



PCPG

Pennsylvania Council of Professional Geologists
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Essentials of Surface and Borehole Geophysical Methods

April 19, 2017
Reading, PA

May 17, 2017
Monroeville, PA

Program Outline

This seminar is designed for geologists, engineers, and environmental specialists who want to maximize information for a site characterization by using surface and borehole geophysical methods. It will focus primarily on environmental, geotechnical, ground water, and oil & gas applications.

The class objective is to provide the user of surface and borehole geophysical methods with a working understanding of the available geophysical methods for utilization on their projects. Each surface and borehole method has advantages and disadvantages that must be understood in order to apply the most appropriate method(s) to the project objectives and site conditions. This class will provide the applications, strengths, weaknesses, and key factors, in using each method. Examples and case histories will be discussed to provide the attendees with an understanding of how the methods can be applicable to similar projects.

7:30 - 8:00

Registration & Continental Breakfast

8:00 – 9:30

Introduction (Jeffrey Leberfinger , P.Gp., P.G.)

- What is Geophysics
- What are the Benefits of Geophysics

Seismic Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Multiple Variations of the Method
- Strengths and Weakness
- Key Factors
- Case Examples

Electrical Resistivity Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Strengths and Weakness
- Key Factors
- Examples

9:30 – 9:40

Break

9:40

Electromagnetic Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Multiple Variations of the Method
- Strengths and Weakness
- Key Factors
- Examples

Ground Penetrating Radar Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Multiple Antennas
- Strengths and Weakness
- Key Factors
- Examples

11:00-11:10

Break

11:10 – 12:00

Micro-Gravity Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Strengths and Weakness
- Key Factors
- Examples

Magnetic Methods (Jeffrey Leberfinger , P.Gp., P.G.)

- Applications
- Strengths and Weakness
- Key Factors
- Examples

12:00 - 12:40

Group Luncheon

12:40 - 1:05

Introduction and Overview of Well Logging & Imaging (Scott Wendling, P.G.)

1:05 - 1:20

Reading Logs, Borehole Environment, Effects of Tool Configuration

1:20 - 2:20

Logging Methods & Tool Response (Scott Wendling, P.G.)

- Caliper Logs
- Gamma Ray & Spectral Gamma Logs
- SP Logs
- Resistivity and Conductivity Logs

2:20 – 2:35

Break

2:35 – 3:20

Logging Methods & Tool Response - continued (Scott Wendling, P.G.)

- Optical Televiwer
- Acoustic Televiwer
- Temperature Logs
- Fluid Resistivity
- Flowmeter / Hydrophysical Logs
- Sonic Logs
- Density Logs
- Neutron Logs

3:20 - 3:35

Applications of Well Logging and Imaging (Scott Wendling, P.G.)

- Determining bed boundaries
- Stratigraphic correlation
- Ground water occurrence and migration
- Estimating transmissivity

3:35 – 3:45

Break

- 3:45- 4:30** **Applications of Well Logging and Imaging-continued (Scott Wendling, P.G.)**
- Engineering properties
 - Porosity
 - Structure & fracture characterization
 - Deviated wells
 - Geothermal applications
 - Contracting logging services
- 4:30 – 4:45** **Summary & Wrap-up (Scott Wendling, P.G.)**
- 4:45** **Adjournment / Evaluations / Sign Out / Pick Up Certificate of Attendance**

About our Presenters

Jeffrey Leberfinger , P.Gp., P.G. (Exploration Instruments) – Jeff Leberfinger is a licensed Professional Geophysicist (PGp) and a Professional Geologist (PG). He is the Eastern Region Operations Manager for Exploration Instruments (EXI), a geophysical equipment rental company located in Harrisburg, PA (www.expins.com). Mr. Leberfinger has over 30 years of experience applying geophysical methods to aid in the characterization of sites across the US. These characterizations include geotechnical, environmental, water resource and archeological investigations. Mr. Leberfinger has performed over 1000 geophysical surveys for commercial, state, and federal clients. Representative clients include numerous geotechnical and environmental service firms, Commonwealth of Pennsylvania, Army Corps of Engineers, Department of Energy, National Guard, US Navy and the US Air Force. Surface geophysics methodologies include microgravity, electromagnetics, magnetics, seismics and ground penetrating radar (GPR). Mr. Leberfinger has served on the board of PCPG and was the PCPG President in 2011.

Scott Wendling, P.G., Vice President / Senior Project Manager (ARM Geophysics) - Scott Wendling, P.G. is a senior geologist and geophysicist for ARM Geophysics in Hershey, Pennsylvania. He currently serves as Vice President and is responsible for all geophysical services provided by ARM. He has more than 28 years of experience managing and performing surface and borehole geophysical surveys for environmental, engineering, and exploration projects. Mr. Wendling received his Bachelor of Science and Master of Science Degrees in Geology from Southern Illinois University at Carbondale. Mr. Wendling's Master's Degree focused on geophysics and his Master's Thesis was a deep crustal seismic survey project in the Great Lakes region. He has been a licensed Professional Geologist in Pennsylvania since 1994.