

PACE® ANALYTICAL SERVICES

# CASE STUDY

The Volunteer Army Ammunition Plant in Chattanooga, Tennessee partnered with Pace® Analytical Services to conduct on-site analysis for explosives, TAL metals, and PCBs



# SNAPSHOT

## CLIENT

Volunteer Army  
Ammunition Plant

## INDUSTRY

Military

## ESTABLISHED

1942

## ABOUT

The Volunteer Army Ammunition Plant in Chattanooga, Tennessee, was utilized to manufacture TNT from 1942 until 1977. In 2005, a groundwater Corrective Measures Study (CMS) was performed to further delineate contamination at the TNT Manufacturing Valley (MfV) areas. The Triad Approach was implemented; stakeholders (EPA, TDEC, AEC, Army) and the consulting/on-site laboratory team (Tetra Tech/Pace<sup>®</sup> Analytical Services) deployed a systematic planning process, resulting in a flexible work plan.

# PROJECT FEATURES

- High volume of samples collected daily (over 150), and over the duration of the 8-month project (over 10,000 samples).
- Fast TAT needed to support dynamic investigative work plan.
- Significantly reduced cost per sample compared to fixed-base laboratory, with an estimated cost savings of approximately 55% compared to standard fixed-base laboratory TAT.

# CHALLENGE

An Pace® Analytical Services on-site laboratory conducted analysis during the groundwater CMS and a concurrent shallow soil investigation. The laboratory configuration included 12 gas chromatographs (GCs) and an inductively coupled plasma mass spectrometer (ICP/MS) for analysis of soil and/or water samples for explosives, TAL metals, and PCBs.

Data generated in the Pace® Analytical Services on-site laboratory for the shallow soil investigation were used to determine potential deep soil hotspots. Tetra Tech used direct push technology to collect soil and groundwater samples from 20 feet below ground surface to depths of over 105 feet. ArcView® and Rockworks® visualization tools were used to generate 2-D and 3-D diagrams. The data generated were provided to stakeholders to review prior to a weekly conference call where the stakeholders contributed to the field decision-making process.

Over the duration of the investigations, which took place concurrently over 8 months, the on-site laboratory analyzed over 10,000 samples. Collection of sample splits was terminated after the first three months and was attributed to exceptional split sample comparability. In 2008-2009, Pace® Analytical Services returned to the site to support the FPRI remediation efforts using a similar laboratory configuration.

# BENEFITS

ANALYSIS	NUMBER OF SAMPLES	FIXED-BASE LAB COST	EXTENDED FIXED-BASE LAB COST
Explosives	7872	\$80	\$629,760
TAL Metals	3521	\$150	\$528,150
PCBs	1411	\$75	\$105,825

Total Estimate for Fixed-Base Lab: \$1,263,735

Pace® Analytical Services  
On-Site Laboratory Cost: \$566,787

**Percent Savings: 55%**

**Average Cost Per Test: \$44**