

# Project Summary



## Former Naval Training Range Vieques, Puerto Rico



### Project Overview:

Comprising almost half of the island of Vieques, the Former Naval Training Range consisted of approximately 14,600 acres and began operations in 1940. Ship to shore and air to ground bombing, along with ground warfare and amphibious training took place while the facility was in operation. All military activities have since ceased and the range has been transferred from the Navy to the Department of Interior to be managed by US Fish and Wildlife Service as part of the National Wildlife Refuge System. Twenty-three (23) groundwater monitoring wells were installed to provide regional groundwater characterization and evaluate the potential for groundwater contamination associated with the past military activities. Split spoon samples were collected while utilizing hollow stem augers to drill through the unconsolidated soil. Air rotary tooling was then advanced into the bedrock and the boreholes were terminated once groundwater was encountered. Down-hole video logging and borehole geophysics (heat pulse flow meter, caliper, temperature and conductivity) preceded well installations. The successful completion of this project has led to additional work in Puerto Rico.

### Borehole Geophysics

Groundwater and subsurface investigations sometimes require borehole geophysics to obtain desired information. It provides a highly effective means to determine the characteristics and thickness of the different geologic materials penetrated while drilling. This project utilized a variety of geophysical logging equipment to characterize each borehole. Fluid resistivity and borehole temperature gauging, in conjunction with utilizing a heat pulse flow meter, helped to delineate water bearing zones and identify vertical flow within the borehole. Video images were recorded with a downhole camera and the borehole diameter was gauged using a caliper. Recognizing the presence of rock fractures and voids is important during the plotting of the geophysical logs. Well installation depths were determined by the information plotted the logs.

- **Project Cost:**  
\$375,885
- **Project Duration:**  
5 months
- **Project Completion Date:**  
November 2012
- **Project Reference:**  
Confidential