



# Hager GeoScience, Inc.

*Innovative Solutions to Subsurface Problems*  
Spring 2001 NEWSLETTER

## NEW EMPLOYEE

HGI welcomes geophysicist Jeff Shragge to its team of geoscientists. Jeff followed a BScH in physics with an MSc in geophysics from the University of British Columbia and has come south to apply his seismic imaging techniques to real world problems.



Above: Jeff Shragge "reflecting" on seismic data.

## Recent Papers by HGI Staff

*SAGEEP, Denver, CO  
March 4-7, 2001*

*GPR as a Cost Effective Bedrock Mapping Tool for Large Areas*, by Jutta Hager & Mario Carnevale, was presented at the Annual Meeting of the Environmental and Engineering Geophysical Society. The paper is on the CD-Rom Proceedings for the Conference.



Above: HGI geologists on the way to map the MWWST shaft.

*Late winter/early spring has been unusually busy for the HGI field personnel, despite the difficult weather. We've had a number of cold-weather geophysics projects.*

## GEOPHYSICAL BOREHOLE LOGGING

In January, HGI completed a large logging project in southeastern Massachusetts to help characterize bedrock fractures for a large-scale environmental study. HGI personnel used traditional logging tools combined with digital borehole imaging to examine fracture sets as possible contaminant conduits.

## VIBRATION MONITORING AND ANALYSIS

Perhaps the coldest project to date involved overnight monitoring of train vibrations at the central Massachusetts site of a future fiber optics facility in January. Equipment was brought in by sled and work performed in a tent. Data were analyzed using HGI's EVT™ software.



Above: Dealing with the logistics of monitoring train vibrations under harsh conditions.

## METRO WEST WATER SUPPLY TUNNEL

With mapping of a 400-foot-deep access shaft in February, HGI has completed geologic mapping for the 17.6 mile-long deep rock tunnel. HGI tunnel maps are being used to help the design engineer plan grouting prior to lining the completed tunnel segments.

## CONTAMINANT PLUME MAPPING WITH GPR AND EM

In April HGI used GPR to map a contaminant plume at a site in New Hampshire. Product was traced from hot wells to clean soil. EM was used to locate buried objects and distinguish between fill types in another part of the site.

## UST LOCATING

HGI used GPR and pipe and cable locator to survey 5 sites in Connecticut for a large infrastructure project. Several tanks were found.

## RESISTIVITY AND CROSS-HOLE SEISMIC SURVEY

February through April, HGI used a combination of cross-hole seismic and resistivity methods to characterize the soil at the site of a future power plant in southern Massachusetts.

## LOCATING REBAR AND UTILITIES

HGI has had a number of opportunities to test its new 1.5GHz antenna on reinforced concrete floors. Renovations of buildings in Cambridge and Burlington, Massachusetts required precise mapping of rebar and utilities.



Above: HGI's new field vehicle, Lance, set up for borehole logging.

Left: "Sweeping" the floor for conduits.

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