



GROUNDWATER RESOURCES ASSOCIATION  
OF CALIFORNIA

## **Field Demonstration of Innovative Site Characterization and Monitoring Technologies.**

**Day 3 of Symposium: November 16, 2006**

### **High Resolution Site Characterization and Monitoring Symposium**

**Long Beach Airport – 8:00 am to 4:30 pm**

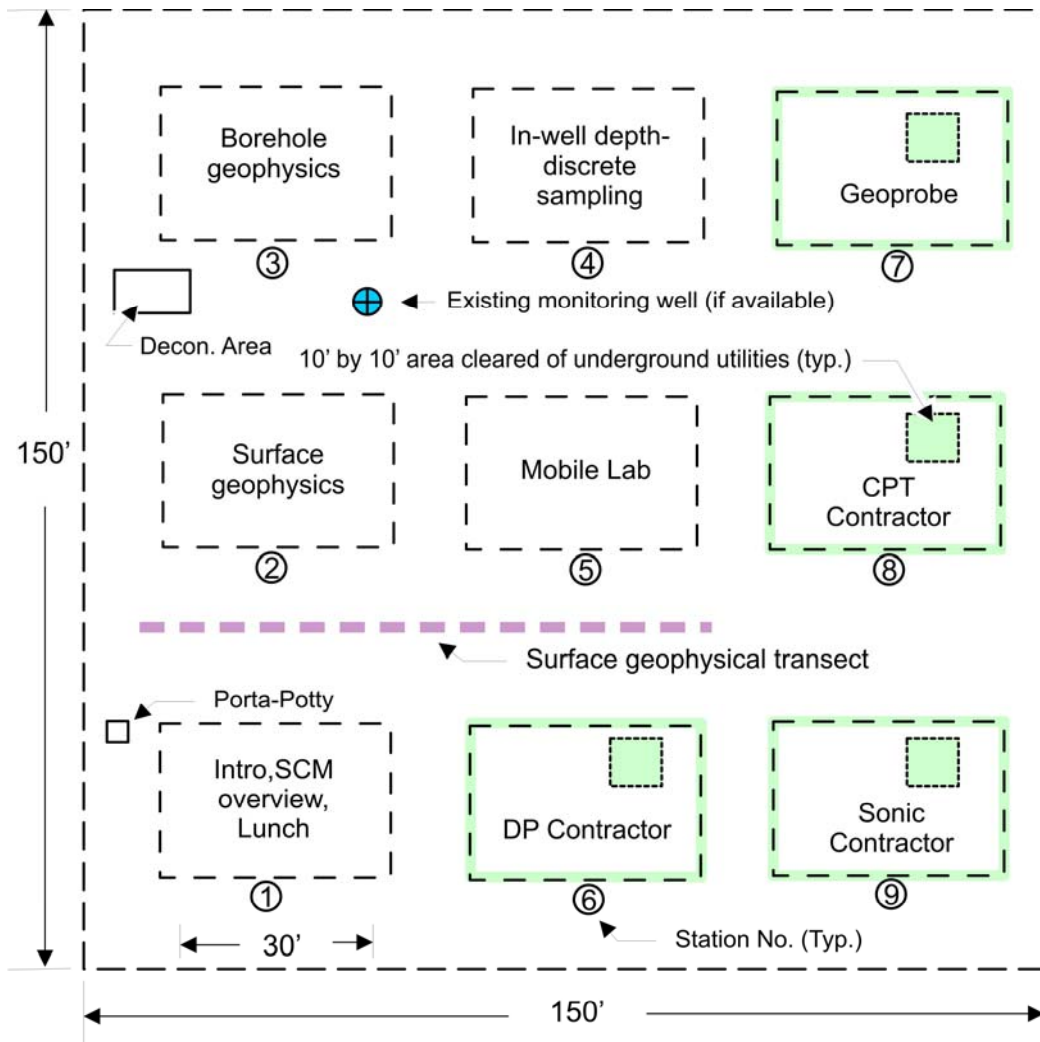
**Buses Depart from the Westin Hotel**

**(Field Demo includes lunch and beverages)**

#### **Overview**

GRA is organizing an outdoor demonstration of innovative site characterization and monitoring technologies in conjunction with their High Resolution Site Characterization and Monitoring Symposium, which will be held at the Westin Long Beach Hotel on November 14 and 15, 2006 (<http://www.grac.org/hires.asp>). The outdoor demonstration will be held on Thursday, November 16, at the Long Beach Airport in Orange County, California. The Long Beach Airport is located approximately 4 miles northeast of the Westin Long Beach Hotel.

At the demonstration site, technology vendors and contractors will provide hands-on demonstrations of their technologies and/or services to approximately 150 symposium attendees. The demonstration site will be set up so that there will be approximately 12 to 15 different stations (see **Figure 1**). Upon arriving at the field demonstration site, all of the attendees will hear an overview of the subsurface conceptual model for the demonstration site (i.e., the site conceptual model or “SCM”) and the planned activities for the day at Station 1. Next, the attendees will be divided into groups equal to the number of remaining stations. Each group of attendees will then go to a different station, where the vendor or contractor at that station will deliver a technical presentation. Each presentation will last for approximately 20 minutes. A short Q&A period will follow the presentation, then each group will move on to the next station for another presentation. This will continue throughout the day until the attendees have had a chance to hear and participate in the presentations at each station. There will be group discussions at lunch and again during a break in the afternoon to discuss the data that is being collected in the context of the SCM.



**Figure 1.** Possible layout for field demonstration site. Contractors at stations with green shading may perform intrusive sampling, probing, or drilling to depths up to 70 feet bgs.

### **Types of Technologies Demonstrated**

The technologies demonstrated will include the latest technologies for obtaining high-resolution data regarding subsurface geology, hydrogeology, and contamination. These will include some or all of the following:

- Surface geophysics (e.g., earth resistivity, ground penetrating radar, seismic reflection)
- Borehole geophysics (e.g., natural gamma, electrical induction)
- In-well, depth-discrete groundwater sampling devices such as Snap Sampler, HydraSleeve, pressurized bailer, diffusion bags, etc.
- Mobile analytical laboratory
- Direct push sensors to define stratigraphy (e.g. electrical conductivity) and measure subsurface contamination (e.g., Geoprobe Membrane Interface Probe)
- Direct push tools for collecting depth-discrete samples of soil, soil gas, and groundwater
- Cone Penetrometer Testing (CPT), with sensors for measuring nature and extent of subsurface contamination

- Sonic drilling, coring, and depth-discrete groundwater sampling
- Multi-level well installation and sampling

### **Description of Presenters**

The people giving the demonstrations are invited technical representatives from equipment manufacturers or service companies. The presenters will describe key technical aspects and issues related to their technologies. Sales and marketing information will be kept to a minimum. Particular attention will be given during the presentations to data quality versus quantity, potential biases with the various technologies, and optimal methods to incorporate new data into the SCM.

### **Specific Activities at the Field Demonstration Site**

To make the field demonstrations as meaningful and instructive as possible, we will collect and analyze actual subsurface data throughout the day. We will have access to at least one existing monitoring well at the field site to take down-hole geophysical measurements in and collect depth-discrete groundwater samples. In addition, we will advance small-diameter direct push sampling tools and sensors to a maximum depth of 100 feet below ground surface. Following is a summary of the planned field activities:

- Surface geophysical survey(s) along one or more transects (**Figure 1**). These will be non-intrusive.
- Lowering geophysical instruments into one or more existing monitoring well and taking measurements that will indicate the geologic materials outside of the well casing, groundwater flow within the well, etc.
- Lowering depth-discrete groundwater sampling devices (e.g., bailers) into one or more existing monitoring and collection of groundwater samples
- On-site chemical analysis of groundwater samples
- Penetration to depths no greater than 100 feet with direct push sampling equipment, in-situ chemical sensors, CPT tools, and sonic coring equipment
- Multi-level well installation

### **Transportation, Lunch, and other Logistics**

Bus transportation to and from the field demonstration will provided by GRA. Box lunches will be provided by GRA to symposium attendees.

### **Contingency for Rain**

All attendees should bring warm clothing and rain gear to the field demonstration. Portable overhead rain shelters will be set up, if necessary, to provide additional rain protection for attendees.

### **About GRA**

Groundwater Resources Association of California (GRA) is a non-profit, educational organization that is dedicated to groundwater resource management through education and technical leadership. More information about GRA can be found at <http://www.grac.org>.

### **Contact for Further Information**

Please contact Murray Einarson by phone at 650-400-0248 or by email at [meinarson@geomatrix.com](mailto:meinarson@geomatrix.com) if you have questions or desire further information about the symposium and/or field demonstration.