



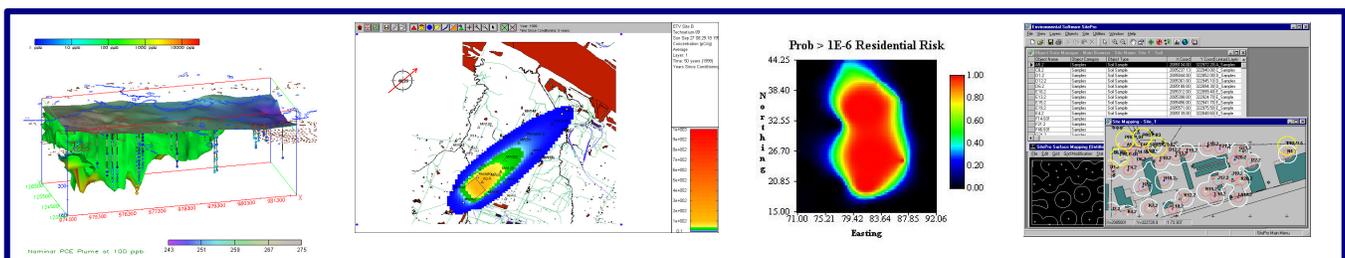
## Site Characterization and Monitoring Technologies Technology Profile

### ◆ Decision Support Software ◆

#### Technology Description

Decision support software (DSS) packages integrate environmental data and simulation models into a framework for making site characterization, monitoring, and cleanup decisions. Applications for DSS packages include the optimization of sampling locations, cost benefit analysis of additional or reduced sampling, as well as human health and ecological risk analysis as influenced by contaminant cleanup endpoints. An effective DSS package integrates, analyzes, and presents environmental information to assist a project manager in developing a cost-effective and defensible cleanup or monitoring strategy. Most DSS packages include a graphical component for the visualization of existing data. Most also incorporate some geostatistical routines that enable the user to estimate contaminant concentrations between sampling locations and to evaluate and optimize additional sampling locations. Some, but not all packages also include provisions for doing cost benefit analysis based on sampling and cleanup costs provided by the user. The features of commercially available DSS package vary considerably and the potential user must have a clear understanding of the desired level of software decision support that is needed prior to the selection of a particular package. The objective of this verification test was to conduct an independent evaluation of the capabilities of six DSS packages for three common endpoints of environmental remediation projects: data visualization, sample optimization, and cost benefit analysis. Product and contact information for the participating vendors is given below.

Technology	Vendor	Contact	Address and Web Information
<b>Environmental Visualization System (EVS)</b>	<b>C Tech Development Corporation</b>	<b>Reed Copsey</b> 714-840-7444 reed@ctech.com	16091 Santa Barbara Lane Huntington Beach, CA 92649 <a href="http://www.ctech.com">www.ctech.com</a>
<b>Spatial Analysis and Decision Assistance (SADA™)</b>	<b>University of Tennessee Research Center</b>	<b>Robert Stewart</b> 865-241-5741 stewartr1@ornl.gov	1060 Commerce Park Drive Oak Ridge, TN 37830 <a href="http://www.sis.utk.edu/cis/sada/index.html">www.sis.utk.edu/cis/sada/index.html</a>
<b>ArcView GIS</b>	<b>Environmental Systems Research Institute (ESRI)</b>	<b>Jennifer Harer</b> 703-506-9515, ext 55 jharar@esri.com	2070 Chain Bridge Road, Suite 180 Vienna, VA 22182 <a href="http://www.esri.com">www.esri.com</a>
<b>SamplingFX GroundWaterFX</b>	<b>DecisionFX, Inc.</b>	<b>Bob Knowlton</b> 505-869-0057 info@decisionfx.com	310 Country Lane Bosque Farms, NM 87068 <a href="http://www.decisionfx.com">www.decisionfx.com</a>
<b>SitePro</b>	<b>No longer in business</b>		



## **Who would use or purchase Decision Support Software?**

Environmental cleanup decisions require a multi-disciplinary analysis with many factors involved in the decision process. Software is one characterization tool that is available to anyone who needs to make a decision about remediating a site. Customers for these technologies include site managers, consulting engineers, and state and Federal regulatory personnel. Also, those involved in the evaluation of Brownfields or Superfund sites may be particularly interested in DSS.

## **Verification Test Description**

The primary objective of this verification test was to conduct an independent evaluation of each software's capability to evaluate three common endpoints of environmental remediation problems: visualization, sample optimization, and cost-benefit analysis. These endpoints were defined as follows.

**Visualization** — using the software to organize and display site and contamination data in ways that promote understanding of current conditions, problems, potential solutions, and eventual cleanup choices;

**Sample optimization** — selecting the minimum number of samples needed to define a contaminated area within a predetermined statistical confidence;

**Cost-benefit analysis** — assessment of either the size of the zone to be remediated according to cleanup goals, or estimation of human health risks due to the contaminants. These can be related to costs of cleanup.

The vendors were permitted to select the endpoints that they wished to have verified because each piece of software had unique features and focused on different aspects of the three endpoints. The verification test plan can be found at [www.epa.gov/etv](http://www.epa.gov/etv)

## **Technology Performance Factors**

The results of the verification tests can be downloaded from our web site at [www.epa.gov/etv](http://www.epa.gov/etv). The following is a list of performance factors that are discussed in the verification reports.

- |                                  |   |
|----------------------------------|---|
| ✓ Decision Support               | ✓ Documentation of Analysis             |
| ✓ Ease of Use                    | ✓ Comparison with Baseline Analysis     |
| ✓ Operator Skill Level           | ✓ Efficiency and Range of Applicability |
| ✓ Training and Technical Support | ✓ Platform                              |

## **For More Information**

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