SUMMARY
FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE

Arlington, Virginia
June 21, 1995

INTRODUCTION

Roundtable Chairman Dr. Walter W. Kovalick, Jr., Director of EPA's Technology Innovation Office (TIO), welcomed all participants. Roundtable agencies represented included:

- Tennessee Valley Authority (TVA)
- U.S. Department of Defense (DoD)
- U.S. Department of Energy (DOE);
- U.S. Department of Interior (DOI);
- U.S. Air Force (USAF);
- U.S. Navy (USN);
- U.S. Army; and
- U.S. Environmental Protection Agency (EPA)

A complete list of participants is included as an attachment (Attachment 1) to this summary.

Dr. Kovalick opened the meeting by noting that this meeting marks the fifth anniversary of the founding of the Federal Remediation Technologies Roundtable. He displayed a copy of a report entitled *Federal Remediation Technologies Roundtable: Five Years of Cooperation*, a report on the many successes the Roundtable has had over the years. Each Roundtable member/agency will receive 100 copies of the report. Dr. Kovalick also noted the publication of the *Remediation Technologies Screening Matrix and Reference Guide, Second Edition* and the NATO/CCMS Pilot Study on Demonstrated and Emerging Technologies. Copies of these and other new documents were available at the meeting. Dr. Kovalick reminded members of the upcoming Southeast Remediation Marketplace Conference taking place in Atlanta, Georgia, on July 20-21, 1995.

GUIDE TO COLLECTING COST AND PERFORMANCE INFORMATION

Cost and Performance Subgroup Chair John Kingscott, U.S. EPA/OSWER/TIO, announced the recent publication of several documents by the Subgroup. The first is the *Interagency Guide to Documenting Cost and Performance Information for Site Remediation Projects*. Members should have received copies of the *Guide* in the mail. Mr. Kingscott also displayed a copy of the accompanying Implementation Fact Sheet that announced the activities of each member agency to implement the standardized procedures in the *Guide*.

Mr. Kingscott also announced the publication of 37 remediation case studies compiled in four volumes covering 1) bioremediation, 2) ground water treatment, 3) soil vapor extraction, and 4) thermal desorption, soil washing, and *in situ* vitrification. A fifth document in the series, *Abstracts of Remediation Case Studies*, is a compilation of two-page abstracts for each case study, and there is a fact sheet describing the entire series. Ordering information for the *Guide* and *Abstracts* and the Remediation Case Studies can be found in the Five Year Report distributed in the meeting package. The abstracts are also available on the CLU-IN Bulletin Board.

Implementation Issues

Johnnette Shockley, U.S. Army Corps of Engineers-Omaha, spoke on the Corps' cost and performance information-gathering and reporting efforts. The Corps' Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW MCX) will take the lead in these efforts within the Corps, and will draft and issue a Guide Specification for selected contracts to establish procedures for cost and performance data collection and reporting. A contract has been issued for development of the guide specification, and publication is planned for November 1995. HTRW MCX will also continue to work with Roundtable member agencies to collect cost data for the Historical Cost and Analysis System (HCAS).

The Guide Specification will be distributed to project and management personnel for inclusion in remedial action contracts, directing contractors to collect technical information in a consistent format. The Guide Specification will establish protocols for review and validation of collected information, define expected or desired performance measurements, document and substantiate deviations from the accepted specification or standard, document changes that increase or decrease the effectiveness of the technology, and describe changes in baseline conditions.

Ms. Shockley reminded the Roundtable that HCAS is a data base of historical HTRW remedial action costs in a standard format that provides a check for budget/program estimates, rather than the estimates themselves. Anyone interested in more information on HCAS can contact Kate Peterson at 402-697-2610.

Ms. Shockley provided an update on the Roundtable Home Page that will post publicly releasable cost and performance reports, publications, minutes, announcements, ordering information, etc., on the Internet/World Wide Web. Ms. Shockley used the Strategic Environmental Research and Development Program (SERDP) Home Page as an example of how the Roundtable Home Page will function, walking through the steps of a search on “metals” down to a site abstract and a list of other resources. In response to a question from Dr. Kovalick, Ms. Shockley said the Corps plans to make the Roundtable Home Page accessible through the Corps' Home Page.

Radioactive Waste Workgroup Report

Skip Chamberlain, P.E., U.S. Department of Energy, distributed sets of six Innovative Technology Summary Reports prepared by DOE's Office of Technology Development. The summary reports cover demonstrations held at a number of DOE sites for the following technologies:

- frozen soil barrier,
- *in situ* air stripping using horizontal wells,
- *in situ* bioremediation using horizontal wells,
- dynamic underground stripping,
- ResonantSonic drilling, and
- six phase soil heating.

These and future summary reports will soon be available through the EM Home Page on the Internet. Future demonstration reports associated with DOE's Plume Focus Area will include some cost data in a format that adheres to the *Interagency Guide*. Mr. Chamberlain noted that the Radioactive Waste Workgroup does not include mixed waste in its studies, but DOE is doing mixed waste work. Anyone seeking information on mixed waste-related work should contact Tom Anderson. Dr. Kovalick

said the DOE reports could help fill in gaps in the *Guide* and other Roundtable publications in the radioactive waste area, and encouraged the attendees to obtain copies.

The Roundtable members discussed procedures for electronic distribution of information products. Bob Furlong said he felt there should be a “closing date” for the next cost and performance reporting cycle until procedures for the electronic distribution of this information (CD-ROMs, bulletin board systems, etc.) are in place. Roundtable members will be presenting a paper at the Superfund XVI/ HMCRI conference later this year, and members settled on September 15, 1995, as the deadline if a second series of reports were to be published for distribution at that event.

The members discussed forming a workgroup to develop a strategy and implementation plan for the collection and distribution of Roundtable information that takes advantage of advances in technology transfer methods. At this time, the member agencies are using their own information distribution tools in general. Dr. Kovalick suggested making electronic versions of publications available free of charge, while distributing hard copies through NTIS for a price, as one way to evaluate and expand the market for electronic versions. The Case Studies announced by Mr. Kingscott are being distributed in this manner. Ed Engbert said CD-ROMs may be the best platform for distributing information, given the bulk of publications such as the *Screening Matrix*. John Kingscott said he would organize a workgroup on the subject that would develop alternatives and a strategy and guidelines for electronic distribution of abstracts and cases. Mr. Kingscott said he would plan the first workgroup meeting sometime around the beginning of September.

Related Projects

Updates on the Consortium for Site Characterization Technology and the Ground Water Center

Rich Steimle, U.S. EPA/OSWER/TIO, said the **Consortium for Site Characterization Technology** (CSCT) is a testing/verification center for site characterization technologies established under the Environmental Technology Initiative's Environmental Innovation, Commercialization, and Enhancement Program. The CSCT is currently developing protocols and model statements of work for demonstrations and verification procedures for various categories of site characterization technologies. A demonstration of cone penetrometers was conducted at Port Hueneme in California, and the CSCT has two more demonstration programs planned.

A key goal of the CSCT is wider acceptance by Federal and state regulators and agencies of the data verification program and protocols before more demonstrations are solicited. The prime objective of the program is to ultimately provide vendors with verified demonstration cost and performance data that will be accepted by regulators. While the program stops short of validating or approving technologies as acceptable at sites, the verification process should improve the marketability of participating technologies substantially.

Dr. Kovalick described the meeting of the Board of Advisors to the CSCT held last January, where a consensus was reached on how the CSCT should obtain verified results and disseminate them. He stressed the importance they placed on the review of the protocols and a buy-in from state regulators upfront to ensure the vendors that CSCT results will be accepted. Fred Lindsey agreed, noting that credibility is a key consideration for vendors of new technologies, who continue to face the same problems in establishing a foothold in the marketplace.

Jeff Marqusee said there two other cone penetrometer demonstrations planned, and that a few states have included such techniques in their regulations. He then asked whether the CSCT would continue if the Environmental Technology Initiative was terminated. Mr. Lindsey said he was hopeful that CSCT could be continued, and that it will be front-end funded to deal with such contingencies. In response to a question from Stephen Warren, Mr. Steimle said the CSCT program will only verify technology performance, not applications or selection criteria.

Mr. Steimle said a cooperative agreement will be executed in the very near future to establish a **Ground Water Center** that will serve as a clearinghouse on abiotic ground water treatment. The Center should be operational later this year and will serve as an information resource on research and demonstrations of new technologies (including information on developers) that will be open to the public. The Center will also track and analyze macro-level market development trends. Clearinghouse products will include Technology Status Reports that will include contacts for further information. The guidance committee for the Center consists of public and private users and providers of these technologies.

Dr. Kovalick said the Center project was undertaken because there was no other resource available that integrated and synthesized information on the wide variety of research, development, and demonstration work being done in this field. This was another example of how the government could foster development; the less time and money technology users have to spend gathering information, the sooner they can move forward with procuring and implementing the technologies. Abiotic ground water treatment technology was selected over other technology types because it was judged to have the widest information gaps. Dr. Kovalick acknowledged the considerable contributions made by DOE and the U.S. Geologic Survey (USGS) in supplying peer reviewers for the application and selection process that led to the cooperative agreement.

[**NOTE:** The cooperative agreement between NETAC and the University of Pittsburgh to establish the Center was executed after the Roundtable meeting and is in place.]

Superfund Containment Barriers Study

Randall Breeden, U.S. EPA/OERR, reported on an initiative to evaluate the state of understanding on long-term reliability of containment systems. Current practice shows increasing application and reliance on containment of hazardous waste using various technologies. However, information on long-term reliability has not previously been compiled. Frequently, a site has geophysical features that prevent full cleanup—containment may be needed in these instances. The scope of the study includes both above ground technologies (caps and covers) and below ground components (liners, slurry walls, grout curtains, sheet pilings, reaction walls). The initiative incorporates fourteen separate projects to address technical and policy issues.

The containment initiative addresses the current state of knowledge regarding technology, design, construction, verification, and monitoring; the performance of existing containment systems; the reliability of predictions on the performance of containment systems; and how regulators can be assured that they will meet performance standards and be protective.

Policy issues to be addressed include the issue of how well containment must work. For example, is it acceptable if they leak? If so, what is a permissible leakage rate? Where should the point of compliance be located? Other technical and policy considerations will be examined, such as the use of active versus passive systems, operation and maintenance, and future land use. The initiative also

hopes to address long term monitoring responsibilities, and the issue of who is responsible for replacing containment systems after their active life.

The initial activity planned is a National Containment Workshop (August 29-31, 1995, in Baltimore, Maryland) in which 120 experts from around the world will address the state of knowledge and practice. Another Tier 1 project will involve field evaluations of existing engineered barriers. Tier 2 will be initiated next fall with a series of regional seminars to disseminate information gained from the workshop. Additional second tier projects will address:

- Methods for performance monitoring
- In situ bioremediation for containment objectives
- Permeable reaction walls
- Vapor extraction for containment.

Tier 2 will also include development of handbooks for above and below ground systems. A final project will be the development of a containment system data base that includes site information, technology, engineering date, and contaminants. Tier 3 activities will include development of a containment system data base.

Ted Zagrobelny asked whether the Fish and Wildlife Service was involved, stating that they should be, given the number of base closure properties being turned over to the Interior Department. He recommended that OERR deal with technologies and related issues first, and address policies once they have a clear view of the state-of-the-technology.

Stephen Warren asked whether there were any linkages to the presumptive remedy process. Mr. Breeden noted that the tiered timeline for containment system information may prevent consideration of this data in the development of presumptive remedy policies and guidance. However, the guidance on technical impracticability does include consideration of containment, and OERR has made other efforts to keep OSCs and RPMs informed. Dr. Kovalick recommended using the WASTECH series of monographs as a way to disseminate information on containment technologies.

Integrated Remedial Technologies Evaluation Program

Oba Vincent, U.S. Department of Energy, said the Integrated Remedial Technologies Evaluation Program (IRTEP) seeks to coordinate technology evaluation, selection, and implementation at three sites in Ohio (DOE/Mound, DOE/Fernald, and Wright-Patterson Air Force Base). All three sites sit on top of the same aquifer and share some common remediation needs. Technology assessments under IRTEP are based on EPA protocols.

Several features distinguish IRTEP from other technology evaluation programs. There are multiple sites. Regulators are involved upfront, with the technology selection process driven by EPA/ORD with the participation of other interested parties through the creation of a Federal Facilities Integration Team (FFIT). The FFIT is made up of Federal agency advisors, state regulators, EPA, and private sector participants. Also, during the preliminary assessment phase, stakeholder consensus was reached based on proven ORD protocols. However, stakeholder orientation has been slowed by the difficulties DOE and DoD have had in identifying citizen groups that represent local interests adequately. There are no Community Advisory Groups (CAGs) or Site Specific Advisory Boards (SSABs) at any of the facilities. This circumstance has not been caused by a lack of local interest, but rather by a lack of consensus on who can best represent local interests.

The FFIT was formed two years ago. In that time, cooperation among sites has increased, some evaluations have been completed, and a request for proposals for common treatment technologies needed at all three sites has been put together. Other technologies, such as microwave treatment of VOCs and soil compaction for volume reduction, are being evaluated. There have also been a series of technical exchange meetings. In the future, an IRTEP office will be established, technology evaluations will continue, and the agencies are looking into developing a Home Page on the Internet. Better methods for involving local citizens will be established: Secretary O'Leary has said that there will be some form of an SSAB at the DOE facilities.

POLICY DEVELOPMENTS

Follow-up from *Bridge to a Sustainable Future*

Tom Houlihan of the Interagency Environmental Technology Office (IETO) said the report entitled *Technology for a Sustainable Future — A Framework for Action* and its followup National Environmental Technology Strategy, entitled *Bridge to a Sustainable Future*, are a framework for action in a number of policy areas where Federal government action could encourage new partnerships that would facilitate the development of U.S. environmental technology products and services. The report was presented by Vice President Gore on July 14, 1994, and was followed by a White House conference on environmental technologies last December. On April 18, 1995, the Strategy was announced by the Vice President.

Mr. Houlihan said the main problem in the technology development pipeline is the funding gap between the concept/bench-scale testing phase and commercialization. Developers usually have no problem financing their operations through the bench-scale demonstration phase, but further funding to support commercialization is often not available, since developers can not “guarantee” a market for their product until after scale-up. Mr. Houlihan said this is an example of how technologies are pulled into the market rather than pushed, a circumstance common to most technology development sectors, not just environmental.

Mr. Houlihan described the structure of the President's National Science and Technology Council (NSTC), its Committee on Environment and Natural Resources (CENR), and the President's Committee of Advisors on Science and Technology (PCAST). Environmental technology policy, as well as many other science and technology policies, is developed through these executive branch organizations.

Mr. Houlihan described the elements of the National Environmental Technology Strategy to move the country toward sustainable development through coordination of public and private efforts on a set of shared, long-term goals. Five themes have emerged as the keys to moving forward:

- performance, flexibility, and accountability
- innovation
- commercialization
- development of sustainable communities
- partnerships to learn and work together

IETO has identified findings, goals, and initiatives to promote these themes. For example, they found that inflexibility in regulations has limited technology development. Since one goal of technology development is to achieve continuous improvement in environmental performance across

all U.S. industry by strengthening regulatory incentives for innovation, Project XL was initiated, wherein greater flexibility in achieving environmental objectives is offered as an incentive in exchange for a reductions in discharges below current standards.

Another example is the Rapid Commercialization Initiative, developed in response to a finding that the lack of credible technology verification systems limits environmental technology commercialization. The Initiative will be announced in mid-August, and aims to bring ten technologies to market within the first year by developing credible performance information on these products through Federal and state government partnerships.

The IETO itself is an initiative under the Strategy, founded on the principle that improved relationships between the government and the private sector can stimulate investment and diffusion of U.S. environmental technologies. Parallel to the founding of the IETO was the implementation of GNET, the global network for environmental technologies set up to gain access to the Internet and World Wide Web.

Mr. Houlihan concluded by providing contact information for anyone interested in becoming involved in strategy implementation. Copies of *Bridge to a Sustainable Future* are available by calling 1-800-368-6676. The IETO numbers are 202-426-2078 and 202-426-2130 (fax). E-mail can be sent to etcommentsf.gov or tom.houlihan.doe.gov.

In response to a question on the Rapid Commercialization Initiative, Mr. Houlihan said the technologies selected for participation will be near-ready technologies that could benefit from a demonstration that provides credible performance data. The Initiative emphasizes marketability enhancement rather than technology development. The government will provide a site and deal with accelerating permitting and other bureaucratic matters; other financing will be borne by developers. Technology selection is not restricted to remediation technologies.

In response to another question, Mr. Houlihan said IETO is a “virtual” agency, supported and staffed by interested Federal agencies. The Roundtable discussed IETO's links with the Western Governors Association and other demonstration/verification efforts, and the need to clearly define the goals and objectives of the different programs to avoid confusing the public and the possible balkanization of verification programs into 50 state programs. The key to success for any verification program is reciprocal acceptance of results from one demonstration by other states and EPA regions.

COST AND PERFORMANCE INFORMATION SHARING WITH THE FEDERAL GOVERNMENT

Petroleum Environmental Research Forum

John Wilkinson, Exxon Research, said the Petroleum Environmental Research Forum (PERF) is a voluntary cooperative research organization formed under the National Cooperative Research Act. PERF operates under initiatives from its 23 major member companies to conduct applied research projects that address technical needs of the member companies. Project participation is not limited to members or petroleum companies. PERF officers and committee chairs are volunteers from those companies, and projects are funded by any of those companies that elect to join on a project by project basis. The PERF has no paid staff. Stephen Warren asked whether and how cost and performance data from these research projects were published. Mr. Wilkinson noted that performance data is released in reports available to anyone, but cost data may be restricted.

The focus of PERF projects is on problem-solving rather than basic research, and most projects will correspond to some need within the petroleum industry. These are research sharing projects: any benefits of a project are distributed only among members and others that elected to participate through funding or some other contribution. Research sharing involves determining areas of mutual interest, agreeing to exchange results with other players and to hold information confidential for a period of time, and satisfying a certain minimum financial contribution.

Mr. Wilkinson identified several first and second generation research sharing projects, including several that established a “consociate” status to allow third parties to participate in projects for research contributions at less that the full participation fee. Consociates may attend meetings of the PERF Steering and Technical Advisory Committees, but do not have a vote. Confidentiality provisions have also been reduced to allow third parties easier access to information. Mr. Wilkinson said PERF has also looked into establishing a CRADA, but their experience was not positive and an agreement was never signed.

Dr. Kovalick asked how PERF was different from research programs sponsored by the American Petroleum Institute (API). Mr. Wilkinson said PERF is meant to be a layer of focused, problem-solving research on top of the API's efforts. He added that PERF offers the potential for very quick execution and completion of projects, especially for “hot” ideas. Jeff Marqusee asked whether these are regular research programs with deliverables. Mr. Wilkinson said that meetings are held at the beginning of the project to establish the goals and objectives of the project, including deliverables.

Mr. Wilkinson added that free riders are not allowed, which has been the main sticking point preventing the expansion of PERF to include government entities. A primary goal of the petroleum industry is to comply with the laws at the least possible cost. This has led some in the industry to see a comparative advantage in withholding technological advances developed by PERF from outsiders for a year or two as permitted by law. Since governments may be unwilling or unable to finance or otherwise contribute to private research foundations sponsored by a regulated industry, direct participation and information sharing are problematic, though the restrictions on participation may be relaxed.

MORE POLICY DEVELOPMENTS

Best Management Practices for Soil Treatment Technologies

Subijoy Dutta, EPA/OSW/PSPD, said a team of scientists and engineers from various EPA offices (OSW, OERR, TIO, Region 1) and the States of New Jersey and Delaware has been formed to develop Best Management Practices (BMPs) for treatment technologies under the Hazardous Waste Identification Rule (HWIR). The purpose of BMPs is to minimize cross-media transfer and other environmental impacts of the particular treatment technology. BMPs are meant to provide guidance and recommendations on operational practices, rather than require methods and practices. Mr. Dutta said BMPs are needed for over 70 technologies, but the team could reduce that number to seven categories of technologies:

- containment
- soil washing
- thermal treatment
- vapor extraction
- bioremediation
- incineration
- other physical/chemical treatment

General BMPs will be developed for each category, supplemented by technology-specific BMPs as needed to address any technology-specific variation within a general category. Prior to the issuance of any BMPs, the team conducted a series of workshops at which guidance from experts was solicited on definitions, key features, cross-media issues, restrictive waste characteristics, and residual management. Mr. Dutta reviewed the schedule for future team activities. They expect to complete the draft BMP guidances in October 1995.

Roundtable questions and discussion on BMPs centered on their role and effects on technology innovation. Stephen Warren was concerned that BMPs sound like mandates from EPA, which may block technology innovation in some areas, and suggested that take EPA steps to ensure that BMPs are identified as post-technology selection recommendations only. Ted Zagrobelny asked whether there were other EPA publications and directives dealing with the same issues that are "subordinate" to the BMPs, how site managers would know the difference, and how BMPs relate to site cleanups in general. Dr. Kovalick explained that the HWIR provides a standard decision rule for state and Federal agencies to identify hazardous waste. BMPs only deal with treatment technologies applied to Subtitle C wastes above the bright line, and, since they are the result of recommendations under the Federal Advisory Committee Act (FACA), they can only suggest operational practices. They can not and do not mandate technology selection.

Mr. Zagrobelny said suggested BMPs be worked into EPA guidance and directives to provide consistency. Mr. Marqusee said BMPs should be recommendations only, and should avoid requiring anything. Dr. Kovalick reminded the Roundtable that BMPs were an outgrowth of the FACA process; as such, they can only define what the treatment (*e.g. bioremediation*) is <u>if</u> selected, not whether it is required. Mr. Warren restated his belief that BMPs will prove to be significant barriers to technology innovation. Dr. Kovalick, responding to the concerns expressed around the table, offered to convene a separate meeting if member agencies wanted to meet independently with the appropriate EPA office. Messrs. Marqusee, Warren, and Zagrobelny expressed an interest in pursuing the issue at future meetings.

Defense Science Board Task Force on Environmental Security: Interim Report of Findings

Jeff Marqusee said the Defense Science Board Task Force on Environmental Security is a panel of experts from industry and academia that advises the Under Secretary of Defense for Acquisition and Technology. The interim report of findings of the Task Force stated that DoD's has substantial environmental responsibilities that can not be avoided, and that the fundamental environmental requirements imposed on the Department are worthwhile. The report noted that while DoD has made progress, the Department has been reactive rather than proactive in addressing environmental responsibilities, and should focus more on costs and effects on readiness of these responsibilities.

Mr. Marqusee outlined the approaching budget dilemma facing the Department, wherein the costs of increasing environmental cleanup efforts under DERA, BRAC, *et al*., are not matched by current budget projections. The Department is facing increasing environmental requirements, increasing cleanup costs as efforts shift from studies to remedial work, and future budget decreases. In response, Mr. Marqusee cited the need for a new investment strategy and better technology certification programs. The report identified seven key opportunities for improvement:

- using a budget planning and management approach for projects based on comparative risk reduction that addresses highest risks first with decisions driven by future land use and the amount of time needed to achieve particular cleanups;

- increasing pollution prevention efforts;
- accelerating technology development and deployment;
- integrating environmental considerations into weapon systems life cycles;
- improving implementation through benchmarking and other metrics;
- being proactive; and
- stabilizing budgets at about $5 billion/year for the next five years

Mr. Marqusee said one way of accelerating technology development and deployment would be to identify near-ready technologies that are being blocked by institutional inertia or regulatory barriers. The lack of cost and performance data is also a significant bottleneck. In response, DoD may identify established commercial environmental research and development programs as potential partners in technology development. Mr. Marqusee noted that DoD's own procurement procedures may hamper expedited technology development and deployment.

Update on the Western Governors' Association Projects: The Committee to Develop On-Site Innovative Technologies and the Interstate Technical and Regulatory Cooperation Workgroup

Jim Cummings, U.S. EPA/OSWER/TIO, said the Workgroup on Interstate Technical and Regulatory Cooperation (ITRC) is an offshoot the Western Governors' Association (WGA) Committee to Develop On-Site Innovative Technologies (DOIT). The State of California has taken the lead in the Workgroup, with the State of Texas serving as co-chair. On June 26, 1995, the WGA was to issue a codicil supporting innovation that, among other things, called for mutual acceptance of test data by the member states. The States of California, Illinois, New Jersey, and Massachusetts already have executed a multistate memorandum of understanding (MOU) ensuring reciprocal treatment of test data. Dr. Kovalick said the WGA codicil may be of special interest to the Roundtable since it was to include topics such as cross-permitting. Mr. Cummings cited examples of data acceptance problems within states as well as among them, wherein test data accepted in one region of a state may not be accepted in another region of the same state. Such issues are beyond the purview of the WGA.

Mr. Cummings said a survey of state policies and programs on technology development provided little useful information since few states have implemented policies and programs in this area. However, Mr. Cummings said this may present more of an opportunity than a hinderance if states are nonetheless prepared to development and implement such policies and programs.

The ITRC Workgroup is developing test data protocols for thermal desorption, *in situ* bioremediation, and plasma hearth technologies. These were selected for the first round to serve as prototypes for protocol development since there are few if any barriers to their implementation. The Workgroup is also exploring linkages between the protocol and the WASTECH monograph for thermal desorption. The *in situ* bioremediation protocol will be based on the Air Force bioventing protocol which has already been endorsed by several Federal agencies.

The Workgroup is developing case studies that highlight examples of accepted and successful projects involving the reinjection of fluids as part of an *in situ* remedy to counter barriers based on state anti-degradation policies and seeking to establish communication links, procedures, and formats for reporting completed projects. The Workgroup currently communicates through the CLU-IN Bulletin Board System.

ROUNDTABLE INFORMATION PRODUCTS

Development of Roundtable Information Exchange Series

Dan Powell, U.S. EPA/OSWER/TIO, said the fourth editions of *Accessing Federal Data Bases for Contaminated Site Clean-Up Technologies* and *Federal Publications on Alternative and Innovative Treatment Technologies For Corrective Action and Site Remediation* will be published in the coming months, and sought input from the member agencies to ensure that both publications reported the latest information. Mr. Powell also sought further input from the member agencies for the draft Roundtable publication entitled *Accessing the Federal Government: Site Remediation Technology Programs and Initiatives*. Dr. Kovalick asked that comments and contributions be submitted by the end of August, and sent to Naomie Smith (U.S. EPA/OSWER/TIO).

Remediation Technologies Screening Matrix/Reference Guide

Frank Freestone, U.S. EPA/RREL, and Ed Engbert, U.S. Army Environmental Center, reminded attendees to pick up copies of the *Remediation Technologies Screening Matrix and Reference Guide, Second Edition*. Development of the document has been a joint effort of the DoD Environmental Technology Transfer Committee (ETTC) and the Roundtable, and consolidates similar documents published by the Army, Air Force, Navy, DOE, and EPA. Drafts of the document were distributed at the last Roundtable meeting. At that time, Mr. Freestone had asked the attendees to fill out and return a questionnaire form in the document designed to obtain feedback on the structure, content, and format of the document. Attendees were encouraged to fill out and return the survey forms as soon as possible, if they had not already done so.

Information Transfer

Ed Negrelli, I.M. Systems Group, provided some lessons learned from the development and use of the Air Force Acquisition Model (AFAM), an electronic reference system that has provided information to over 10,000 users at over 800 locations since its release in July 1992. The AFAM may soon be adopted by DoD for all services.

The AFAM process for collecting, standardizing, presenting, and disseminating information begins with the conversion and organization phase, where information from a variety of sources (policies, regulations, bulletin board systems, meetings, etc.) are converted into the standard AFAM format and integrated into the AFAM data base management system. Any form of source information is acceptable prior to conversion. The data base management system controls data, manages context structures, establishes information domains, and manages presentation linkages. The key feature of the presentation phase is the knowledge presentation system, which provides a hyperinteractive link back to the data base management system for each item in data base.

AFAM is disseminated on-line and on a CD-ROM. The CD-ROM is updated periodically, and is typically searched first to take advantage of its speed, followed by an on-line search to ensure a thorough, up-to-date search. Mr. Negrelli noted that information in the AFAM system can be divided into three categories, which he called “must do” (regulations, etc.), “should do” (accepted or “accredited” practices), and “nice to do” (recommended practices, lessons learned, etc.). Dr. Kovalick asked for some “cost and performance” information on the AFAM system. Mr. Negrelli said the size of the AFAM is 80 MB, which just over 10% of the 750 megabytes available on a CD. Mr. Negrelli placed the cost of the Model at $1.2 million, or $1.4 million if contractor labor is used.

WRAP-UP

Dr. Kovalick said the next meeting of the Roundtable will be scheduled for November 1995, shortly after HMCRI Superfund XVI, which is convening earlier in the year than usual (November 6-8, 1995). (Ed: The next meeting of the Roundtable will be held on November 15, 1995, in the Washington, DC, area.)

The meeting adjourned.

ATTACHMENT 1

Participants
FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE
June 21, 1995

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