



# Quarterly Update

June 2002

## Mark your calendars now... and stand by for details

Autumn in the nation's capitol can be beautiful, and you can be there to see it! ITRC's Fall Meeting will be in Washington, D.C. Plan to vote early, and then make your way to D.C. on the afternoon or evening of November 5. The meeting will run November 6–8. With membership having grown 50% in the past year, the emphasis of the meeting will be on strengthening the ITRC organization and building a common understanding of how the work of individual members and teams fits together to move the whole organization forward. We plan to devote November 7 to focusing on the ITRC organization as a whole by sharing lessons learned across teams, team progress and accomplishments, and ITRC's direction in 2003. Team meetings will likely be held November 6 and/or 8. Specific agenda details and final selection of the hotel are still in the works. Watch your mail and e-mail and ITRC's Web site for more details in the next few weeks.

## Two new ITRC documents

With the publication of each guidance document, ITRC steadily builds its reputation as the recognized authority on the appropriate use and regulation of innovative environmental technologies. That reputation has recently been enhanced by two new guidance documents from the DNAPLs and Radionuclides Teams.

*DNAPL Source Reduction: Facing the Challenge* (DNAPLs-2) examines the current regulatory climate for deploying technologies to efficiently treat DNAPL source zones. While outlining the pros and cons of partial source removal, *Facing the Challenge* confronts assumptions about the infeasibility of removing DNAPLs from certain geological settings where recent advances have made significant source reduction more feasible and cost-effective. The report acknowledges the technical difficulties and uncertainties surrounding DNAPL source zone reduction and supports further research to study the impacts of reduced source zone mass on groundwater quality and risk to human health and the environment.

*Determining Cleanup Goals at Radioactively Contaminated Sites: Case Studies* (RAD-2) discusses the requirements of federal regulations and agencies, explains variations in risk assessment approaches, and examines the development of cleanup levels at a dozen radioactively contaminated Department of Energy sites. This document

facilitates a common understanding among states, stakeholders, sites, and agencies of how various cleanup levels have been and could be derived, making the process more efficient, defensible, and consistent. The Radionuclides Team believes that consistency in developing cleanup goals will encourage selection and deployment of appropriate environmental characterization and remediation technologies.

Both documents can be downloaded from the Web site ([www.itrcweb.org](http://www.itrcweb.org)), along with more than 30 other ITRC-developed guidance documents. For hard copies, e-mail your requests to [itrc@wpi.org](mailto:itrc@wpi.org).

## STATE ENGAGEMENT UPDATE

### POCs commit to bringing greater ITRC value to their states

The ITRC state points of contact (POCs) held their midyear meeting in Phoenix, Ariz., May 20–22. The meeting focused on strengthening state commitment and setting the future direction of ITRC.

#### ❖ Strengthening state commitment

ITRC has become an even more valuable organization for many states as they face budget cuts during the economic downturn. State environmental agencies are looking to ITRC to provide training, guidance documents, and other resources to make their operations as efficient as possible. During the midyear meeting, POCs discussed and strategized on how to build even stronger state participation in ITRC as a way to help states meet their agency missions and goals.

#### ❖ POCs finalize new proposals based on state priorities

In September 2001, POCs began the process of identifying their states' priority areas for future ITRC efforts. These priorities were vetted with our federal partners at the ITRC 2001 Fall Conference. Since then, POCs have initiated project proposals based on those priorities. The Phoenix POC meeting was the culmination of this effort and has produced the following proposals for possible incorporation into the ITRC Five-Year Program Plan:

- ▼ *Mitigation of Impacts of Confined Animal Feedlot Operations (CAFOs)*—Texas
- ▼ *Characterization, Remediation, Treatment, and Stabilization of Heavy-Metal Mining Wastes*—Missouri

- ▼ *Risk Assessment and Risk Management Resources*—Arkansas and California
- ▼ *Indoor Air Investigation, Characterization, and Remediation*—Kansas
- ▼ *Mercury*—Georgia
- ▼ *Treatment Technologies for Arsenic in Groundwater*—New Mexico and Arizona

Including the project proposals submitted by POCs, ITRC has received close to 30 proposals for potential projects to be undertaken by the organization.

### ❖ State priorities influence ITRC direction

While at the Phoenix meeting, POCs geared up for the prioritization of ITRC proposals seeking funding in 2003. The deadline for all proposals to be submitted to ITRC was June 1. During the month of June, POCs will prioritize all ITRC project proposals based on their states' environmental priorities and needs. State input will then be submitted to the ITRC Board of Directors to give direction on the future of ITRC.

### ❖ POCs renew commitment to the ITRC concurrence process

POCs reaffirmed their commitment to the process of concurring on ITRC technical and regulatory guidance documents. The concurrence process serves as a formal mechanism to gain state commitment to use ITRC products and services. In addition, concurrence on ITRC technical and regulatory guidance documents provides predictability for parties wanting to use an innovative technology in an ITRC state. During the remainder of 2002, ITRC teams—DNAPLs, Constructed Wetlands, Small Arms Firing Range, In Situ Bioremediation, UXO, and Permeable Reactive Barriers—plan to submit technical and regulatory guidance documents for state review/comment and concurrence.

The State Engagement Team welcomes our new POCs: Forrest Brooks (Tex.) and Steve Wust (N.M.). Welcome aboard!

If you would like more information on ITRC State Engagement activities, please see the ITRC Web site at [www.itrcweb.org](http://www.itrcweb.org), or contact Paul Hadley, ITRC State Engagement coordinator, [phadley@dtsc.ca.gov](mailto:phadley@dtsc.ca.gov), (916) 324-3823 or ITRC program advisors, Mary Yelken, [myelken@westgov.org](mailto:myelken@westgov.org), (402) 325-9615 or Cain Diehl, [diehl@sseb.org](mailto:diehl@sseb.org), (770) 242-7712. Your ITRC state point of contact is also an ITRC resource (contact information available at [www.itrcweb.org](http://www.itrcweb.org).)

## TECHNICAL TEAM UPDATES

### ❖ Alternative Landfill Technologies (ALT)

The ALT Team has submitted draft case studies of sites that have implemented alternative landfill covers. After the case studies are peer reviewed within the team, they will be incorporated into the team's first product—*Case Studies of Alternative Landfill Covers*. The team will then begin working on its first technical/regulatory document. The team will also serve as a resource to the U.S.

Environmental Protection Agency (USEPA) during its development of guidelines for the design, construction, and monitoring of alternative landfill covers for solid and hazardous waste. Charles Johnson (Colo.) leads the ALT Team. Reach Charles at (303) 692-3348, [charles.johnson@state.co.us](mailto:charles.johnson@state.co.us).

### ❖ Brownfields

The goal of the Brownfields Team is to develop guidance and workshops to facilitate the cleanup and reuse of brownfields properties. The first major task of the team is working with the U.S./German Bilateral Working Group, a 10-year partnership of USEPA, New Jersey, and the German environmental ministry that has focused on the implementation of cleanup technologies in the two countries. Recently, the U.S./German Bilateral Working Group has been investigating a broad spectrum of activities related to brownfields redevelopment, including the analysis of scientific, economic, and social issues that impact brownfields reuse. The initial focus of the Brownfields Team is to review documents being developed by the U.S./Germany Bilateral Working Group in the area of brownfields.

The first such product is a Site-specific Management Approach and Redevelopment Tools (SMART) Plan. As part of the development of this plan, the Brownfields Team is helping the bilateral working group identify model project sites to serve as case studies for the SMART Plan. The bilateral working group is in the initial stages of development of the SMART Plan; a draft will be produced in 2002. The Brownfields Team nominated approximately 30 model project sites from around the country—sites that are at various stages of being redeveloped. The sites that are further along in redevelopment can offer lessons learned and serve as case studies for the development of the SMART Plan, while sites that are just beginning the redevelopment process can serve as beta sites to test the draft SMART Plan. From the initial 30 sites that were nominated, the Brownfields Team has chosen to complete case studies on 11 sites for implementation of the SMART Plan. When the bilateral working

group meets in Heidelberg in June, it will consider a diversity of challenges, solutions, and lessons learned from brownfields model projects selected from the United States and Germany.

The Brownfields Team has organized itself into subteams to research three issues impacting brownfields redevelopment: indoor air impacts, dynamic work plans, and long-term monitoring and engineering controls. The Indoor Air Group will first define the problem of contaminant volatilization impacting indoor air and will seek an understanding of how pervasive the problem is. The Dynamic Work Plans Group will work closely with the Sampling, Characterization, and Monitoring Team in researching how characterization data can be integrated on site and in real time to streamline site characterizations, lower costs, and improve the process for obtaining usable data. Another issue having a potential impact on redeveloped sites is long-term stewardship and maintenance of monitoring or engineering controls. The Long-term Monitoring and Engineering Controls Group will examine a variety of mechanisms states have implemented to ensure public health and safety relative to redeveloped properties, including tracking systems for deed restrictions and restrictive covenants. The information gathered by the groups will support the Brownfields Team in developing future guidance documents and trainings. Terri Smith (N.J.) leads the Brownfields Team and can be reached at (609) 984-3122, tsmith3@dep.state.nj.us.

## ❖ Constructed Wetlands

The Constructed Wetlands Team is holding monthly conference calls to check the status of written material review sections already incorporated into the draft guidance. The team recently finalized a questionnaire for collecting case studies for use in developing its *Technical and Regulatory Guidance for Constructed Treatment Wetlands*. Case studies form the basis for understanding results of demonstrations and applications in the field and enable the team to identify barriers imposed by environmental regulations, site characteristics, and misapplication or immaturity of the technique. Case studies enable the team to formulate solutions that encourage more predictable and successful application of constructed treatment wetlands.

The questionnaire is designed to take 10 to 15 minutes to complete by someone familiar with a site. The team will conduct follow-up telephone calls to site contacts based on the most useful case studies they receive. The team realizes that field applications and tests may reveal unsuspected barriers. The goal is to identify those barriers and help overcome them while encouraging more familiarity

and acceptance of constructed treatment wetlands. To obtain a copy of the questionnaire, contact Constructed Wetlands coleaders Bob Mueller (N.J.) at (609) 984-3910, bmueller@dep.state.nj.us or Dib Goswami (Wash.) at (509) 736-3015, dgos461@ecy.wa.gov.

## ❖ Contaminated Sediments

The Contaminated Sediments Team is a new team for 2002 and was formed to address management of large volumes of dredged materials and contaminated sediments in lakes, streams, estuaries, navigational channels, and harbors using innovative technologies. The team had a late start but has now decided to proceed along three fronts. The team will begin by developing an overview document that encompasses sediment characterization, remediation technologies, and risk assessment. This overview document will entail the gathering of relevant case studies, and the team plans to develop a format for gathering data. The team is also involved in reviewing a recent Navy policy guidance on contaminated sediments, which will support the team in developing its own guidance. Rich DeWan of New Jersey is leader of the Contaminated Sediments Team and can be reached at (609) 777-1914, richard.dewan@dep.state.nj.us.

## ❖ Dense Nonaqueous Phase Liquids (DNAPLs)

The DNAPLs Team celebrated a significant milestone with the publication of its second document—*DNAPL Source Reduction: Facing the Challenge* (see article on page 1). The DNAPLs Team is now working hard on three additional documents with tentative release dates in early 2003:

- ▼ *Guidelines for Characterizing DNAPL Contamination,*
- ▼ *Surfactant/Cosolvent Flushing Guidance Document,* and
- ▼ *Regulatory Guidance for In Situ Thermal Remediation of DNAPL Source Zones.*

The team's summer and early fall activities are geared toward getting drafts of the three documents ready for comments by POCs and other peer reviewers. The team is also collaborating with the U.S. Army Corps of Engineers and USEPA's Technology Innovation Office on development of an engineering manual for in situ thermal remediation. DNAPLs Team members will draft sections of the document pertaining to regulatory issues and contribute case summaries. The DNAPLs Team met in early June in Denver in conjunction with USEPA's Technical Support Project. Several members of the team visited an ongoing thermal remediation project while in Denver.

Eric Hausamann (N.Y.) leads the DNAPLs Team and can be reached at (518) 402-9759, eghausam@gw.dec.state.ny.us.

### ❖ Diffusion Samplers (DS)

The Diffusion Samplers Team had an exceptionally successful meeting in Salt Lake City in early March during the ITRC Spring Meeting. Twenty-four individuals participated, including seven by conference call. Detailed notes on the meeting can be found at the Diffusion Sampler Information Sampler (DSIC) Web site at <http://ds.itrcweb.org>.

Many of the people who joined the discussion by conference call presented topics. James Taylor led a discussion on passive diffusion bag sampler (PDBS) evaluations conducted at McClellan AFB. Mark Malinowski presented information on Mather AFB sites and the data collected there. Hugh Rieck and George Nicholas presented draft state guidance (Arizona and New Jersey, respectively) on the use of PDBSs. Mike Barry reviewed the pilot PDBS study at Brunswick, Maine Naval Air Station. Dee O'Neill and Brad Varhol described the manufacture and quality assurance procedures for PDBSs manufactured by Columbia Analytical Services and EON Products, respectively. Don Vroblecky discussed new approaches in passive diffusion sampling, including the passive vapor diffusion sampler, the nylon-screen diffusion sampler, the dialysis membrane sampler, and semipermeable membrane devices.

The Diffusion Samplers Team recently published a consensus decision tree document to aid in the selection of sites amenable to PDB sampling. The document—*Technical Decision Analysis for the Potential Use of Passive Diffusion Bag Samplers for Long-Term Monitoring*—is available in the library section of the DSIC Web site. This document is very useful for those considering implementation of a diffusion bag sampler program. The writing of a position paper on the use of PDBSs is under way with the aim of producing a final version before the ITRC Fall Meeting in November. The scheduled team meeting in Annapolis, Md. on August 27–28 will be focused on this document.

The DS Team has continued to expand and enhance its DSIC Web site. The library section includes guidance documents, technical papers, definition of terms, and presentations, as well as site-specific documents. Visit the DSIC at <http://ds.itrcweb.org>. George Nicholas (N.J.) is the leader of the DS Team and can be reached at (609) 984-6565, gnichola@dep.state.nj.us.

### ❖ In Situ Bioremediation (ISB)

The In Situ Bioremediation Team has completed the final draft of *Systematic Approach to In Situ Bioremediation in Groundwater*, including decision trees on ISB of nitrates, perchlorate, and carbon tetrachloride. The team has sent this draft to the University of Nebraska for an independent review, then will forward it to the state POCs for a concurrence review and final edit before printing. In the meantime, the team is developing its Internet-based training.

The team has developed an outline and selected primary and alternate instructors for the training. The curriculum will cover information for evaluating a site's suitability for an ISB approach, as well as the degradation mechanisms for any contaminant of concern. The instructors will cover why it is important to fully understand site history; health concerns; and the chemical, biological, and ecological effects of contaminants, as well as how to characterize a site for ISB. They will describe the kinetics and stoichiometry of biologically mediated reactions, common rate-limiting compounds and their effects, and major limitations and solutions offered by ISB.

An integral part of the curriculum will be describing the advantage of using the decision trees; however, the limitations of the techniques and regulatory issues will also be discussed. As always, instructors will use case studies throughout the two-hour course to provide a pragmatic foundation for the course. Questions should be directed to ISB Team leader Bart Faris (N.M.), (505) 841-9466, [bart\\_faris@nmenv.state.nm.us](mailto:bart_faris@nmenv.state.nm.us).

### ❖ MTBE-Contaminated Groundwater

MTBE (methyl tertiary-butyl ether) is almost exclusively used as a fuel additive in motor gasoline. Because MTBE raises the oxygen content of gasoline, it and similar chemicals are known as oxygenates. Oxygen helps gasoline burn more completely, reducing harmful tailpipe emissions from motor vehicles. However, MTBE and other oxygenates like TBA (tertiary-butyl alcohol) frequently cause groundwater contamination when gasoline leaks from underground storage tanks or is improperly handled or disposed of. Research into remediation technologies that are effective for MTBE has only recently begun, and the MTBE-Contaminated Groundwater Team plans as its initial contribution to develop a technology overview of available and emerging technologies suitable for remediating MTBE- and TBA-contaminated groundwater.

The MTBE Team, which met in Arlington, Va. during the middle of May, has developed a rough outline and assigned tasks for its technology overview. The team will revise the outline based on its review of a USEPA MTBE document. Another planned work effort by the team for 2002 is building an MTBE case study database. By June's end, the MTBE Team hopes to have an outline and establish schedules and milestones for its database, which the team will maintain and expand throughout its existence. Fred McGarry (N.H.) leads the MTBE Team. Fred can be reached at (603) 271-4978, [fmcgarry@des.state.nh.us](mailto:fmcgarry@des.state.nh.us).

## ❖ Permeable Reactive Barriers (PRBs)

PRBs Team leader Matt Turner of the New Jersey Department of Environmental Protection has been working with DOE, USEPA, and DoD updating guidance on long-term performance and monitoring of PRBs. The agencies conducted field performance evaluations of several PRBs installed at sites under their purview. The general goal was to evaluate the longevity and hydraulic performance of several PRBs in various geologic settings. The resulting report contains project summaries, including conclusions and recommendations.

PRBs are emerging as an entire new class of technologies. Just as with pump-and-treat systems, different hydraulic capture configurations and different permeable barrier media are making it possible to address a number of contaminants of concern under a number of different site characteristics. Because zero-valent iron barriers were the first and most common PRBs installed, the triagency study focused primarily on iron barriers. Especially for the longevity evaluation, it was important to focus on sites with a history of at least a few years of operation. All the PRBs evaluated in this study were of the trench type (excavate-and-fill type). The more innovative PRB installations, where the reactive medium is injected into the ground using special methods such as jetting or hydraulic fracturing, were not evaluated. The performance of injected PRBs is more difficult to evaluate in the field and was beyond the scope and resources of these studies. However, the general conclusions of this study are expected to be applicable to several different types of PRBs, a technology that typically relies on passive groundwater capture and treatment.

In the short term, the key performance issue is the ability of the PRB to prevent the target contamination from progressing beyond the plume cutoff location and thus reducing the risk to down-gradient receptors. In the long term, the key performance issue is longevity—how long a PRB may be expected to retain its reactive and hydraulic

performance. Although postinstallation monitoring was the primary tool used by the three agencies in this study, both short-term and long-term issues are best addressed in the preinstallation design stage at any prospective PRB site. Therefore, many of the study's recommendations relate to the measures that can be taken in the design of a PRB. Once a PRB is installed, modifications can be relatively expensive; therefore, it is more important to get the PRB designed and installed right.

Preinstallation monitoring (site characterization) is an important tool in achieving a good design.

Postinstallation monitoring is required to verify compliance and to identify long-term performance trends. Lessons learned from this study in terms of the monitoring tools available and their effectiveness provide important pointers for future sites. The draft report is available on the PRB Team page and is currently being reviewed by the PRB Team. Team leader Matt Turner can be reached at (609) 984-1742, [mturner@dep.state.nj.us](mailto:mturner@dep.state.nj.us).

## ❖ Radionuclides (RADs)

With the publication of its second document—*Determining Cleanup Goals at Radioactively Contaminated Sites: Case Studies* (see article, page 1)—the Radionuclides Team has started to work with DOE and USEPA in developing updated radiation risk assessment training to be offered in classrooms and on the Internet. The training will help state, tribal, and federal agencies apply updated guidance in conducting risk assessments, as well as develop more consistent approaches.

The Long-Term Stewardship (LTS) subgroup of the RADs Team is working to develop a document on LTS technologies related to disposal cells. The document is tentatively titled *Stewardship and Technology: States' Perspectives on Challenges for Future Management of Radiologically Contaminated Sites*. The LTS subgroup is coordinating activities with the Environmental Council of the States and with DOE's Office of Environmental Management. As part of this effort, the team drafted a survey questionnaire for its use in collecting information. In June, the leaders of the RADs Team will participate in the Federal Remediation Technology Roundtable in Washington, D.C. The team plans to meet in Oak Ridge, Tenn. in mid-June. RADs Team leaders are Tom Schneider (Ohio), who can be reached at (937) 285-6466, [tom.schneider@epa.state.oh.us](mailto:tom.schneider@epa.state.oh.us), and Carl Spreng (Colo.), who can be reached at (303) 692-3358, [carl.spreng@state.co.us](mailto:carl.spreng@state.co.us).

### ❖ Remedial Process Optimization (RPO)

The Remedial Process Optimization Team seeks to join forces with RPO (also known as remedial system optimization or remedial system evaluation) teams from the military services and other federal agencies in investigating ways to optimize various remediation and long-term monitoring systems. By working with RPO teams from the Air Force, Navy, the U.S. Army Corps of Engineers, DOE, USEPA, and other stakeholders, the ITRC RPO Team hopes to establish a multiagency team to implement an improved process for optimizing remediation and monitoring systems.

The team has participated in RPO reviews at Norton, March, and Mather Air Force bases in California, all under the aegis of the Air Force Base Conversion Agency. A remedial process optimization review is a technical and programmatic assessment of an installation's cleanup system performance and effectiveness to achieve site closure. The team held a teleconference in early April to discuss the outcome and potential lessons learned from the Norton and March RPO visits and to update the ITRC Five-Year Program Plan. The team also scheduled another teleconference for early June to discuss the Mather RPO scoping visit, potential lessons learned, summer meetings, and proposed FY03 activities. It is anticipated that in FY03 the team will expand beyond assessments at Air Force sites to see how other federal sites are optimizing remediation. If you are interested in attending an RPO Team visit or participating on the team, please contact team leader Tom O'Neill at (609) 292-2150, [toneill@dep.state.nj.us](mailto:toneill@dep.state.nj.us).

### ❖ Sampling, Monitoring, and Characterization (SMC)

The Sampling, Monitoring, and Characterization Team is working closely with USEPA's Technology Innovation Office on acceptance of the Triad Approach, an innovative approach to characterization that incorporates systematic planning, dynamic work plans, and on-site analytical tools. Members continue their individual efforts to gather materials for a technical/regulatory document on the Triad Approach. Team leader Stuart Nagourney made a presentation about the team at the New Jersey Water and Environment Federation on April 30. Final plans and preparations have been made for the team's meeting in June at Port Hueneme, Calif. Team leader Stuart Nagourney (N.J.) can be reached at (609) 292-4945, [snagourney@dep.state.nj.us](mailto:snagourney@dep.state.nj.us).

### ❖ Small Arms Firing Range (SMART)

Coleaders Bob Mueller and Dib Goswami recently conducted numerous team conference calls to review the substance and organization of a nearly complete full draft of *Technical and Regulatory Guide for Characterization and Remediation of Closed Small Arms Firing Ranges*. The team created a decision matrix to accompany the written technical and regulatory information to help guide the user through major considerations in the characterization and technology selection process.

Various range layouts are described, such as shotgun, pistol, rifle, and military. Graphics of each of these range layouts help the user envision shot fall- or bullet berm-areas potentially requiring special attention. Sampling these areas provides challenges because the nugget effect (bullet-sized particles) can impact analytical values. To assist the user in overcoming this problem, a section of the document describes sample collection and preparation procedures, as well as appropriate analytical procedures for lead and associated contaminants. Bioavailability of lead is included, and new time-efficient analytical techniques are discussed relative to traditional methods, which are time-consuming and costly.

Technologies described in the document include soil washing, soil stabilization, soil solidification, and phytoextraction. Section 5 lists design criteria, data required to adequately evaluate appropriate treatment applications, projected efficiencies of various approaches, and costs. Relevant regulatory issues are identified. The team is working with USEPA Region 9 to formulate accurate language to solve a potential barrier. The SMART Team met in Denver on June 4 and 5 for a review of the full document, specifically focusing on any remaining issues among the various perspectives represented on the team. The SMART Team is led by Dib Goswami (Wash.) and Bob Mueller (N.J.). Dib can be reached at (509) 736-3015, [dgos461@ecy.wa.gov](mailto:dgos461@ecy.wa.gov); Bob can be reached at (609) 984-3910, [bmuel@dep.state.nj.us](mailto:bmuel@dep.state.nj.us).

### ❖ Unexploded Ordnance (UXO)

In an effort to build a national consensus regarding the regulation of UXO-contaminated sites, the UXO Team is offering four UXO Basic Training Courses in 2002. The courses are designed to educate and inform state, federal, and community stakeholders of the current methods and procedures being used to investigate and remediate UXO-contaminated sites and offer up-to-date information on ordnance identification, regulations, technology, and site characterization and remediation. As of the end of May, the team had successfully presented two-day courses in Charleston, S.C. and Boston, Mass.

Audience response has been terrific: 85 trainees attended the Charleston course and more than 100 received training in Boston. The Army, Navy, and Air Force are sponsoring the 2002 training. A corporate sponsor has also stepped forward. Shaw Environmental & Infrastructure, Inc. (formed by the merging of Stone & Webster with IT Group) cosponsored the Boston training session and will sponsor additional trainings set for Seattle, Wash. on July 23–24 and Monterey, Calif. on December 10–11. The UXO Team will also conduct an abbreviated version during the September 2002 UXO Countermine Forum in Orlando. Registration is currently under way for the Seattle course via the ITRC Web site at “Classroom Training.” General information is available by calling Stacey Kingsbury, (540) 557-6065.

The UXO Team has begun work on two technical and regulatory guidance documents tentatively scheduled for

release in late 2002 or early 2003. The first—on ordnance and explosives (OE) historical records—will assist state regulators, community stakeholders, and federal partners with collecting, organizing, and assessing available, site-specific UXO data. When final, the document will provide a useful framework for those involved in initial phases of UXO site investigation. A second document—on geophysical site proveouts—will include up-to-date information on geophysical detection systems, regulations, and technical requirements. Both documents represent the first multistate-reviewed references available on OE/UXO. Six additional documents are planned for 2003–2007, covering topics from sampling plan development to postremediation considerations. The UXO Team is led by Jeff Swanson (Colo.) and Jennifer Roberts (Alaska). Jeff can be reached at (303) 692-3416, jeffrey.swanson@state.co.us. Jennifer is at (907) 269-7553, jennifer\_roberts@envircon.state.ak.us.

## CALENDAR

Event	Location	Date	Contact
Western Governor’s Association Annual Meeting	Phoenix, Ariz.	June 23–25	www.westgov.org
Unexploded Ordnance	Seattle, Wash.	July 23–24	Stacey Kingsbury, (540) 557-6065, stacey_kingsbury@wpi.org
Phytotechnologies	Gainesville, Fla.	July 25–26	Steve Hill, (208) 653-2512, srhill1mindspring.com
* Phytotechnologies		August 13 (2:00 to 4:15 ET)	
* Passive Diffusion Bag Samplers		August 15 (11:00 to 1:00 ET)	
* In Situ Chemical Oxidation		August 20 (2:00 to 4:15 ET)	
**Unexploded Ordnance	Orlando, Fla.	September 3	Stacey Kingsbury, (540) 557-6065, stacey_kingsbury@wpi.org
* Permeable Reactive Barriers		September 17 (2:00 to 4:15 ET)	
* Passive Diffusion Bag Samplers		September 24 (2:00 to 4:00 ET)	
* Small Arms Firing Ranges		September 26 (11:00 to 1:00 ET)	
2002 ECOS Annual Meeting	San Antonio, Tex.	October 6–8	Lia Parisien, lparisie@sso.org
ITRC Fall Meeting	Washington, D.C.	November 5–8	

\* Internet-based courses; contact Mary Yelken, (402) 325-9615, myelken@westgov.org.

\*\* A minicourse held in conjunction with the Countermine Forum (September 3–6) in Orlando

All dates are subject to change. For more up-to-date information, see the Web site ([www.itrcweb.org](http://www.itrcweb.org)) under the Calendar link or Training buttons.

## CONTACTS

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For questions or comments regarding ITRC, please contact Rick Tomlinson, ITRC program director, Environmental Council of the States, (202) 624-3660, rickt@sso.org.

To provide comments, suggestions, or input for ITRC's *Quarterly Update*, please contact Elaine Specht, WPI, (540) 557-6071, elaine\_specht@wpi.org.

ADDRESS SERVICE REQUESTED

ITRC  
c/o WPI  
Suite 1000  
2000 Kraft Drive  
Blacksburg, VA 24060-6373

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