

# INTERSTATE TECHNOLOGY & REGULATORY COUNCIL Quarterly Update

December 2002



## ITRC's Fall Meeting is first rate

Thanks to everyone who helped make ITRC's Fall Meeting in Washington, D.C., a terrific success that attracted nearly 350 participants. We had two packed days with more than 15 separate team meetings for members and invited guests. In between, we had an informative day of plenary sessions open to nonmembers to share ITRC's direction and help launch one of our new 2003 teams. Refer to our pictures below and on pages 2, 15, and 16 to see some of the highlights.

ITRC was honored to have three high-level officials as keynote speakers representing our major sponsors, the U.S. Environmental Protection Agency and the departments of

Energy and Defense. Marianne Horinko, Assistant Administrator for the Office of Solid Waste and Emergency Response with USEPA,

called on ITRC's assistance in addressing two USEPA priorities: the One Cleanup program and land revitalization. On the land revitalization front, Horinko said that USEPA needs to work in partnership with ITRC and other groups to ensure that contaminated sites have a realistic path toward return to economic productivity. *Continued on page 3*



Steve Brown of ECOS summarizes the impacts of the mid-term elections on states.



Ken Taylor (left), Board of Directors co-chair, holds up the ballots cast for Co-chair Brian Griffin (below).



John Hicks (right) from Columbia Analytical Services explains to Brett Thomas from Chevron-Texaco (left) and Reggie Robinson from South Carolina services his company can provide states.

Larry Bryant (right), Alabama Point of Contact, is recognized for his outstanding contribution to the State Engagement mission.



Paul Hadley of California and State Engagement Coordinator draws Sallie M. Lee's name from those who filled out feedback forms.



Gary Baughman of Colorado is completing his term as Team Leader Liaison on the Board.



Craig DeRemer, retiring from DOE, is giving up his position as a DOE ex officio Board member.



Kai Steffens of Probiotec, a German company, is a member of the Brownfields Team.



Keynote speakers (left to right) were Marianne Horinko, USEPA; Jessie Roberson, DOE; and Maureen Koetz, U.S. Air Force.



Bob Mueller (N.J.), at right, is a co-leader of the Constructed Wetlands and Small Arms Firing Range Teams.

An interactive panel focuses on risk assessment approaches and issues.



## ***Continued from page 1***

Jessie Roberson, Assistant Secretary for Environmental Management (EM) with the U.S. Department of Energy, acknowledged several ways ITRC has benefited DOE. In redefining the EM mission to close sites and to develop alternative baselines for reducing risks, Roberson credited the cooperation of state regulators, who are vital to EM's new approach. She also credited ITRC's technical and regulatory guidance documents with streamlining decision making, especially with regard to groundwater.

Maureen Koetz, Deputy Assistant Secretary of Environment, Safety & Occupational Health with the U.S. Air Force, expressed appreciation that two current teams, the Remediation Process Optimization Team and the Diffusion Samplers Team, are focusing on DoD needs. Of ITRC in general, she said, "We need your technology application knowledge and look forward to your help in guiding us in getting cleanup expedited."

Also, during the Fall Meeting, ITRC's Board of Directors met to set the budget and announced the teams that will move forward in 2003 (see next article). During our membership meeting, we recognized outgoing Board members, re-elected Brian Griffin for a three-year term as co-chair (although because of the change in administration in Oklahoma, he cannot accept the role), and recognized other contributors to ITRC (see related article at right).

ITRC also held an evening reception sponsored by our exhibitors:

Applied Biosciences  
ARCADIS  
Columbia Analytical Services  
Edenspace Systems Corporation  
EON Products, Inc.  
In-Situ Oxidative Technologies (ISOTEC)  
Naval Facilities Engineering Command (NAVFAC)  
Thermal Remediation Services  
U.S. Army Environmental Quality Technology Program

Presentations made during the Fall Meeting and other summary information are available on the ITRC Web site under "Conferences."

## **BOD selects 2003 projects**

The ITRC Board of Directors has cleared the way for 18 projects to proceed into 2003. Risk Assessment Resources is the only new project premiering in 2003; the other funded 2003 projects are continuations of efforts begun in earlier years. (Heading up the new Risk Team is Steve DiZio, who is acting chief of the Human and Ecological Risk Division, Department of Toxic Substances Control,

California EPA.) Having determined the level of funding from ITRC's federal and industry sponsors, the board was then able to begin phasing in projects from its ranked list. ITRC expects \$3.75 million in 2003 funds with DOE contributing \$2 million; DoD, \$1.25 million; USEPA, \$350,000; and industry, \$150,000. The board has given "thumbs up" to the following projects:

Accelerated In Situ Bioremediation Training  
Alternative Landfill Technologies  
Brownfields  
Contaminated Sediments  
Diffusion Samplers  
Dense Nonaqueous-Phase Liquids  
In Situ Bioremediation  
Long-Term Stewardship  
Mitigation Wetlands  
MTBE-Contaminated Groundwater  
Permeable Reactive Barriers  
Phytotechnologies Classroom Training  
Radionuclides  
Remediation Process Optimization  
Risk Assessment Resources  
Sampling, Characterization, and Monitoring  
Small Arms Firing Ranges  
Unexploded Ordnance

## **ITRC recognizes outstanding members**

During the Fall Meeting, ITRC recognized outstanding people who've gone the extra mile in supporting the ITRC mission. The State Engagement Program recognized two members who consistently achieved a high standard of effort and success by bringing the value of ITRC to their states. Rodney Sobin of Virginia was honored with the 2002 Award for Outstanding Performance as a State Point of Contact (POC), and Larry Bryant of Alabama was presented the 2002 Award for Outstanding Service as a POC. ITRC also recognized exceptional performance of ITRC teams and team leaders. George Nicholas of New Jersey received the 2002 Outstanding Team Leader Award for his leadership of the ITRC Diffusion Samplers Team. The DNAPLs Team received the 2002 Outstanding Team Award for the team's steadfastness and patient diligence that led to eventual publication of the regulatory overview document *DNAPL Source Reduction: Facing the Challenge*. Eric Hausamann of New York, DNAPLs Team leader, accepted the team award on behalf of the DNAPLs Team. Congratulations to our 2002 award recipients!

## **ITRC pays for feedback**

Sallie M. Lee from the Alabama Cooperative Extension Service is glad she filled out a Document and Training

Feedback Survey when invited to do so after completing a phytotechnologies class in Chattanooga, Tenn. Her name, along with all others who submitted a feedback form, was entered into a drawing for \$1,000. Sallie's name was drawn at the Fall Meeting from among the 230 folks who provided valuable feedback to guide ITRC in maintaining product quality. As consolation prizes, ITRC is awarding Starbucks gift cards to everyone who submitted a form.

## Some new faces on 2003 Board of Directors

Among ITRC's Board of Directors, there will be a few folks stepping down, giving opportunities for others to serve. Gary Baughman's (Colo.) three-year term as Team Leader Liaison will expire at the end of the year, and the board has appointed Bart Faris (N.M.) to replace him. Bart also has team leader responsibilities for the In Situ Bioremediation Team. While Paul Hadley's (Calif.) term as State Engagement Coordinator was also set to expire at the end of 2002, he has agreed to stay on one more year to provide continuity as an experienced state representative on the board.

Ken Taylor (S.C.) will continue to serve out his three-year term as co-chairman. Brian Griffin (Okla.) was elected co-chairman during the Fall Meeting.

The other voting members of the board continue to serve: Dave Ellis (DuPont) provides an industry prospective; Wade Waters (Savannah River Site Citizens Advisory Board) begins his second year as the public stakeholder representative; and Ken Nemeth (Southern States Energy Board) represents one of the state associations that support ITRC.

There are also personnel changes from among the board's ex officio (nonvoting) members. Craig DeRemer, who recently retired from DOE, has relinquished his seat on the board to Steve Golian, who will be assisted by Blaine Rowley. Dennis Green from DOE remains on the board.

Ex officio board members from DoD are Maj. Jeff Cornell, Geoff Cullison, Mario Ierardi, Lance Hansen, and Joe Vallone. Jeff Heimerman and Guy Tomassoni are from USEPA, while Chris McKinnon (Western Governors' Association) and Rick Tomlinson (Environmental Council of the States) represent state associations.

## 2003 membership period now open

ITRC is soliciting members for our technical teams in 2003. Each year, we have an open application period in which we accept new applicants interested in contributing time to further the efforts of an ITRC technical team. During this application period, we also require that existing members renew their commitment by sending an updated application.

ITRC will be sending a membership brochure and application forms to everyone on our mailing list. We also will have the application form posted on our Web site. To apply for membership on a 2003 team, complete the application form and return it to ITRC. Team leaders will review all applications. Since many of the 2003 teams are continuations of existing teams with nearly full rosters, some teams may not be able to accept everyone interested in joining. Applicants who bring a new perspective to the team's efforts will be invited to participate in the Spring Meeting (see next article). Team leaders then will confirm their team rosters for 2003 following the Spring Meeting.

Any state employee, stakeholder, federal employee, or member of the private sector willing to provide substantive input on ITRC technical teams is invited to apply for team membership. Typically, team membership requires a minimum of a 10% time commitment. Membership benefits include helping regulators build their knowledge base and raise their confidence about new environmental technologies, guiding technology developers in determining the types of performance data that will satisfy the requirements of multiple states, and participating in a national network of environmental community experts to gain cutting-edge information on the deployment of innovative technologies. State and stakeholder participants who are accepted for official ITRC membership qualify for travel reimbursement for attendance at ITRC meetings.

For more information about ITRC membership, go to our Web site at [www.itrcweb.org](http://www.itrcweb.org) and click on "Membership."

## ITRC Spring Meeting is joint venture with DoD Tri-Services

ITRC will hold its 2003 Spring Meeting in Charlotte, N.C. in conjunction with the 5th Environmental Technology Symposium & Workshop, March 25–28. Holding these two events at the same time offers ITRC members and our Department of Defense partners from the Office of the Secretary of Defense, Army, Navy, and Air Force an excellent venue to collaborate on environmental technology strategies, innovations, demonstrations, and products. ITRC members will also have the opportunity to cross train on state technical needs identified this past year through ITRC's Five-Year Program Plan process.

Specifically, the symposium will offer ITRC Internet-based training courses "live," technical paper sessions on a variety of state priority areas, and plenary sessions with high-level DoD and state speakers. ITRC technical team and POC meetings will be scheduled throughout the four-day event so that members can take advantage of all technical sessions pertinent to their respective teams, as well as other sessions of interest.

Attendees are expected from the military services and a variety of professions, including state and federal regulatory agencies; federal, state and local policymaking organizations; private-sector environmental firms; and academic and research institutions. "Tomorrow's Solutions Today" is the symposium's theme.

A call for papers for this event will be distributed to ITRC members and others soon. ITRC team members are encouraged to submit papers on accomplishments and progress they have made in their respective team technical areas or in other areas that are identified in ITRC's Five-Year Program Plan. Teams are especially encouraged to demonstrate the strength of ITRC's partnership with the military services by co-authoring papers with these partners or others.

Please check the ITRC Web site—[www.itrcweb.org](http://www.itrcweb.org)—for more information on this upcoming conference and training event. ITRC will reimburse state members' and eligible stakeholder members' travel expenses for this event.

## **ITRC closes out another successful training year**

The ITRC Internet and classroom training programs continued to make an impact across the country and around the world in 2002. The training courses provide another set of decision-making tools to the environmental community when considering appropriate implementation of innovative environmental technologies for characterization, monitoring, and cleanup.

### **Internet training**

The ITRC Internet training program delivered 25 training events on nine different topics during 2002, bringing this year's total to 3,300 participants. Since ITRC started offering Internet-based courses in 1999, the organization in cooperation with USEPA's Technology Innovation Office has trained more than 11,000 people.

The ITRC training sessions via Internet (typically 2 hours) are based on ITRC-developed guidance documents and state-of-the-art technical and regulatory information associated with innovative environmental technologies. ITRC training events reach a geographically dispersed group of regulators, consultants, federal agencies, industry, and other members of the environmental community. These training events, along with the ITRC guidance documents and network of experts, provide resources to assist the environmental community in making quality, expedited decisions when determining the appropriateness of environmental technologies as part of effective environmental waste management.

The following courses are potential topic areas for ITRC Internet training for 2003:

- Advanced Techniques on Installation of Iron-Based Permeable Reactive Barriers and Noniron-Based Barrier Treatment Material
- A Systematic Approach to In Situ Bioremediation, including Decision Trees on ISB for Nitrates, Carbon Tetrachloride, and Perchlorate
- Characterization and Remediation of Soils at Small Arms Firing Ranges
- Characterization of DNAPL Source Zones
- Constructed Treatment Wetlands
- Direct-Push Wells
- In Situ Chemical Oxidation
- Alternative Landfill Technologies
- Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices
- Passive Diffusion Bag Samplers for Volatile Organic Compounds in Groundwater
- Permeable Reactive Barriers for Chlorinated Solvent, Inorganic, and Radionuclide Contamination
- Phytotechnologies
- Project Management using the Triad Approach
- Radiation Risk Assessment and Decision Making
- Surfactant/Cosolvent Flushing of DNAPL Source Zones
- Unexploded Ordnance (UXO)

The schedule for 2003 ITRC Internet-based training is currently under development and will be posted to the ITRC Web site ([www.itrcweb.org](http://www.itrcweb.org)) in early 2003. For additional information, contact Mary Yelken at [myelken@earthlink.com](mailto:myelken@earthlink.com), (402) 325-9615.

### **Classroom training**

ITRC classroom training in 2002 offered opportunities for more than 900 people to receive training on accelerated bioremediation, phytotechnologies, and unexploded ordnance. Since ITRC began offering classroom courses in natural attenuation in 1998, more than 4,700 people have been trained via traditional classroom settings. In 2002, these two-day, in-person training sessions were offered across the country from Oakland, Calif. to Orlando, Fla., from Charleston, S.C. to Seattle, Wash. and points in between. The participants were ITRC's usual mix of state regulators, federal agency representatives, environmental contractors, and public stakeholders. Several courses were presented in conjunction with regional or national environmental meetings and conferences to benefit from built-in audiences. Although the 2003 schedule of classroom courses has not yet been set, new classes are being developed and

some are ready to go. In the next several weeks, notices of new classes will be posted on the ITRC Web site ([www.itrcweb.org](http://www.itrcweb.org)). Access details by clicking on the "Classroom Training" button.

## State Engagement Update

### Strengthening state commitment in 2002

The ITRC State Engagement Program again excelled in accomplishing more work than ever in 2002. Beyond the routine duties and activities associated with promoting ITRC tools and resources in our member states, the State Engagement Program took on a number of additional tasks in 2002. In the early part of 2002, state POCs took the initiative and prepared six proposals based on state priorities that were submitted to the ITRC Five-Year Program Plan. POCs also coordinated state input in ranking and prioritizing the 28 proposals considered for funding in 2003 year—a remarkable accomplishment that broadened the level of state participation in developing ITRC's strategic plan for years to come.

This year was a landmark year for transition, as numerous states went through elections and many state environmental agencies went through turnovers. A significant number of discussions were held among POCs throughout the year to share the experiences of some undergoing management transitions for the benefit of others facing similar events. All in all, POCs are as prepared as ever to face the challenges of keeping ITRC as a visible and valued activity in their states.

As part of the ongoing effort to increase participation of states in ITRC's concurrence process, the language used to define and describe concurrence was revisited. The ITRC concurrence process is the formal state agreement to use ITRC technical and regulatory guidance documents as decision-making tools when considering technology alternatives. Through a focused subcommittee, the State Engagement Program developed a more suitable description of the various levels of concurrence and background discussion about the concurrence process. The guidance and supporting information now available to ITRC will further the effort to get concurrence on ITRC documents well into the foreseeable future.

### POCs meet at ITRC Fall Meeting

The state POCs met at the ITRC Fall Meeting with a number of goals. Key among those goals was to develop a better working relationship with our federal partners and to identify opportunities not only to work more closely but also to increase the use of ITRC documents, training, and other resources by federal sites. In a state/federal partnering

session titled "Building Mutual Decision-Making Tools," POCs and representatives from our federal partners discussed the following questions:

- How can we better engage federal site folks in using our documents/training?
- How can we get site people involved in the development process (technical team participation) to ensure buy-in during the implementation phase?
- How can we enhance what we are already developing to make it even more mutually beneficial?

The recommendations and action items generated during this session will provide a framework for cooperative efforts for some time to come.

### State Engagement Team looks forward to 2003

Building on the 2002 theme of "Strengthening State Commitment," the State Engagement Program will focus on "Working together, we can work better." POCs are in many ways the first representatives of ITRC in their states. The job of accomplishing all the duties of a POC can be overwhelming. In 2003, the State Engagement Program will look for opportunities to have POCs support one another to not only lighten the load, but to leverage and share the learning experiences of POCs on a state-to-state basis.

### Welcome to new POCs!

As in any other year, there has been some turnover in the membership of the POC network. We want to welcome Mark Leeper (Va.) replacing Rodney Sobin; Mark Giesfeldt (Wis.) replacing Bruce Baker; and Sara Arav-Piper (Nev.) replacing David Lloyd. Welcome to our new POCs, and thanks and best wishes to those who are moving on to new assignments and opportunities.

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 advisor Mary Yelken, [myelken@earthlink.net](mailto:myelken@earthlink.net), (402) 325-9615. 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 Alternative Landfill Technologies Team has been collecting, editing, and processing case studies from around the United States. Case studies are being submitted from academia, USEPA, states, and other researchers. Having determined from the case studies and monthly conference

calls among team members that adequate merit exists for a variety of alternative cover applications, the team is now compiling the case studies into a technology overview document for printing and dissemination this spring.

The team met in August in Helena, Mont. Twenty-two team members were able to make it to Helena and participate in the meeting. The team discussed the key elements of the upcoming technical/regulatory guidance document, including alternative landfill cover designs and construction, operation, and maintenance of the covers. Significant effort was expended in developing a portion of the predesign/design decision tree. The team broadened the scope of the technical/regulatory guidance document to include some elements of evaluating landfill systems in addition to alternative landfill covers.

The team also met in Washington, D.C. during the ITRC Fall Meeting in November. Mike Houlihan presented a proposal on long-term care of solid waste landfills and criteria for reducing long-term operation and maintenance requirements. The team debated aspects of the proposal and its ramifications for the guidance document and alternatives to long-term postclosure landfill care.

The team is finalizing an alternative landfill cover questionnaire. Information obtained from the questionnaire will provide data from the states' perspectives on alternative landfill cover applicability and the regulatory issues associated with their permitting and design approval.

Monthly conference calls with the entire team and subteam leaders have helped move the team through the initial drafting phases of the technical/regulatory guidance document, which will include decision trees and a clear definition of some of the more controversial issues surrounding the technology. The team plans to complete the guidance document by late 2003. For more information on this team, please contact ALT Team leader Charles Johnson (Colo.) at (303) 692-3348, [charles.johnson@state.co.us](mailto:charles.johnson@state.co.us).

## **Brownfields**

This new-in-2002 team was formed to address the best ways to clean up and redevelop abandoned, underutilized, and contaminated industrial properties. Because regulatory and program guidance for brownfields cleanup and redevelopment is evolving at the state, federal, and international levels, the Brownfields Team has an opportunity to offer a coordinated approach for addressing the issues surrounding the cleanup and reuse of contaminated sites. The goal of the Brownfields Team is to develop guidance and workshops to facilitate the cleanup and reuse of brownfields properties. Working with other groups active in brownfields identification, assessment, and cleanup, the team will be a positive force in ensuring that contaminat-

ed sites have a realistic path toward return to economic productivity.

In 2002, the Brownfields Team worked with the U.S./German Bilateral Working Group, a 10-year partnership of USEPA, U.S. state representatives, and the German environmental ministry, to foster the implementation of cleanup technologies in the two countries. The U.S./German Bilateral Working Group investigates a broad spectrum of activities related to brownfields redevelopment, including the analysis of scientific, economic, and social issues that impact brownfields reuse.

The first task of the Brownfields Team was to nominate brownfields sites as model projects for the bilateral working group to use in developing case studies for its Site-specific Management Approach and Redevelopment Tools (SMART) Plan. During 2002, team members visited six model projects: Union Station and West Marine Drive in Portland, Ore.; Port of Ridgefield, Wash.; California Speedway in Fontana, Calif.; and Carolina Recycling Group and Ware Shoals, S.C. Successful redevelopment of these sites depends on a host of factors, including risk acceptance, establishment of redevelopment goals consistent with the political will of the host cities, commercial reuse of a part of the site as soon as possible, and infrastructure improvements and environmental cleanups to build land value and equity for adjacent land owners. The team plans to visit the New Jersey and New York model projects in January 2003.

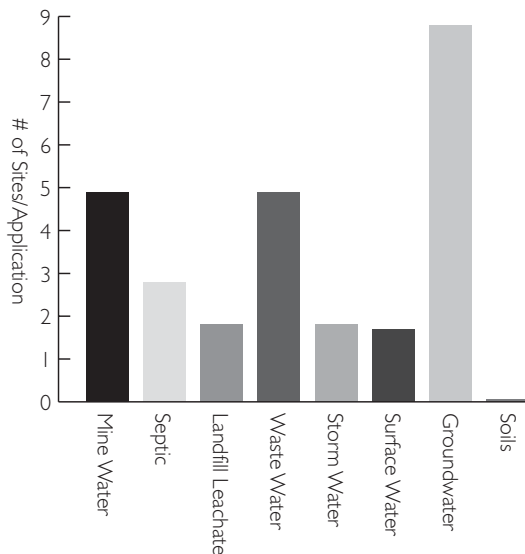
In November, Brownfields subteams met to solidify their action plans during the National Brownfield Conference in Charlotte, N.C. The Indoor Air Intrusion group is gathering data for an overview document on indoor vapor intrusion resulting from contaminated groundwater. The overview document will include a discussion of states' policies, regulations, and approaches to the problem; various action levels; and case studies. The team will develop a survey to capture pertinent state perspectives. The document will focus on mitigation approaches to facilitate responsible and protective redevelopment.

Due to similarity of interests, the Dynamic Work Plans group of the Brownfields Team is planning to meet with the ITRC Sampling, Characterization, and Monitoring Team in Tampa, Fla. in mid-January. The Long-Term Monitoring group is in the process of gathering data to address long-term stewardship and maintenance of monitoring or engineering controls for sites that have been redeveloped. Currently, the group is finding and evaluating material on institutional controls from states and USEPA. This group is also exploring the feasibility of involving municipality or county health departments in overseeing, writing reports, and monitoring long-term institutional and engineering controls.

Terri Smith (N.J.) led the Brownfields Team during its first year of existence and passed the baton to Christine Costopoulos (N.Y.), who'll assume 2003 leadership. Terri Smith thanks Brownfields Team members for their participation, friendship, and support in moving this team forward and helping the team be the best. New team leader Christine can be reached at (518) 402-9711, [cjcostop@gw.dec.state.ny.us](mailto:cjcostop@gw.dec.state.ny.us).

## Constructed Wetlands

The Constructed Wetlands Team has been researching available literature and following up on the 29 case studies received from the July survey. The figure below shows the distribution of the case study sites among the various applications where constructed wetlands have been used.



The Constructed Wetlands Team selected 29 case studies that demonstrate the variety of problems for which wetlands have been used.

The Constructed Wetlands Team continues to work on *Technical and Regulatory Guidance for Constructed Treatment Wetlands*, which addresses the issues associated with the construction of manmade wetlands for treating contaminants in water that flows through the wetlands. The document contains decision trees for determining the applicability of constructed treatment wetlands for storm water control; municipal, industrial, and agricultural waste treatment; hazardous waste effluent treatment; and treatment of acid mine water, including metals. Each application includes a description of the use of either surface and/or subsurface flow wetlands to treat a variety of contaminants or to change water conditions such as pH. Theory of wetlands flow, suitable site characteristics, and various treatment mechanisms are described with chapters on design criteria, construction, operation and maintenance, and monitoring wetland sustainability and performance.

Wetlands are not a new technology; however, their application is expanding as the physical, chemical, and biological removal mechanisms are more thoroughly understood. This expansion of knowledge enables advanced design considerations and a more comprehensive suite of chemical and site situations subject to treatment using constructed wetlands.

The team expects to have a final draft in mid-December and begin preparing Internet-based training during the early months of 2003. For more information on Constructed Treatment Wetlands or the follow-on project on mitigation wetlands, contact Bob Mueller (N.J.) or Dib Goswami (Wash.), co-leaders of the Constructed Wetlands Team. Reach Bob at (609) 984-3910, [bob.mueller@dep.state.nj.us](mailto:bob.mueller@dep.state.nj.us), and Dib at (509) 736-3015, [dgos461@ecy.wa.gov](mailto:dgos461@ecy.wa.gov).

## Contaminated Sediments

USEPA estimates that about 10% of sediment underlying surface water in the United States is sufficiently contaminated with toxic pollutants to pose potential risks to fish and to humans and wildlife that eat fish. The discharge of heavy metals, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons by industrial manufacturers impacts the toxic nature of sediments. To support navigation, seaports and harbors dredge contaminated sediments, leading to the problem of how best to dispose of this material. The Sediments Team, which was new in 2002, was formed to address two issues: managing large volumes of hazardous sediments dredged from harbors and seaports to maintain navigable waters, and using innovative technologies to remediate contaminated sediments found in lakes, streams, estuaries, navigational channels, and harbors.

While state and federal sediment policies and regulations are evolving, the ITRC Sediments Team offers a coordinated approach for assessing sediment sites, selecting remedies, and making reuse decisions about dredged materials. The science-based framework that the Contaminated Sediments Team offers will help ensure that state and federal guidance is harmonious. The Contaminated Sediments Team also expects to participate and help clarify the issues involved in dredging versus nondredging approaches to cleaning up sediment sites.

During 2002, the team worked to develop an overview document encompassing sediment characterization, risk assessment, and remediation technologies. This overview document will entail the gathering of relevant case studies. The team also plans to reach out to and collaborate with other groups with sediment connections, including the Remediation Technology Development Forum, the Sediment Management Work Group, U.S. Army Corps of Engineers, USEPA, and other groups that the team identi-

fies. Richard DeWan (N.J.) leads 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 began in 1999 to foster a better understanding of the applicability, cost, and limitations of technologies for characterizing and remediating dense, non-aqueous-phase liquids. DNAPLs are a significant problem to groundwater supplies when released as discarded industrial solvents or waste. Once released into the subsurface, DNAPL exists as residual droplets, or ganglia, in the unsaturated zone and, depending on the nature of the release, can form insoluble pools in the saturated zone. Because of these characteristics, conventional remediation and characterization technologies have been mostly unsuccessful in removing substantial amounts of these contaminants.

As its first major task, the team produced a technology overview that includes descriptions of current technologies and parameters for their use, limited cost and performance data, case studies, and related regulatory issues. The team next produced a regulatory overview—*DNAPL Source Reduction: Facing the Challenge*—that examines the current regulatory climate for deploying technologies to efficiently treat DNAPL source zones. The report outlines the pros and cons of partial source removal and challenges assumptions about the infeasibility of removing DNAPLs from certain geological settings where recent advances have made significant source reduction more feasible and cost-effective. *Facing the Challenge* acknowledges the technical difficulties and uncertainties surrounding DNAPL source zone reduction and supports further research to study the impacts of partial source zone mass reduction on groundwater quality and remediation timeframe.

The DNAPLs Team is currently working on two technical/regulatory guidance documents on DNAPL characterization and surfactant/cosolvent flushing. Another subgroup is producing a case study/overview document on thermal treatment technologies. Next year, in addition to conducting Internet-based training courses based on the two technical/regulatory guidance documents, the DNAPLs Team plans to delve into two related areas of inquiry: performance assessment and integrated remedial approaches as they pertain to DNAPL sites. 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 has culminated over eight months of work with a consensus document on the use of diffusion bag samplers for long-term monitoring. The report,

*Recommendations for the Use of Polyethylene Diffusion Bag Samplers for the Long-Term Monitoring of Volatile Organic Compounds in Groundwater*, is an important document establishing common ground among regulators, scientists, and users of the technology. This report will become a key-stone in the preparation of an official ITRC technical/regulatory document during the coming year. The *Recommendations* document is available on the Diffusion Sampler Information Center Web site at <http://ds.itrcweb.org>.

Also now available is a Diffusion Sampler Resource CD containing nearly 70 articles and presentations on various diffusion samplers, as well as the ITRC training video and the AFCEE/Parsons field sampling video. Much of the material is available on the Diffusion Sampler Information Center, but the CD has the advantage of being searchable. Copies of the CD are available by contacting Walter Berger ([wberger@mitretek.org](mailto:wberger@mitretek.org)). Additional articles and information related to diffusion samplers are being solicited for the next update of this resource.

Two subgroups are at work defining issues related to the use of diffusion samplers. Dee O'Neill and Walt Scheible of Columbia Analytical Services are leading an effort to define the minimum sample volumes needed for various lab analyses. Minimum sample volumes directly influence the size of diffusion sampler bags. A final table or listing will be complete before the ITRC Spring Meeting in March 2003. Mark Malinowski is leading another subgroup investigating the performance of passive diffusion bags in sampling perchloroethylene (PCE), using available demonstration data.

A primary DS Team goal over the coming year is the preparation of an ITRC technical/regulatory guidance document for diffusion samplers, which, like other ITRC technical/regulatory guidance documents, would undergo a formal ITRC state concurrence process. While the technical/regulatory guidance document will incorporate several existing team documents, it will also require substantial additional work, including surveying existing regulations that affect deployment of PDBs and completing an implementation cost model.

Recent additions to the Diffusion Samplers Team include Phil Harte (USGS), Walter Scheible (Columbia Analytical Services), and Bruce Stuart (Missouri DNR). Welcome all. The total team membership is now 36. As a postscript, our own George Nicholas (N.J.) was recognized as ITRC Team Leader of the Year at the ITRC Fall Meeting. ITRC staff conferred the award, and there was plenty of competition. This award to George is well deserved and also testimony to the progress made by the Diffusion Samplers Team as a whole during the past year. Congratulations, George! George can be reached at (609) 984-6565, [george.nicholas@dep.state.nj.us](mailto:george.nicholas@dep.state.nj.us).

## **In Situ Bioremediation (ISB)**

*A Systematic Approach to In Situ Bioremediation in Groundwater* (ISB-8) is the culmination of separate ITRC teams on biodenitrification, carbon tetrachloride, and perchlorate coming together as the In Situ Bioremediation Team to produce, in August 2002, a technical/regulatory guidance document that helps site decision makers systematically examine site parameters and criteria for the effective characterization, testing, design, and monitoring of ISB technologies. ISB Team leader Bart Faris recognizes the outstanding efforts and contributions made by each team member toward the development of this document.

The document includes a decision tree that defines parameters and criteria for the feasible and effective implementation of in situ bioremediation in general and also includes separate detailed modules for using ISB to treat nitrate, carbon tetrachloride, and perchlorate contamination. The guidance presents a cogent argument that this systematic approach can be applied to any specific contaminant or site for enhancing decisions about using ISB. ISB-8 is the latest in a long line of ITRC products related to ISB, including associated classroom and Internet-based training courses.

The ISB Team brought 2002 to a successful close with the delivery of three Internet courses based on its ISB-8 document. In 2003, ISB Team leader Bart Faris (N.M.) will work to ensure that the document is widely used. He will represent the document and ITRC at conferences and workshops, guide ITRC's points of contact network in presenting the document to state environmental agencies, and track and monitor how successful use of the document leads to more ISB deployments. By serving as a deployment facilitator, trainer, and collector of success stories, Bart will exemplify the final component of the ITRC process—getting ITRC products off the shelf and into the hands of consumers, validating ITRC's value. Reach Bart at (505) 841-9466, bart\_faris@nmenv.state.nm.us.

## **MTBE-Contaminated Groundwater**

MTBE (methyl tert-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 threaten domestic groundwater supplies when gasoline from underground storage tanks seeps into groundwater. New studies by the U.S. Geological Survey and others indicate widespread contamination of U.S. drinking water supplies by MTBE and other oxygenates. Traditional methods of removing gasoline constituents from groundwater do not work well for MTBE.

The MTBE Team operated throughout 2002 with minimal funding. During this first year of a multiyear program addressing key technical aspects of removing MTBE, tert-butyl alcohol (TBA), and other ether- and alcohol-based fuel oxygenates from groundwater, the team completed a draft technology overview document and started preparing a Web-based database of innovative treatment technologies. Both products will be ready for broad distribution during the first and second quarters of 2003. During the summer of 2003, the team will begin preparing technical content for classroom and Internet training, tentatively scheduled for winter 2003 and spring 2004.

GOP congressional victories during the November 2002 elections leave many doubts about the future of MTBE regulation at the federal level. At this time, states are leading any coordinated efforts to ban or regulate the use and/or treatment and disposal of MTBE, TBA, or other related fuel oxygenates. The MTBE Team continues to serve as a leading forum for state-led efforts to regulate MTBE as well as promote clear national guidance on MTBE risk standards. Members of the MTBE Team actively coordinate and participate in other groups, including the Remediation Technologies Development Forum (RTDF), the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), USEPA, and the American Petroleum Institute. Fred McGarry (N.H.), MTBE team founder, leads the group into its second year. Fred can be reached at (603) 271-4978, fmcgarry@des.state.nh.us.

## **Permeable Reactive Barriers (PRBs)**

This ITRC team, which began operating in 1999 and plans to phase out at the end of 2003, exemplifies the classic ITRC team working a technical issue while producing documents and training and collaborating with other like-minded groups. Since 1999, the PRB Team has investigated the state of development of permeable reactive barriers as an emerging remediation technology because conventional groundwater treatment has been unable to restore many types of sites to the standards set by regulators for protection of human health and environment.

The team has produced, or participated in producing, three technical/regulatory guidance documents on implementation of PRBs for treatment of inorganics and radionuclides, groundwater, and dissolved chlorinated solvents. The team followed up these written efforts with both classroom and Internet-based training. In 2002, the team presented its second Internet-based training on PRBs, an advanced course on installing iron-based PRBs and noniron-based barriers.

The team has also been actively participating on joint projects with other groups interested in furthering the deployments of PRBs. Team leader Matt Turner (N.J.) is review-

ing three federal agencies' (DOE, USEPA, and DoD) guidance document on long-term performance and monitoring of PRBs. The agencies conducted field performance evaluations of several PRBs installed at sites under their purview to evaluate the longevity and hydraulic performance of the barriers in various geologic settings. In 2003, the PRB Team will contribute to the developing guidance as extensive monitoring at the federal sites continues to generate data for designing better, more long-lived barriers. The new data will be used by the team to update its advanced Internet PRB course. The completed guidance document will become the basis for a joint effort to craft a performance monitoring research proposal for submitting to the Strategic Environmental Research and Development Program (SERDP) and to the Remediation Technologies Development Forum (RTDF). Team leader Matt Turner can be reached at (609) 984-1742, matthew.turner@dep.state.nj.us.

## Radionuclides (RADs)

The Radionuclides Team, which completed its third year at the end of 2002, reached a critical milestone in 2002 with the publication of its second product—*Determining Cleanup Goals at Radioactively Contaminated Sites: Case Studies*—written to facilitate accelerated closure at the nation's nuclear weapons production sites by enhancing consistency and streamlining decision making.

With the publication of this document, the Radionuclides Team achieved one of the goals of its formation—to promote consistency in developing cleanup goals as a first step in encouraging selection and deployment of appropriate technologies for the characterization and remediation of radionuclides at DOE sites. Calculations of cleanup levels vary from site to site due to different physical settings, cleanup authorities, and risk assessment approaches. Using science-based cleanup criteria reduces the likelihood that litigation or other factors will delay cleanup. 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 document concurs with DOE's Office of Environmental Management's redirection of adopting a consistent risk-based assessment tool for overall cleanup and closure activities. Using a consistent risk assessment approach will accelerate environmental decision making and ensure that cleanup is done in a timely and cost-effective manner. Following development of this document, the Radionuclides Team has been working with DOE and the U.S. Environmental Protection Agency to develop updated radiation risk assessment training to be offered in classrooms and on the Internet during 2003.

Since late in 2002, the Long-Term Stewardship (LTS) sub-team of the Radionuclides Team has been working to develop and finalize an outline for *Stewardship and Technology: Challenges for Future Management of Radiologically Contaminated Sites*. This document will be an overview of technologies for meeting stewardship needs. In producing this document, the team participated in the review of DOE's Long-Term Stewardship R&D roadmap being developed by the Idaho National Engineering and Environmental Laboratory. Some team members also attended DOE meetings on vadose zone science and technology roadmapping and actively contributed.

To investigate the long-term stewardship challenge facing state regulators, the Radionuclides Team conducted a targeted survey of state regulators in states with major DOE facilities, including FUSRAP and UMTRCA sites under DOE jurisdiction. A total of 31 regulators from seven states with major sites participated in the survey, which focused on identifying state regulatory perspectives on areas of LTS that could benefit from developing and applying additional science (social, biological, chemical, engineering, etc.) and technology. The survey will enhance the Radionuclides Team's understanding of the technical issues surrounding LTS and help guide future LTS activities (training, guidance documents, technology evaluation). While analysis of the survey is ongoing, the team shared some preliminary findings with DOE, DoD, and USEPA at a workshop conducted during the ITRC Fall Meeting. The workshop helped ITRC and the agencies identify areas of mutual interest and further work.

In 2003, the Radionuclides Team wants to increase deployment among DOE sites of technologies for the in situ characterization of radionuclides. Working with DOE's Office of Science and Technology, the team plans to evaluate real-time characterization technologies, develop technical/regulatory guidance, and implement training in 2005. The team will also examine technologies for implementing DOE's stewardship commitments around the complex, finalize training on assessing radiation risk and conduct Internet-based training, and extend the LTS survey to stakeholders, especially members of citizens' advisory boards, in preparation for developing a document on regulators' and stakeholders' perspectives on LTS technology needs and implementation challenges.

RADs Team leaders are Tom Schneider (Ohio), who can be reached at (937) 285-6466, tom.schneider@epa.state.oh.us, and Carl Spreng (Colo.), who can be reached at (303) 692-3358, carl.spreng@state.co.us.

## Remediation Process Optimization (RPO)

The RPO Team began its work in 2002 by seeking to partner with remedial process optimization (also known as “remedial system optimization” or “remedial system evaluation”) teams from the military services and other federal agencies. An RPO review is a technical and programmatic assessment of an installation’s cleanup system performance and effectiveness to achieve a timely site closeout. The recommendations made following an RPO visit focus on opportunities to optimize cleanup or long-term monitoring by being risk and cost protective. An RPO review looks at all processes affecting cleanup effectiveness: cleanup systems, established cleanup levels, established procedures to verify attainment of cleanup goals, and readiness to support a five-year review or any other part of a regulation-mandated process. Sites where groundwater pump-and-treat systems have been installed are obvious targets for RPO reviews.

During 2002, the RPO Team participated in remedial process optimization reviews at six California Air Force bases: Norton, March, Mather, McClellan, Castle, and George. The recommendations flowing from the reviews will guide the Air Force in improving cleanup system performance. The team’s plans for 2003 include participating in additional RPO visits at other federal and state-led sites, identifying key issues and recurring themes and providing and drafting an RPO technical guidance document for implementing RPO programs.

The team has recently completed the annotated outline of the RPO guidance document that will be completed in 2003. The guidance document will include a lessons learned section specifically focused on the needs of regulators who are beginning optimization programs. It will include information from various state and federal agencies as well as various types of remediation systems. Concurrent with finalizing the guidance document, the team will begin developing an Internet training module focused on the needs of state regulators. The team will be led again in 2003 by Tom O’Neill from the New Jersey Department of Environmental Protection. Reach Tom at (609) 292-2150, [toneill@dep.state.nj.us](mailto:toneill@dep.state.nj.us).

## Sampling, Characterization, and Monitoring (SCM)

The Sampling, Characterization, and Monitoring Team was formed in 2002 to address the opportunities presented by a number of innovations and paradigm shifts in the sampling and monitoring field related to real-time information, continuous monitoring, and long-term monitoring for site closure and stewardship. The team is examining not only innovative sampling and monitoring technologies, but also innovative approaches, such as USEPA’s Triad approach.

In collaboration with USEPA’s Technology Innovation Office, the SCM Team is working to promote broader application of the Triad approach, an innovative approach to characterization that incorporates systematic planning, dynamic work plans, and on-site analytical tools. The team plans to develop technical/regulatory documents on the Triad approach and on the use of direct-push wells for environmental monitoring. These innovative approaches and new-generation technologies have real potential to contain costs associated with sampling, characterization, and monitoring.

The team plans on four more years of existence, during which it will complete technical/regulatory documents and develop and deliver training. Stu Nagourney (N.J.) leads the Sampling, Characterization, and Monitoring Team and can be reached at (609) 292-4945, [stu.nagourney@dep.state.nj.us](mailto:stu.nagourney@dep.state.nj.us).

## Small Arms Firing Range (SMART)

The Small Arms Firing Range Team has completed the first of two documents on managing lead at small arms firing ranges. The first is a technical/regulatory guidance entitled *Characterization and Remediation of Soils at Small Arms Firing Ranges*, which describes important elements for characterizing lead distribution at abandoned or closed firing ranges. A decision tree graphically displays a strategy for removing lead from soils and disposing of recovered lead, soils containing lead residuals, and clean soils.

The team has worked frantically to complete this document. The entire team has tirelessly reviewed the draft and final document and sent it to state POCs and professional peers for a one-month review. This concurrence review resulted in the team receiving nearly 70 comments, which the team handled by dividing into technical and regulatory categories. The team prepared responses to the comments, which are included as Appendix H in the final document. The team’s meeting in Washington D.C. during the ITRC Fall Meeting was devoted to a final review of the responses.

As a result of the concurrence review, the team realized that the language it had put forth in support of on-site and off-site berm reuse did not enjoy widespread support. The team, therefore, modified the language in support of on-site berm reuse to reflect the many concerns expressed during the concurrence review while retaining the need for flexibility when dealing with this issue. The off-site berm reuse issue will be a topic further discussed during subsequent Small Arms Firing Range Internet trainings and conference calls. The team is currently working to respond to comments from the Army Environmental Center.

Nearing the completion of the final draft of the document, the team developed a two-hour Internet training, practiced the

training four times this past quarter, and delivered the dry run to the ITRC state POCs on December 12, 2002. Internet-based courses open to regulators and the general public are being scheduled for 2003 and will be announced soon.

The team's next product will be a technical/regulatory guidance document on maintenance and management of lead at operating small arms firing ranges. This guidance will be helpful for those states that have firing ranges but no active lead management plan. The team plans to evaluate examples of lead management and small arms range management plans from state and industry during 2003. The team will develop an on-site training for small groups describing various management strategies based on the team's research and its planned maintenance and management technical/regulatory guidance document. If you or your state is interested in such training late in 2003, please notify team leaders Dib Goswami (Wash.) or 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, [bob.mueller@dep.state.nj.us](mailto:bob.mueller@dep.state.nj.us).

## **Unexploded Ordnance (UXO)**

Through training courses and technical/regulatory guidance, the UXO Team focuses on innovative site investigation and cleanup technologies to facilitate the safe transfer of former Department of Defense training ranges to public ownership. Cleanup at closed, transferred, and transferring DoD training ranges are greatly hampered by inconsistent national policy and a shortage of innovative site characterization and removal technologies. State regulators and public stakeholders are required to evaluate DoD cleanup strategies with little, if any, environmentally oriented training or guidance. The UXO Team provides a forum to share information and develop consistent standards for cleanup among interested parties.

During 2002, the team helped build a national consensus regarding the regulation of UXO-contaminated sites by offering UXO Basic Training Courses. The courses 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. In 2002, the team successfully presented two-day courses in Charleston, Boston, Seattle, and Monterey. Including a mini-course in Orlando, Fla. (52) and specialized training for Bureau of Land Management firefighters (48), these courses have trained more than 500 representatives from DoD, states, other federal agencies, industry, and communities.

Following the planned publication in early 2003 of the team's first written product on how to research ordnance and explosives (OE) historical records, the team will focus on its second document, dealing with site-specific geophysical proveouts. The OE historical records research document will be a useful framework for those involved in initial phases of UXO site investigation, including collecting, organizing, and assessing available, site-specific UXO data. The document on geophysical proveouts will include information on geophysical detection systems, regulations, and technical requirements.

The UXO Team projects a lifespan of six years, during which it plans to produce eight technical/regulatory guidance documents. Jeff Swanson (Colo.) and Jennifer Roberts (Alaska) lead the UXO Team. Jeff can be reached at (303) 692-3416, [jeffrey.swanson@state.co.us](mailto:jeffrey.swanson@state.co.us). Jennifer is at (907) 269-7553, [jennifer\\_roberts@envircon.state.ak.us](mailto:jennifer_roberts@envircon.state.ak.us).

## Contacts

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.

## Calendar

Event	Location	Date	Contact
Team Leader/Program Advisor Kick-off Meeting	Denver, Colo.	January 21–23	Denise Calore, (202) 362-8879, oppknock@aol.com
ITRC Spring Meeting	Charlotte, N.C.	March 25–28	Denise Calore, (202) 362-8879, oppknock@aol.com



Happy  
Holidays

ITRC appreciates your interest and involvement  
and looks forward to a great 2003!

George Nicholas (N.J.) at right receives a "best team leader" award from Gary Baughman for his leadership of the Diffusion Samplers Team.



David Burt (right) of Waste Management participates during the Alternative Landfill Technologies Team meeting.



Dib Goswami (Wash.) and Carl Spreng (Colo.) pause for discussion during the plenary.



Richard DeWan (N.J.) leads the Contaminated Sediments Team meeting.

Eric Hausmann (N.Y.) at right accepts a "best team" award from Gary Baughman for the Dense Nonaqueous-Phase Liquids Team.



Kathy Setian and Stuart Walker, both of USEPA, focus during their Radionuclides Team meeting.

Team leaders review the progress of their teams at the plenary. Carl Spreng, co-leader of the Radionuclides Team, is at the podium.



Members of the MTBE-Contaminated Groundwater Team get down to work.



Ken Nemeth (left) of the Southern States Energy Board shares a private moment with Wade Waters, the public stakeholder representative on the Board.



Team leader Bart Faris highlights some activities of the In Situ Bioremediation Team.

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