



**MULTI-STATE EVALUATION OF THE SITE
CHARACTERIZATION AND ANALYSIS
PENETROMETER SYSTEM VOLATILE
ORGANIC COMPOUND (SCAPS-VOC)
SENSING TECHNOLOGIES**

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-FINAL-

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**Prepared by
The Interstate Technology and Regulatory Cooperation
Accelerated Site Characterization Work Team**

EXECUTIVE SUMMARY

A series of innovative sensors have recently been developed for deployment with the Tri-Service - Site Characterization and Analysis Penetrometer System (SCAPS) which offer the potential to characterize hazardous waste sites more rapidly and efficiently. Under the sponsorship of the Environmental Security Technology Certification Program (ESTCP), the U.S. Army Corps of Engineers Waterways Experiment Station (WES) and the U.S. Army Environmental Center (AEC) have conducted field verification demonstrations of two configurations of in-situ volatile organic compound (VOC) field screening technologies using the SCAPS; the Thermal Desorption VOC Sampler and the HydroSparge VOC Sensing System. The Thermal Desorption VOC Sampler is capable of detecting subsurface VOC contamination in the vadose zone, while the HydroSparge VOC Sensor provides detection of VOC contamination in the saturated zone.

The SCAPS VOC technologies were selected by the Interstate Technology and Regulatory Cooperation (ITRC) Work Group to undergo a technology evaluation. The Accelerated Site Characterization (ASC), Subtask II - SCAPS New Sensor Development Review Team (SCAPS Team) was established by the ITRC to facilitate interstate acceptance of SCAPS technologies. The recent effort of the SCAPS Team was directed to an evaluation of the SCAPS deployed HydroSparge VOC Sensor and the Thermal Desorption VOC Sampler.

As part of the SCAPS VOC technologies evaluation process, SCAPS Team members have participated in a number of field demonstrations, reviewed workplans, and scrutinized data. Field demonstration protocols outlined in the workplans and data obtained through field verification of the SCAPS VOC sensor/sampler have been investigated by the SCAPS Team members with emphasis on state specific; field screening, data interpretation, and site characterization issues.

The SCAPS Team has concluded that the HydroSparge VOC Sensor and the Thermal Desorption VOC Sampler should be considered site characterization tools for field screening applications. Based on the findings of the SCAPS Team evaluation of the HydroSparge VOC Sensor, it is recommended that all ITRC member states pursue acceptance of this technology. The SCAPS Team is conducting further review of field data for the Thermal Desorption VOC Sampler, and will provide a future update regarding a determination on the acceptability of the technology and recommendation for full ITRC concurrence.