

# ULTRA-VIOLET OPTICAL SCREENING TOOL (UVOST)

Gregg Drilling & Testing, Inc. conducts Laser Induced Fluorescence (LIF) cone penetration tests using an Ultra-Violet Optical Screening Tool (UVOST) module that is located behind the standard piezocone, Figure UVOST. The UVOST works on the principle that polycyclic aromatic hydrocarbons (PAH's), located in soil and/or groundwater fluoresce when irradiated by ultra violet light. Different types of PAHs will fluoresce at different wave lengths leaving a characteristic fluorescence signature. Measuring the intensity and wavelength of the fluoresced PAH allows one to assess the type and relative concentration of PAH present in the CPT-UVOST sounding.

Performing CPT-UVOST soundings at multiple locations across a site allows for an accurate determination of the site stratigraphy and piezometric profile along with the location of the residual phase NAPL present at the site. These data can be used to select appropriate boring, sampling and monitoring well locations which allows for a more rapid, accurate and cost effective site assessment and remediation program when compared with the traditional multiphase drilling and sampling program.

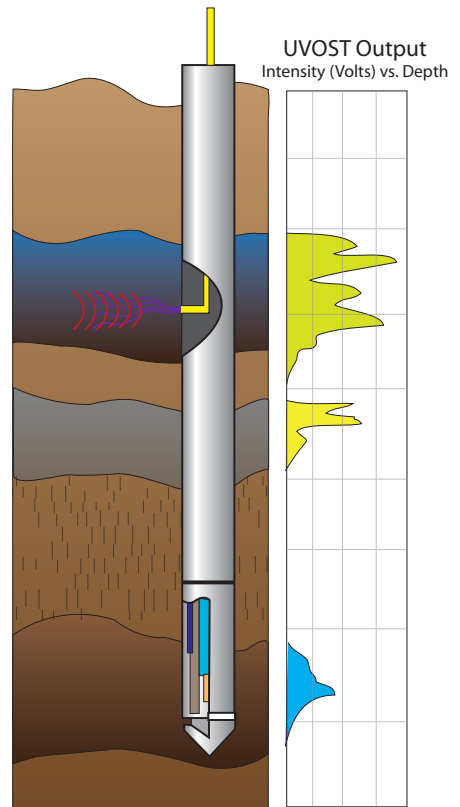


Figure UVOST: UVOST system deployed with the CPT.

The UVOST (Ultra-Violet Optical Screening Tool) module in conjunction with Cone Penetration Testing (CPT) can provide detailed stratigraphic logging *plus* hydrocarbon contaminant screening.

## HOW IT WORKS

- UV light from a laser is emitted through a window in the cone causing hydrocarbon molecules to fluoresce.
- Fiber optic cables transmit fluorescence to the surface where intensity and decay are recorded every 2 inches.
- Decay signatures determine the type of hydrocarbon contaminant and signal intensity determines the location.

## BENEFITS

- Capability to push up to 600 feet per day.
- Cost effective method to determine extent, location and type of contaminant.
- Color coded logs offer qualitative information and can be produced in the field for real-time decision making.
- No samples or cuttings and significant time savings over traditional drilling and sampling.
- Minimal site and environmental impact.

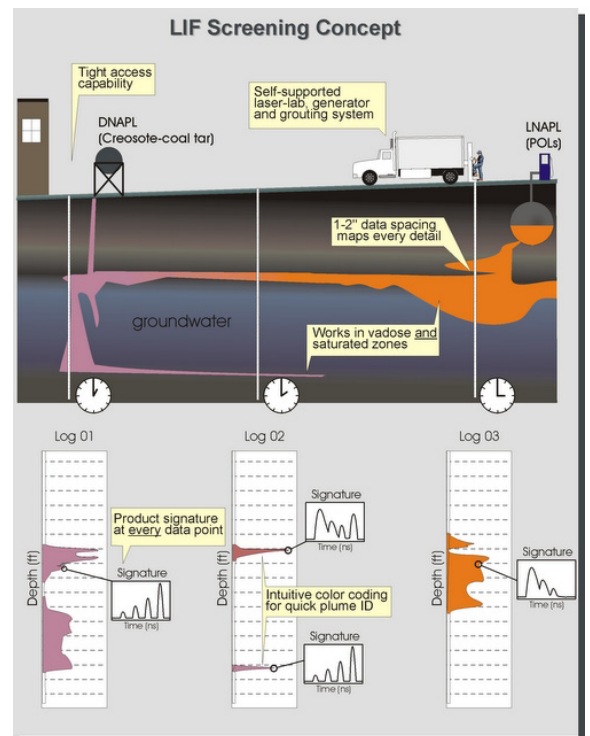


Figure Concept: Laser induced fluorescence offers a fast and efficient means for delineating PAH contaminant plumes. (Figure courtesy of Dakota Technologies)



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