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40 years of GRL Engineers

Adapted by Gina Beim from an article by Frank Rausche

Forty years ago a consulting firm was founded with the mission of providing geotechnical firms, construction managers, pile driving contractors and job owners with highly specialized testing and monitoring services based on a novel idea: that each hammer blow applied to a pile being driven into the ground represented a quick loading test. Research conducted at Case Western Reserve University had shown that analyzing the force and velocity measured near the pile top under the hammer impacts could yield the static soil resistance and a reliable means of construction control and quality assurance. Dynamic foundation testing was born.

In the early 1970s, George Goble had already begun to offer dynamic foundation testing services. On March 17, 1976, he incorporated his consulting practice as Goble and Associates, Inc., now GRL Engineers, Inc., with his former graduate students Frank Rausche and Garland Likins. At around that time, the Federal Highway Administration entrusted GRL with writing a computer program to model pile driving behavior. The resulting code, now called GRLWEAP, is used and taught worldwide; performing driveability analyses using GRLWEAP remains an important part of GRL's work.

The firm grew steadily since then. Early on Wondem Teferra, who later led GRL Pennsylvania, joined the company. Shortly after, George Goble became chairman of the Civil Engineering Department at the University of Colorado, and opened a GRL office in that state. Frank became GRL president. Mohamad Hussein joined in 1982, and opened the GRL Florida branch office a few years later. One of the reasons for GRL's successful growth is the experience of its engineers and their dedication to providing quality work to their clients, regardless of how tough the schedule or the project requirements and conditions. Today, 35 engineers in 10 offices around the country are managed by Pat Hannigan, GRL President, and Mohamad Hussein, Chairman of the Board of Directors and Manager of the Florida office. Other long-time senior engineers include Michael Morgano, Manager of the Ohio and Pennsylvania offices, and Scott Webster, who from his North Carolina office also manages GRL's offshore services. Camilo Alvarez frequently takes advantage of SiteLink® technology to remotely monitor pile driving in South or Central America and the Middle East while simultaneously working on local projects from his California office. Similarly Travis Coleman and the Illinois office engineers work on-site or remotely in nearby states and offshore. It is this flexibility that makes it possible to be effectively "on-site" at short notice, practically anywhere in the United States or worldwide. GRL has opened additional offices in the states of Louisiana, Texas and Washington to more effectively serve clients in those regions.

As the number of GRL offices grew, so did the roster of services it could offer. Its market is no longer solely the pile driving industry – GRL saw the potential to help the entire deep foundations industry in its quest for efficiency, safety and economy.

GRL now uses the same principles of pile driving monitoring to calibrate the energy of SPT hammers. It applies dynamic foundation testing even when an adequate pile driving hammer is not available: ten modular drop hammers – APPLES, for Advanced Pile Proof Load Evaluators – are available to test any type of deep foundation. With ram weights between one and 80 tons, these units can mobilize pile capacities as high as 8000 tons under favorable conditions. The company also performs static load tests.

Complementing its load testing offerings, GRL got into the business of evaluating the integrity of deep foundations. Initially doing so by pulse echo testing (which has similarities with dynamic load testing since it also relies on analyzing a stress wave that propagates along the foundation) GRL later equipped its offices to perform Crosshole Sonic Logging and, most recently, Thermal Integrity Profiling.

George Goble retired from GRL in 2000. Frank and Garland, having also more recently "semi-retired", continue to contribute their expertise to GRL.

When addressing employees on the occasion of GRL's 40th anniversary, President Pat Hannigan commented on the average lifespan of an S&P 500 company, which is 15 years, and mentioned that according to the United States Department of Labor only 50% of small businesses make it past 4 years. Pat attributed GRL's success to the drive and innovative spirit of its founding partners and to the quality of the people they attracted and retained. He went on to thank the staff for their contributions and encourage all to continue to provide exceptional service, develop new services and expand GRL markets.



GRL President Pat Hannigan, Founders Frank Rausche and Garland Likins, and Chairman of the Board Mohamad Hussein

Highlights of the 2016 Calendar of events (May-Oct)

More events, info and registration forms at www.pile.com/events

PDCA and Pile Dynamics Seminar on Deep Foundation Integrity Testing and Wave Equation Analysis, followed by High Strain Dynamic Foundation Testing Workshop and Proficiency Test Workshops:

June 15-17 in Toronto, Canada and October 5-7 in Cleveland, Ohio. Info: Holly Colhard at Holly@piledrivers.org

PDI and GRL Webinars - Learn without leaving your desk. Selected webinars are complimentary, as noted. All webinars require Internet and phone connection, last approximately 2 hours and start at 9:00 am Eastern Time (New York Time). More details and registration on www.pile.com/events or email registration@pile.com:

May 31-June 8: Advanced Applications of CAPWAP® 2014 Software with Brent Robinson

June 14-21, in Spanish: Análisis de Ecuación de Onda en Pilotes usando GRLWEAP con Jorge Beim

August 10: Quality Control of Drilled Shafts with Garland Likins

September 13: SPT Hammer Energy Measurements with Brent Robinson

October 18-26: Wave Equation Analysis of Piles using GRLWEAP with Dr. Frank Rausche and Ryan Allin

GRL, PDI and/or PDI representatives will exhibit at the following events (a good chance to learn about new developments!)

June 6-10 in National Harbor, Maryland: visit the **GRL** Booth at the Engineers Society of Western Pennsylvania 33rd Annual International Bridge Conference

June 7-9 in Chicago, Illinois: Visit **PDI** at Booth 103 of the Deep Foundations Institute Superpile 2016. **GRL's Travis Coleman will be speaking**

June 28-30 Athens, Greece: Visit the booth of **PDI representative NEOTEK** at the 1st International Conference on Natural Hazards and Infrastructure

October 2-5 Vancouver, Canada: Visit the **GRL** Booth and the **PDI** Booth at Geovancouver 2016, an event of the Canadian Geotechnical Society

October 12-15 New York City, New York: Visit **PDI** at Booth 811 of the Deep Foundations Institute's 41st Annual Conference on Deep Foundations

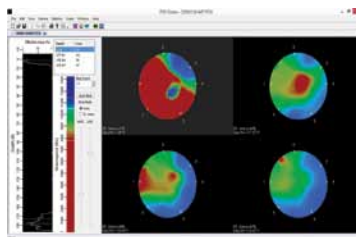
Other Learning Opportunities:

PDI is a proud sponsor of the ADSC Civil Engineering Faculty Workshop on June 5-10 in Chattanooga, Tennessee

PDI and GRL are proud sponsors of the ADSC Summer Meeting, July 26-29 in Maui, Hawaii

PDI Releases PDI-TOMO Software

Pile Dynamics has released the new PDI-TOMO software for analysis of Crosshole Sonic Logging data. This new release has significant advantages to an older tomography program previously offered. PDI-TOMO retrieves the measured data from CHA-W input in one quick and easy step, then analyzes and produces results at a much greater speed, improving productivity of CHAMP-XV users. Program functions are intuitive, many features are automatic, and the output is customizable.



GRL Personnel Transfers and Welcomes

Long time GRL engineer Mark Rawlings is now serving the growing needs of the North Carolina office of GRL. GRL-NC also serves South Carolina, Georgia, Oklahoma, Tennessee, Arkansas and Southern Virginia.



Mark Rawlings



Joel Pierazek

The Pennsylvania office of GRL welcomes Joel Pierazek. Joel has a BS in Civil Engineering from the University of North Florida and looks forward to completing his MS in Civil Engineering degree in the near future.

New Model of PIT

Pile Integrity Tester models V and FV have been replaced by the enhanced models QV and QFV. The new model has an 8.4" high resolution, sunlight readable LCD and runs on a faster, more powerful Intel processor with Windows 10. It has 16 times more storage than the model it replaces and includes a replaceable battery for extended duration testing.



GRL Load Testing News

GRL has recently revamped two of its APPLE Load Testing Systems. The APPLE II is now modular, with weights from 4 to 20 tons. The APPLE VII, built specifically for helical piles, has been revamped. Check out these and all the other available systems on the new APPLE page on our website www.GRLengineers.com/APPLE. There you can see which APPLE will fit your dynamic testing and rapid load testing needs. Of course, GRL will help with the final selection based on your particular situation. In addition to its recognized dynamic load testing expertise, GRL also performs static load tests on projects that require that type of testing.



APPLE II

www.pile.com: the portal for deep foundation testing services, instruments and software

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