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H-R IS MORE THAN THE PREMIERE GEOPHYSICAL SERVICE FIRM IN THE NORTHEAST. TAKE A CLOSER LOOK . . .

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You'll like what you see! Although H-R is widely known as *the* premiere professional firm in the northeast for surface and borehole geophysics, the firm has expertise and established reputations in other related areas as well. The whole of H-R is greater than the sum of its parts because so much dynamic energy is generated by working on different types of projects such as:

- **Geotechnical Support Services** — subsurface investigations, blast/vibration monitoring, rock mechanics.
- **Subsurface Utility Engineering Services (SUE)** — research, designation, mapping, and verification of utilities.
- **Non-Destructive Testing Services (NDT)** — pile integrity testing, crosshole sonic logging of caissons, NDT of structures and foundations.
- **Dimension Stone Testing & Evaluation Services** — ASTM testing, failure analysis, quarry evaluations.
- **Litigation Support Services** — document review, consulting, expert testimony.

A Voiding Trouble

Voids under floor slabs can mean trouble. Voids under floor slabs of buildings where heavy equipment is to be installed can mean big trouble. And voids under floor slabs of a facility containing multi-million dollar flight simulators at a major international

airport can mean *really* big trouble.

H-R has been retained to detect and map the lateral extent of subfloor voids at several sites this year. In one case, a high pressure water pipe had burst under the floor of a facility where one-of-a-kind flight simulators had been installed at a major international airport. The extent of subsurface damage needed to be determined ASAP because pilots from around the world were waiting to be trained on the simulators. By combining ground penetrating radar (GPR) data, obtained within 24 hours of being called, with data from exploratory core holes drilled by the owner, H-R provided timely information about the lateral extent of voids to assist the client's design of critical remediation work.

In another case, a large commercial facility had been constructed 30 years ago at the site of a former utility pump station. During remodeling, voids were discovered under the floor slab. H-R conducted a GPR survey of the entire building, and not only discovered significant additional voids under the floor slab on grade, but also detected and mapped deep voids under a buried former basement floor located several feet below existing grade!

You can rely on H-R to combine our ability | to think with our extensive experience to

work out practical NDT / geophysical approaches to challenging situations like the subsurface voids described above. Let us help you avoid trouble, too. **Call us!**

Spotlight on Puliafico and Yang — H-R Senior Staff

H-R is pleased (and proud) to announce that Jonathon Puliafico, P.G., and Roger Cunhui Yang have been promoted to Senior Geologist and Senior Geophysicist, respectively.

Jonathon Puliafico, P.G., joined H-R in 1990 as a temporary staff member, and has been here ever since. He is our lead geologist on most geotechnical subsurface investigations, SUE services, and a good portion of the geophysical projects.

Roger Cunhui Yang joined H-R right out of graduate school in 1991 as a staff geophysicist. He is our lead geophysicist for almost all seismic projects as well as much of the other geophysical work, and rock mechanics/lab testing of building stones. Roger spearheads our NDT group and is leading us in new directions.

Tips for Conditioning Wells for Borehole Video Logging

A picture is worth a thousand words. We are finding more and more clients recognize the value of borehole video logging to complement the non-visual data from other borehole geophysical logs, to detect fractures, to inspect casing and screens, to examine lithology, and last, but not least, to show a client or regulator just what subsurface conditions are really like! There are, however, some simple steps that can be taken to optimize the images obtained in video logs.

Two factors that are completely outside our control greatly affect the quality of a video log: (1) the clarity of the water in the borehole, and (2) the condition of the borehole walls.

We recommend that all obstacles such as pumps be removed, and that the well be left undisturbed for a day or two to allow sediment in the water to settle out prior to video logging. Similarly, a new well should also be left undisturbed for a few days after drilling so the water can clear.

If the borehole to be logged is an older well, the borehole walls might be covered by a coating, and pumping the walls a few days before the video logging to dislodge the scale will improve the images of the wall. Such simple steps can make a big difference in the depth of detail that can be discerned in a video log.

H-R offers comprehensive borehole video and geophysical logging services — with equipment we own, not rent. Let H-R help you look good to your clients by having us work with you to help plan the logging program. **Call us!**

H-R Geotech, Stone, & Related Activity Up

It's a sign of the healthy economy that construction activity is higher this year, and H-R has seen it reflected in several ways — increased geotechnical support projects for government and private clients, subsurface utility investigations at new construction sites, and a huge increase in building stone testing and evaluation. H-R performed subsurface investigations for a couple of MWRA projects this year in eastern and central Massachusetts, GPR surveys along alignments for proposed utilities under roadways, and SUE surveys in New York, Boston and elsewhere. Building stone projects range from New York to the Far East. In the past year, we have consulted on stone issues for numerous

projects, including the new Women in Military Service to America Memorial in Arlington National Cemetery and The Civil Rights Memorial in Montgomery, Alabama.

Let's Talk

H-R's free seminars on "Surface and Borehole Geophysics for Environmental and Engineering Projects" are popular. We've recently presented the seminar to several environmental and engineering firms, to the Bureau of Waste Site Cleanup in the Metro Boston Northeast Regional Office of the Mass. Dept. of Environmental Protection, and to the Western Mass. Committee of the Licensed Site Professionals Association. **Call us if you'd like to schedule a seminar at your organization.**

Dorothy Richter, H-R President, Donald Murray, Chief Engineer at Rock of Ages Corporation and Gene Simmons, H-R Vice President, led a field trip to examine the economic geology of the granite dimension stone industry in Vermont during the 89th New England Intercollegiate Geological Conference held in September. **Call us if you'd like a reprint of the field guide.** The reference is:

Richter, D., D. Murray, and G. Simmons, 1997, Economic Geology of the Dimension Stone Industry, Central Vermont Granite Belt, in Grover, T., Mango, H., and Hasenohr, E., eds., Guidebook to Field Trips in Vermont and Adjacent New Hampshire and New York, New England Intercollegiate Geological Conference, p. B4-1 - B4-14.

Let's Link

H-R's website has been an exciting business resource for us. We've made new friends around the world and have had the warm pleasure of being rediscovered by some old friends. H-R recently performed ASTM laboratory testing of building granites from the US, Canada, and Spain for a new client in

Hong Kong who found us on the Net.

H-R has established a Professional Colleagues section on our website to provide links to the websites of colleague firms. We invite your firm to join our Professional Colleagues section — the only requirement is a reciprocating link from your homepage to ours. Send your URL to webmaster@hager-richter.com. Our homepage is easy to find:

<http://www.hager-richter.com>

Expanded WBE Certifications

H-R is now certified as a WBE or DBE in eleven states — all six New England States, New York, New Jersey, Ohio, Minnesota, and Texas. Certification is pending in Illinois, Indiana, Michigan, and Wisconsin.

You can please your clients and the agencies by using a top-drawer technical firm such as H-R to help meet WBE or DBE participation goals. *Call us!*

Message from the President

Some say that common sense is not very common. We certainly hear that a lot in our consulting practice. And I have slowly come to recognize that good old common sense is one of the fundamental factors that clients truly like about H-R.

H-R's consistent dedication to quality, technology, innovation, and experience form a multi-faceted foundation from which we approach each project. We have an outstanding staff that just keeps getting better. But one of H-R's greatest strengths simply might be our ability

to think clearly — to be able not to overwhelm, nor to overspend, but to be able to suggest simple, practical solutions to complex questions.

Take the common sense approach in your projects. Secure the quality technical services that you deserve and your clients need — Call us!

Cordially,

*Dorothy Richter
President*

Our Mission

To fulfill our clients needs in geoscience, using experienced professionals who enjoy their work and are totally committed to quality and professional development.

'97 Staff Highlights

We are very proud that everyone at H-R takes pride in all of his or her projects, but we also know that each has favorites:

Jeff Reid, Operations Manager, flourishes when things are busy, and oh boy, is he flourishing! Some of the small but different projects, such as a GPR survey of a dam in western Mass., pique his brain cells as much as larger projects, such as a recent geophysical survey of a large site in Kentucky. Jeff is H-R's ringer in local golf tournaments, tough work, but someone's gotta do it.

Jonathon Puliafico has covered a lot of territory with field SUE services for public and private clients, geotech projects, and numerous surface & borehole geophysical surveys. He enjoyed a complex GPR survey to map voids under

two sets of floorslabs, one a subfloor from a previous building located several feet below the other and not known to the current owner.

Roger Yang travels the country making friends for H-R while performing geophysical surveys. This year's highlights include travels to Texas and the midwest for several geophysical surveys as well as NDT investigations at bridges in New York and Massachusetts.

Don Silvia and **Marcia Gemmell** are dedicated to intensive deformation monitoring and construction verification work for Boston's Big Dig, the Central Artery/Tunnel Project. Don has been on the Project for almost 4 years and never tires of its changing challenges. Marcia, a recent Civil Engineering graduate from UMASS Amherst, joined us in August (welcome!), and instantly made herself an integral part of the Big Dig team.

Christopher Kujawa has started to take the lead on some field geophysical projects and thrives on the increasing responsibility that comes with experience. He also really enjoyed assisting in some of our more complex projects, such as a challenging geophysical survey to determine where water was entering a large quarry in karst terrain.

Lyn Mercer, our Office Administrator, thanks everyone whose accounts payable department makes her job a bit more pleasant by not making her call to check on when H-R will get paid.

Bill Desmarais is our cheerful CAD Operator/Draftsman who knows that clients rely on his work to present H-R's results clearly. A perfectionist, he integrates CAD files from clients with H-R's data to make an understandable final product.

H-R STAFF

PRESIDENT	Dorothy Richter, P.G.
VICE PRESIDENT	Gene Simmons, Ph.D., P.G.
OPERATIONS MANAGER	Jeffrey Reid, P.G.
ADMINISTRATION	Lyn Mercer
TECHNICAL STAFF	Jonathon Puliafico, P.G. Roger Cunhui Yang Donald Silvia Christopher Kujawa Marcia Gemmell
DRAFTING/CAD	William Desmarais

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