Saving Time and Money:

The Brownfields and Land Revitalization Technology Support Center

About the BTSC

The Brownfields and Land Revitalization Technology Support Center (BTSC, formerly the Brownfields Technology Support Center) provides technical support to federal, state, local, and tribal officials for questions related to the use of innovative technologies and strategies for site assessment and cleanup. Since beginning operations in the Fall of 1998, the BTSC has responded to more than 100 requests for support at brownfields sites and, more recently, Superfund sites. The types of services provided by the BTSC include:

- Reviewing documents, including requests for proposals, work plans, field sampling plans, and other project documents
- Providing information about the use of innovative and field-based technologies for site investigation and cleanup

Innovative technologies and strategies, such as the Triad approach, are used to streamline redevelopment by lowering costs and decreasing project time frames. The Triad approach is a systematic approach synthesizing practitioner experience, lessons learned, and technology advancement into a next-generation framework improving cost-effective management of contaminated sites.

BTSC Partners

The Center is a cooperative effort to provide technical support to federal, state, local, and tribal officials for matters related to the use of technologies for site assessment and cleanup. Partners in the BTSC include the U.S. Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response (OSWER) and Office of Research and Development (ORD); the U.S. Army Corps of Engineers; and Argonne National Laboratory. As a Center partner, EPA's Brownfields Program helps to identify support needed by EPA's Brownfields Program participants.

EPA Contact:

EPA Office of Superfund Remediation and Technology Innovation
Phone: (703) 603-7196
E-mail: powell.dan@epa.gov

Are traditional site assessment and cleanup approaches too time-consuming and expensive to support the redevelopment of a site?

Are you:

- Looking for input on the review of project documents, such as requests for proposals, work plans, field sampling plans, or quality assurance project plans?
- Considering the potential for incorporating one or more elements of the Triad approach?
- Looking for information about the use of field-based technologies for site assessment and cleanup?
- Looking to incorporate dynamic work strategies and decision support tools during site assessment?
- Evaluating remedial technologies and their advantages and limitations in light of site-specific features and needs?
- Seeking information to provide to technical and nontechnical stakeholders?

The BTSC May Be Able to Help You!
www.brownfieldstsc.org
Toll-free: (877) 838-7220

Requesting Support from the BTSC

Local and state government personnel, EPA personnel, and tribes may request site-specific support for brownfields and Superfund sites from the BTSC at no cost. In addition, EPA's Brownfields Program identifies support needs for program participants; however, BTSC support is not limited to those participating in EPA's Brownfields Program. Support may be requested online, through EPA's regional offices, or via the toll-free telephone number.

Direct Support Available from the BTSC

Planning Support

Planning support includes planning for the use of innovative technologies and strategies, such as the Triad approach, at a specific brownfields or land revitalization site. Support includes evaluating available documents to assess how to incorporate elements of the Triad, such as better use of field analytic technologies, and can include activities related to planning for procurement under a Triad approach or use of decision support tools such as **Fi**eld **E**nvironmenta**l** **D**ecision **S**upport (FIELDS), Spatial Analysis Decision Assistance (SADA), Visual Sampling Plan (VSP), or Scribe.

Document Reviews

Document reviews include technical reviews of requests for proposals (RFP), sampling and analysis plans (SAP), quality assurance project plans (QAPP), feasibility studies, engineering designs, or work plans. The Center evaluates the documents with regard to technology options, implementation processes, use of the Triad approach, and other appropriate elements.

Technology Scoping for Site Assessment or Investigation Technologies and for Cleanup Technologies

Technology scoping includes preparing lists of potentially applicable technologies along with brief analyses of their advantages and disadvantages under specific conditions at a site and in light of the specific features and needs of a site. This function is not a formal review or approval process, but can provide decision makers with preliminary information in support of decisions or approvals.

Technology Descriptions

Technology descriptions include brief (several pages) "layman's" guides describing a specific technology or technique. The guides can assist decision makers in more fully understanding the principles of the technology (along with its cost and the time necessary to implement it) and assist them in communicating the appropriateness of a technology to constituents and stakeholders interested in a specific site.

Review of Literature and Electronic Resources

Literature and resource reviews include available information resources for technologies or classes of technologies relevant to specific decisions at a site. The purpose of the reviews is to allow stakeholders an opportunity to broaden their understanding of the technology options available for use at their sites.

Demonstration Planning Support

Drawing upon the expertise of the EPA Superfund Innovative Technologies Evaluation (SITE) program, the Center provides planning assistance and technical review capabilities to localities that are seeking to arrange demonstrations and evaluations of innovative sampling, analytical, or treatment technologies.

Information Resources Available from the BTSC

The BTSC has many resources available on the web site www.brownfieldstsc.org. The center has prepared the following information resources to assist brownfields and land revitalization decision makers identify and select innovative site characterization and cleanup technologies for redevelopment.

In the News

This section of the BTSC Web site contains examples of recent site support provided by the BTSC, pertinent brownfields and land revitalization information from EPA, and upcoming related events.

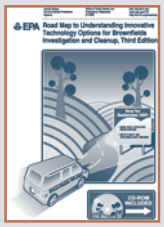
Information Resources Available from the BTSC (continued)

Procurement Corner

Procurement Corner provides information about the procurement of innovative technologies and strategies. Procurement Corner includes resources that discuss the methods and strategies that have been successfully used to procure services under a Triad approach as well as procurement in support of innovative technologies and strategies. Specific examples of procurement-related materials relevant to the implementation of Triad-like projects are included from federally funded and federally managed projects, as well as projects managed by states, local governments, and private site owners.

Publications/Other Information

The BTSC provides links to a variety of publications, online resources, and other related Web sites. Some recent resources that have been developed by the BTSC include:



Road Map to Understanding Innovative Technology Options for Brownfields Investigation and Cleanup , Fourth Edition (EPA 542-B-05-001)

EPA produced the fourth edition of this publication to assist a broad audience of brownfields stakeholders in identifying and selecting innovative site characterization and cleanup technologies during the redevelopment process. An interactive online version of the Road Map is available at http://www.brownfieldstsc.org/roadmap/home.cfm.

Mine Site Cleanup for Brownfields Redevelopment: A Three-Part Primer (EPA 542-R-05-030)

This primer provides detailed information about the characterization, remediation, and redevelopment of coal and hard rock mining sites.

Use of Dynamic Work Strategies Under a Triad Approach for Site Assessment and Cleanup - Technology Bulletin (EPA 542-F-05-008)

This bulletin presents information on the planning and implementation of dynamic work strategies (DWS) and identifies the types of strategies that are used to manage uncertainty in a DWS.

Understanding Procurement for Sampling and Analytical Services Under a Triad Approach (EPA 542-R-05-022)

This document provides information about methods and strategies that have been successfully used to procure services under a Triad approach.

All information resources available from the BTSC, as well as access to direct support, are available online at *www.brownfieldstsc.org*

BTSC publications are available at www.brownfieldstsc.org/pubs01.cfm. Printed or hard copy versions of the publications are available through EPA's National Service Center for Environmental Publications (NSCEP). Documents may be ordered from NSCEP online, by telephone, or by facsimile. Please include the EPA document numbers of all publications ordered.

NSCEP National Service Center for Environmental Publications
U.S. Environmental Protection Agency
P.O. Box 42419
Cincinnati, OH 45242
Telephone: (800) 490-9198
Telephone: (513) 489-8190 (Government Employees)
Fax: (513) 489-8695
www.epa.gov/ncepihom

Solid Waste and
Emergency Response
(5102G)

EPA-542-F-06-018
November 2006
www.epa.gov/tio

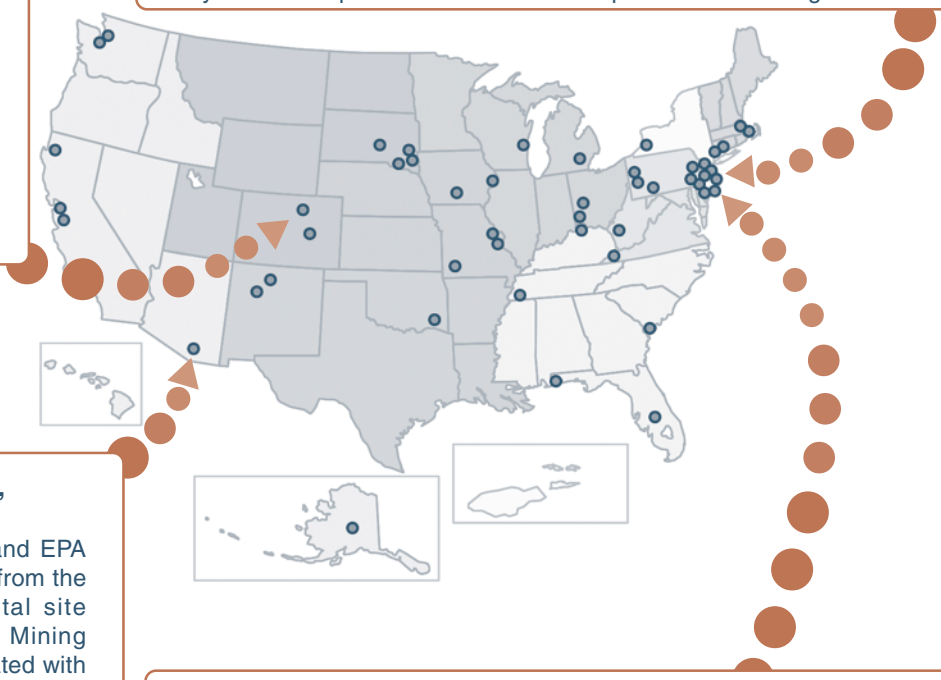
Examples of Site-Specific Support Provided by the BTSC

Cache La Poudre River Site, Fort Collins, CO

The Cache La Poudre River site received a Targeted Brownfields Assessment (TBA) grant in May 2003. The site contains a 12-acre landfill and is adjacent to a historical manufactured gas plant. Contaminated groundwater and DNAPL have migrated onto the site and DNAPL has been identified in the river. The BTSC supported use of the Triad approach for site characterization, including development of a conceptual site model and planning for use of field analytical techniques.

Cos Cob Power Plant, Greenwich, CT

This site was used as an electrical generating station and was contaminated with petroleum compounds, as well as polychlorinated biphenyls (PCBs) and arsenic. EPA Region 1 was interested in using a dynamic investigation strategy based on the Triad approach for site assessment. The BTSC supported the Region by helping to develop and implement a dynamic work strategy, including use of various field analytical techniques. The effort was completed within a single mobilization.



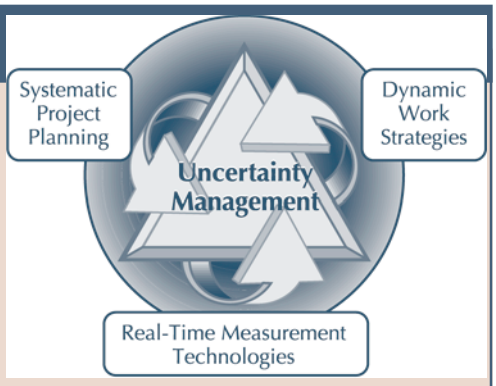
Minerec Mining Chemical Facility, Tuscon, AZ

The Tohono O'odham Nation (TON) and EPA Region 9 requested technical support from the BTSC for planning an environmental site investigation at the former Minerec Mining Chemical facility, which was contaminated with a variety of compounds including sulfur-containing chemicals. The TON had developed a draft SAP to be used to guide the investigation. The BTSC reviewed the SAP and provided feedback on potential alternatives for chemical analysis and to evaluate the potential for use of the Triad in the investigation.

Milltown Redevelopment Site, Milltown, NJ

The Middlesex County Improvement Authority received an EPA Brownfields grant to perform an environmental site characterization at a site located in downtown Milltown, NJ. The site has a long history of industrialization dating back to the mid 1800's, including rubber manufacturing and various types of services. The BTSC is supporting the use of the Triad approach for the site assessment, including the use of decision support tools such as SADA and Scribe.

The Triad Approach



The Triad approach is used to **manage decision uncertainty** - to increase confidence that project decisions about contaminant presence, location, fate, exposure, and risk reduction choices and design are made correctly and cost-effectively. Triad elements are:

- **Systematic project planning** – includes development of consensus on the desired outcome (end goal) for the site/project; preliminary conceptual site model (CSM); a list of the various regulatory, scientific and engineering decisions that must be made in order to achieve the desired outcome; a list of the unknowns that stand in the way of making those decisions; and strategies to eliminate or "manage around" those unknowns.
- **Dynamic work strategies** – consist of work planning documents written in a dynamic or flexible mode that guide the course of the project and enable it to adapt in real-time (while the work crew is still in the field) as new information becomes available.
- **Real-time measurement technologies** – consist of a range of technologies supporting real-time measurements, including field analytical techniques, in situ sensing systems, geophysics, rapid turn-around from traditional laboratories, and computer systems that store, display, map, manipulate, and share data.