

UVOST[®]

Ultra-Violet Optical Screening Tool

At Dakota Technologies, we understand the challenges involved in combining high tech with demanding field conditions.



Our Ultra-Violet Optical Screening Tool (UVOST[®]) is the culmination of nearly two decades of field experience as LIF service providers. Its highly sophisticated yet rugged design allows the UVOST to reliably delineate nearly any petroleum NAPL including gasoline, diesel, crude oil, kerosene, and many others. It can be deployed by any type of direct push platform. UVOST is simply the world's finest laser-induced fluorescence (LIF) system and it was built to do one thing – find petroleum NAPL.

UVOST benefits include:

- ◀ **Real-time data**— allows for “on-the-fly” guidance of the next bore-hole location, leading to better bounding of source term
- ◀ **No IDW**— true in-situ information without investigation derived waste, carryover, or handling and storage of samples
- ◀ **Fast**— production rates of 300 to 500 feet per day (typical direct push conditions)
- ◀ **Flexible**— percussion (i.e. Geoprobe[®]) or cone penetration test (CPT)
- ◀ **Color-coded logs**— the ultimate in qualitative and semi-quantitative information at-a-glance
- ◀ **High data density**— one inch/data point
- ◀ **Sensitive**— low detection limits and baselines that only laser-based systems provide
- ◀ **Selective**— fluorescence time-domain waveforms offer positive identification and interference rejection
- ◀ **Proven**— technology with nearly 20 years experience built in
- ◀ **Quality**— LIF service by the scientists who pioneered commercial LIF
- ◀ **UVOST-HP**— UVOST is now available with built-in hydraulic profiling capability for comprehensive subsurface characterization using a single tool

Our innovative UVOST mates with direct-push platforms such as Geoprobe and CPT. UVOST is percussion-drivable... a Dakota Technologies exclusive!

The UVOST system uses a sapphire window in the side of the direct push probe to measure front-face fluorescence of the petroleum NAPL as the probe is advanced into the soil with nearly any DPT platform.

PAH fluorescence of fuels/oils is directed back to the surface where it is analyzed. Responses are indicated in real-time on a graph of UVOST signal vs. depth.

Petroleum hydrocarbons contain significant amounts of naturally fluorescent PAHs. Laser-induced fluorescence systems consistently detect them. The UVOST system was specifically designed to respond to these challenging NAPLs and precisely log their presence versus depth.



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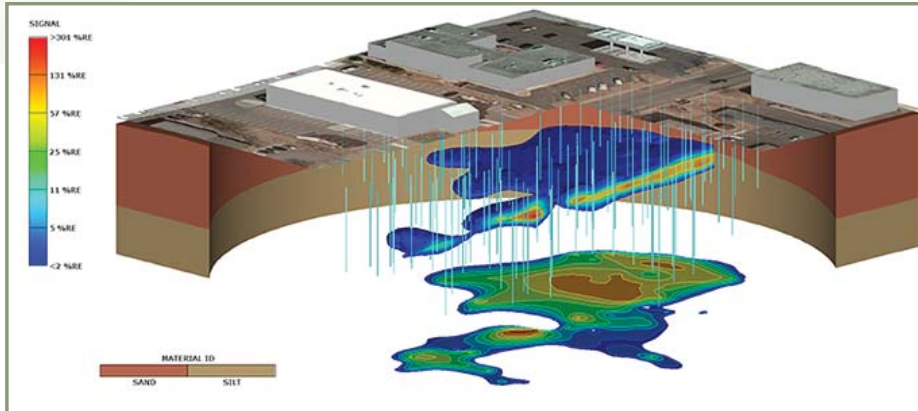
Atlanta, GA
Boston, MA
Minneapolis, MN
Morris, MN
Kansas City, MO
Fargo, ND
Columbus, OH
Charleston, SC
Virginia Beach, VA

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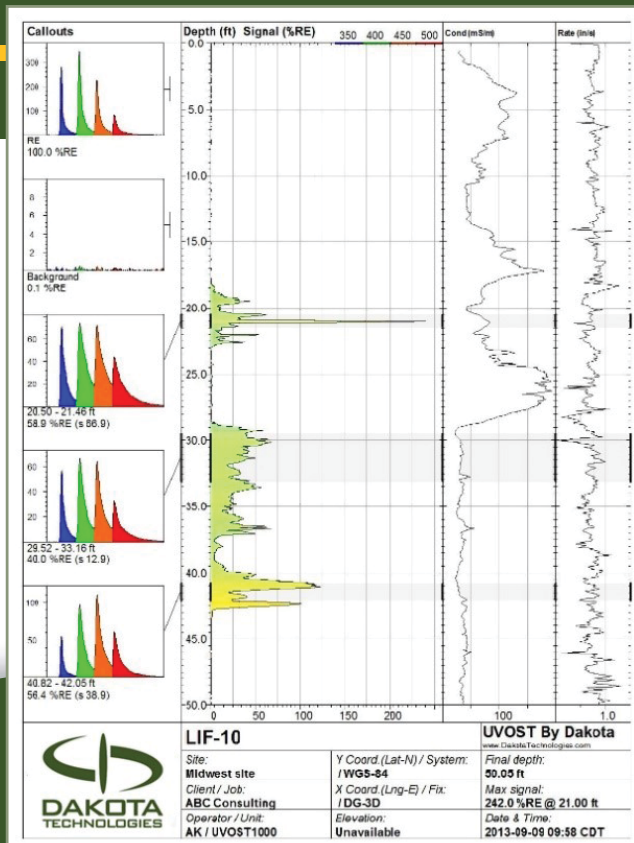
Successful remediation and treatment systems require detailed knowledge of NAPL location and distribution. UVOST provides the site characterization professional with a conceptual site model at unprecedented speed, detail, and efficiency. Traditional soil and ground water sampling techniques simply cannot compete with UVOST's production rates.

Since the first full-scale site characterization project with UVOST LIF technology in 1997, the UVOST system has been successfully applied and validated across a wide range of site conditions and deployment platforms, including Geoprobe and CPT. Nearly every major consulting firm in the U.S. has used UVOST to generate CSMs of petroleum NAPL.

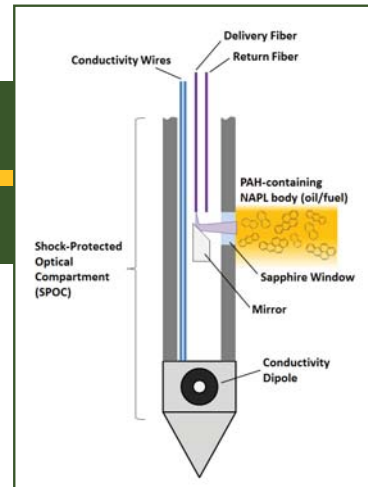


UVOST Data—Conceptual Site Model (CSM)

The end result of a UVOST boring is a high-density, non-subjective electronic data log (bottom left) readily incorporated into accurate conceptual site models. Accurate source term models lead to knowledgeable decisions, accurate treatment and removal designs, and realistic cost estimates—saving time and money.



Example Field UVOST Log



UVOST Technology Overview

PAHs fluoresce and emit longer wavelength light. This light is captured by the return fiber and sent to the surface for processing with Dakota's proprietary Optical Screening Tool (OST) software.



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