers Week Celebration

The National Society of Professional Engineers currently celebrates "National Engineers Week" under the theme: "Turning Ideas into Reality". We join with National and continue with our effort to make the dynamic testing idea a reality. For that purpose we are issuing these newsletters and hope that you let us know - using the enclosed card - who would be interested in reading it.

Another step in that direction is the series of seminars which GRL is currently planning (see box). We enclose a brochure describing our intended April seminar series. Another enclosure is the announcement of the Third International Conference on Stress Wave Measurements to be held in Ottawa in 1988. Please take a note of all of these activities.

Seminars - Seminars - Seminars

Recent Activities

During the past quarter two seminars on dynamic testing were held in Canada.

November 1986

The seminar was organized by ANNA Geodynamics, Bengt Fellenius and Robert Edde, in Ottawa. F. Rausche helped with Case Method, CAPWAPC and WEAP86 demonstrations.

December 1986

G.G. Goble participated in a seminar with Mike Holloway in Los Angeles, California. This program was part of a three-day effort dealing with penetration testing in addition to pile dynamics.

January 1987

The one day seminar was held in Toronto. C. Thompson, D. Thompson and S. Cheng spoke about their dynamic testing experiences and G.G. Goble reported on the progress with load factor design.

Future Activities

Please make note and plan to attend one of the following 3-day seminars to be held in April in cooperation with consultant Charles Riggs of St. Louis, Missouri.

Topics will include: "Geotechnical Exploration and Site Characterization for Deep Foundations and Excavations," "Analysis and Inspection of Impact Driven Piles with Emphasis on Dynamic Pile Monitoring", and "Wave Equation Analysis."

(For more information see the enclosed brochure.)

April 2, 3, and 4 Orlando, Florida

April 9, 10, and 11 Chicago, Illinois

April 23, 24, and 25 New York/Newark, New Jersey

Other Planned Seminar Activities by GRL

May 1 and 2...Seminar in New Orleans, Louisiana on wave equation and dynamic monitoring, both onshore and offshore. A separate flyer will be mailed to engineers in the area. Please call or write if interested.

May 12, 13 G. G. Goble will talk to the U.S. Army Corps of Engineers in Portland, Oregon on dynamic test methods and wave equation analysis.

June San Francisco Seminar on hammer performance (date to be announced).

PDA USERS DAY

All users of the PDI Pile Driving Analyzer and the GRL CAPWAPC are invited to attend the following Ninth Annual Users Day.

May 12 and 13 in Kungsbacka, Sweden

June 12 and 13 in Cleveland, Ohio

It should be mentioned that the operation of the PDA is complex enough to require yearly updates of training. All PDA engineers should attend a yearly Users Day or arrange for individual training days with GRL/PDI engineers.

Please Note

May 4, 5, 6, and 7, 1987 ... The Deep Foundations Institute (DFI) organizes a 3-day conference in Luxembourg. PDI will be there and hopes to see you. For information please contact The Deep Foundation Institute, c/o Marc Dondelinger, TradeArbed, Inc., 825 Third Ave., New York, NY 10022.

May 25, 26 and 27, 1988 Third International Conference on Stress Wave Measurements in Piles. For information please see the enclosure.

GRL Testing Activities: Tangolunga, Mexico Is Recent Testing Site

Nine piles were tested by F. Rausche as directed by Ing. A. Mendez, Ing. C. Jimenez and Ing. C. Molina of Pruebas Dinamicas de Pilotes, S.A. (PDPSA). The site was located south of Acapulco at Tangolunga Bay in Mexico. The piles were 45x45 cm, 11 m long reinforced concrete. Demonstration tests also were performed at the Mexico City Metro, Line No. 9. Satisfactory performance of piling foundations during the recent Mexico City earthquake will probably be a decisive factor in future piling installations in that area.

A hammer performance test was conducted for Pileco in Houston. The Delmag D25-32 and D46-32 hammers were tested using PDA, HPA (Radar) pressure measurements and Saximeter.

Cleveland, Ohio residents are happy to see a major bridge construction being started. The I-490 bridge will cross the Cuyahoga (Indian for crooked) River in the downtown area. GRL engineers tested 14x.25 inch closed end steel pipes with 60 to 120 ft length. Design capacity is 65 tons according to Ohio DOT geotechnical engineer Rick Engel.

Lock and Dam 26

Less than 300 piles remain to be driven of the nearly 8400 piles in the second phase of the 1200 ft Lock 26 at Alton, Illinois. The St. Louis Corps of Engineers reports that the prime contractor, Lock 26 Constructors, provided dynamic testing for quality control (one pile per hammer per week). As a subcontractor for PDA testing, Indeco collected and turned data over to the Corps for further evaluation.

Also, as a result of the completed first phase, during phase two the static tests in selected areas of the site were replaced by dynamic PDA tests to driving criteria. Periodic restrikes confirmed soil setup capacity. The tests included the first use of PDI's new underwater accelerometer.

WEAP86 News

Please Note: In the data file, MKT double-acting air hammer strokes are actual and not equivalent. Use the correct override stroke on Card No. 7.000. Our WEAP86 recipients will receive an updated hammer data file shortly. Also, GRL currently tests and corrects the manufacturer supplied data in the WEAP86 data file under contract with the FHWA.

Test Methods Referenced

Joern Seitz of Bilfinger + Berger has informed us that a chapter on dynamic pile test methods has been written for BETONKALENDER 1987, a widely used reference book for civil engineers.

Bert Miner of GRL Colorado tested 36x0.5 inch pipe piles of about 130 ft length for Riedel International on a Washington DOT bridge over the Columbia River. Based on Pile Driving Analyzer data from test piles in each pier and WEAP86 Analyses, the driving criteria were optimized by DOT engineers Lee Roy Wilson and Tony Allen.

Personnel Notes

GRL is happy to announce that Wondem Teferra has rejoined the firm after working for nearly 10 years for Petro Dynamics, Inc. Wondem was graduated from Case in 1975 after completing his Master's thesis on H-piles to rock (see cartoon).

Sergio Beim, a former employee of Noronha, S.A. and Geotecnica, S.A., Brasil, has finished his Master's thesis at Case in Structural Engineering. Sergio is now receiving PDA and CAPWAP training at GRL. In March of '87 he will return to his native Rio de Janeiro and set up PDI Engenharia, a pile testing company, in cooperation with Pile Dynamics and GRL.



Integrity Testing Makes Impact

Low strain integrity testing is slowly making its way into North America. GRL has tested impact driven concrete piles in Ft. Lauderdale, FL and Newport News, VA and drilled and auger cast piles at other locations.

Low strain testing requires the measurement of pile top motion while hitting the pile top with a small hammer. Computations are done digitally using a portable PC or using the PDA. PDA software will soon be released. The PC software package is now available.

NEWS FROM PDI New PDA Owners

Pile Dynamics, Inc. (PDI) is pleased to welcome as new Pile Driving Analyzer (PDA) owners Geotechnical Instruments of Hong Kong and both the China Academy of Building Research and the Central Research Institute of Building and Construction in China.

In North America, the Iowa Department of Transportation has acquired the equipment through States Construction. GRL engineers Bert Miner and Michael Morgano have assisted in the training. Twelve states now have in-house PDA capability while several other states regularly contract for PDA testing services. Soil Testing Services, Inc. has acquired an additional PDA unit.

New PDA Software

The program release for Model GC PDA users is now available. The new program will provide many exciting benefits to the client including:

- pile bending control through four-channel display
- monitoring of long offshore (up to 1260 ft) piles
- improved report quality plots
- PEBWAP analysis for load deflection of end bearing piles
- hammer cushion load deflection for steel piles with air/steam hammer

Goble Rausche Likins and Associates, Inc.

4535 emery industrial parkway

cleveland, ohio 44128

phone (216) 831-6131