

# HAGER-RICHTER GEOSCIENCE, INC.

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## H-R BEGINS ITS FIFTEENTH YEAR WITH A CONTINUED COMMITMENT TO EXCELLENCE

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Hager-Richter Geoscience, Inc. has crossed the threshold into its fifteenth year in business and has done so with the enthusiasm and entrepreneurial spirit of an upstart company. One of the characteristics that keeps H-R young and spunky is the drive to find new ways to help our clients look good to their clients. That drive requires us to examine new technologies and approaches to problems, constantly searching for ways to enhance the information about subsurface conditions that we provide to our clients. H-R offers a variety of specialized services that apply to a wide range of environmental and engineering projects:

- **Surface & Borehole Geophysics** — Ground Penetrating Radar (GPR), Seismic Refraction & Reflection, Crosshole Seismic, Electromagnetic Induction (EM), Resistivity, Magnetics, VLF, Geophysical Borehole Logging, and Borehole Video Logging.
- **Geotechnical Support Services** — Subsurface Investigations, Blast/vibration Monitoring, and Rock Mechanics.
- **Subsurface Utility Engineering Services (SUE)** — Research, Designation, Mapping, and Verification
- **Non-Destructive Testing Services (NDT)** — NDT of foundations, Crosshole Sonic Logging, and Pile Integrity.
- **Dimension Stone Testing & Evaluation Services** — ASTM Testing, Failure Analysis, and Quarry Evaluations.
- **Litigation Support Services** — Document

Review, Consulting, and Expert Testimony.

### Good Vibrations — Urban Seismic Projects

In previous newsletters, we have joked about our "gypsy geophysicists" who travel from project site to project site gathering data to process and report to clients. This year, we probably should add "urban guerilla geophysicists" to our list of monikers. H-R has always worked in urban environments, but for some reason, we have conducted far more than the usual number of seismic surveys in some seriously urban settings in the past year.

We started 1998 by fielding three crews to conduct a seismic refraction survey consisting of over five miles of traverse. All lines were located in the streets of an old industrial town in northern New Jersey. Bedrock was from about 20 feet to greater than 200 feet deep, and the surface relief was over 100 feet. Use of explosives in such a setting was out of the question, so our Bison EWG, a hydraulically lifted accelerated weight drop, got quite a workout. One crew worked nights, and the other two crews worked the day shift. Luckily, it was a mild winter, and we were able to work straight through without a snow delay.

We followed that survey with over three miles of seismic refraction at an indus-

trial development site near Boston. That project, in turn, was followed by cross-hole seismic surveys in the middle of the New Jersey Turnpike and at bridge abutments at charming, as well as scenic, locations in Harlem and the Bronx. Later on, we conducted another cross-hole seismic survey in the Bronx, followed by an unrelated seismic refraction survey located in the streets of the Bronx. The last project was conducted entirely at night under the warm glow of sodium vapor street lights. And guess what? We'll be performing more cross-hole seismic surveys in Manhattan soon.

Actually, everyone we met at all the sites was very pleasant. The moral is that you can rely on H-R to work out practical approaches to challenging site situations. Let H-R send some good vibrations your way, too. *Call us!*

## Tips for Specifying a "Simple" GPR Survey to Find USTs

For many environmental consultants, their very first experience with geophysics is a "simple" GPR survey to locate USTs at an active or former gas station site. GPR is generally a pretty good method to use to find USTs, but not always. You can make things easier for yourself, your client, and your geophysical consultant when specifying a "simple" GPR survey to find USTs by answering as many of the following questions as possible:

- What are the size limits (dimensions) of the survey area?
- What is the minimum size UST that you need to find? The minimum size of the target determines how closely spaced the GPR traverse lines need be to explore the site with a high degree of assurance that all such tanks have been detected. Keep in mind, too, that the survey costs are also affected by the traverse spacing.
- Are there Sanborn-type maps or facility plans showing the locations

of the target USTs and subsurface utilities?

- Is there visible evidence of USTs such as vent or filler pipes?
- What is the surface like? Is it paved or unpaved? Is it covered with brush?
- What are the subsurface soils like? If the soils are clay-rich, you'd better have H-R recommend an alternate method to detect USTs.
- What is the expected depth of groundwater at the site?
- Has any fill been placed on the site changing the surface elevation since the site was used as a gas station?
- How will you arrange for access? Include traffic control and removal of obstacles to the survey such as parked vehicles, brush, debris, etc. in your planning. If it's winter, get the survey area plowed.

The more that you and your geophysical consultant know about a site before the survey is performed, the greater the chance of a successful survey. Let H-R help you look good to your clients by having us work with you to help plan and execute a sensible "simple" geophysical program. *Call us!*

## H-R & The Minutemen

H-R performs geophysical surveys for a variety of objectives and generally has fun doing them. But we must admit that it's especially intriguing to use geophysics at historic sites. This year, H-R was invited to work at two historic sites — the Dwight Derby House, the oldest house in Medfield, Massachusetts, and the Lexington Battle Green in Lexington, Massachusetts. Yes, the latter site is where the "shot heard 'round the world" was fired on April 19, 1775.

The Dwight Derby House is pretty old, given that its 1669 section is said to be an "addition" to an older structure, and its first owner died during King Philip's War. The DDH was recently acquired by the Town, and its historic commission

has begun studying the house and grounds. H-R was invited to explore the 1-acre site with GPR to help detect "interesting" locations for later digs. Several unidentified objects and an area of "disturbed ground" were detected. We won't know what we found until a professional archaeological excavation is performed, however.

The Lexington Historical Society is planning a major celebration of the 225<sup>th</sup> anniversary of the Battle of Lexington in the year 2000. As part of the research to place the Minutemen in historically correct positions, H-R was invited to conduct a GPR survey in a portion of the Battle Green to try to locate the foundations of a Meeting House that stood at the site in 1775, and at the grounds of the Buckman Tavern, where the Minutemen assembled prior to the advance of the Redcoats. Our work was conducted under the watchful eyes of current-day members of the Minutemen, who adopt the identities of specific individuals in the battle and take their roles very seriously. The *Boston Globe* ran a photo of H-R at work in the shadow of the world-famous statue of the Minuteman.

The GPR records are interesting and complex, and we might have found traces of a former foundation. Whether it's from the original Meeting House, or one of two later Meeting Houses that had been erected on the same site, or an unrelated feature is unclear at this point. We're not sure that we found evidence of horse sheds that we were asked to find behind the Buckman Tavern. Later landscaping may have re-worked the site and wiped out traces of the shed footings. The GPR survey did provide the Historical Society information about the subsurface at each site that they cannot obtain directly anymore, since the Town is not inclined to permit excavation. And H-R is very proud to have worked at sites so important in our nation's fight for freedom.

## Free Speech Movement

Speaking of freedom, remember H-R's free talks on "Geophysics for Environmental and Engineering Projects." *Feel free to call us if you'd like to schedule a seminar at your firm or organization.*

## WBE Certifications

H-R is certified as a WBE or DBE by agencies in thirteen states — all six New England States, New York, New Jersey, Ohio, Indiana, Illinois, Minnesota, and Texas. *Call us!*

## 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.*

## '98 Staff Spotlight

If you have ever received one of H-R's newsletters before, you know how proud Gene Simmons and I are of our staff. Newsletter pundits warn not to put in a lot of personal stuff about staff, but I can't help it. H-R could not help you look good to your clients if we did not have the vibrant, in-every-way professional staff that we have.

**Jeff Reid**, P.G., Operations Manager, is our anchor man. Jeff might tell you that it's been a busy year. He should know. Jeff has been on the front line of all of the urban guerilla seismic projects and practically every other project as well. At the same time, he has managed to help H-R with some significant strategic planning issues.

**Lyn Mercer**, Office Administrator. Just as Jeff anchors our technical operations, Lyn anchors the office. Anyone who

comes in contact with H-R comes in contact with Lyn. She owns the pleasant voice you first hear on the phone, and Lyn is the person who sends your correspondence, who assembles your proposals and reports, and who gently reminds you to pay your bills. To the H-R staff, Lyn keeps the books straight and keeps us straight, too.

**Bill Desmarais**, CAD Operator/Draftsman. Bill manages to translate sometimes illegible field scrawls (notes might be a generous term in some cases) into coherent graphics that our clients can understand, all the while maintaining his signature cheerful composure. His positive attitude really helps when some of the rest of us are pulling out our hair.

**Carl Gruszczak, Ron Bridges, and Steve MacCabe** are our Beantown Team, working in Boston on the Central Artery/Tunnel Project. Carl joined H-R last year, and has a degree in Geophysics from Rensselaer Polytechnic Institute. He has been working in deformation monitoring for the Project. Ron and Steve joined H-R last summer from the Canadian Maritimes. Both have survey experience as well as degrees in Survey Engineering from the University of New Brunswick, verrry useful backgrounds for the complex construction verification work with which they are involved.

**Jim Coffman**, Geophysicist, joined H-R last spring and has quickly become an essential part of H-R's field and office efforts. Jim has a master's degree in Geophysics from the University of Akron, and has amassed a wide range of experience in a short time. So far, he has worked all over the northeast and has traveled to North Carolina and Illinois for H-R field projects as well.

**Pat Courtney**, Geological/Geophysical Tech, (and new dad!) joined H-R last summer with a bachelor's degree in Geography from Worcester State College.

Pat's no ordinary green college kid, however, having worked for many years as a welder and in other construction trades, and owning his own glass replacement shop before getting hopelessly hooked on geology, and now geophysics. It's no surprise, then, that Pat's life experience translates easily into probing insight for H-R's projects.

## Message from the President

*I must admit that it's hard for me to believe that H-R is in its fifteenth year in business. I still tend to think of H-R as a 'new kid on the block,' struggling to survive, and eager to get out there and tackle new problems. I guess that helps to keep us fresh. I don't think H-R will ever be called a "mature" firm.*

*But then, I also have moments when I realize that H-R has indeed traveled a long way, and as a result, I have learned something new every day.*

*One of those moments occurs when we sit down once each year to proofread our mailing list to try to eliminate some of the errors. I find myself smiling at so many names — recalling faces, voices, projects, good times, tough problems. We have worked with a large number of very interesting people, many of whom I have grown to consider as friends. We are small enough that I still know most on the mailing list. And, after fifteen years, I can't help smiling about that.*

*Let me tell you this — it is a pleasure to work for you and with you. It is a pleasure to hear that your clients have found our contributions to your projects to be helpful. It is a pleasure to do business with you. Thank you!*

Cordially,

Dorothy Richter  
President

## 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
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