

U.S. EPA TECHNICAL SUPPORT PROJECT BUSINESS SESSION SUMMARY

October 18-21, 2004
Hyatt Regency Hotel
Sacramento, CA



Technical Support Project

U.S. EPA TECHNICAL SUPPORT PROJECT CO-CHAIRS

Engineering Forum:

Sharon Hayes, Region 1 • Gene Keeper, Region 6 • Bernie Schorle, Region 5

Ground-Water Forum:

Richard Willey, Region 1 • Jeff Johnson, Region 7

Federal Facilities Forum:

Harry Craig, Region 10 • Jim Kiefer, Region 8 • Christine Williams, Region 1

TABLE OF CONTENTS

| | |
|---|---------------|
| FEDERAL FACILITIES FORUM | 1 |
| Introduction and Welcome | 1 |
| Regional Roundup | 1 |
| Updates from the Federal Facilities Restoration and Reuse Office | 2 |
| BRAC 2005 | 2 |
| DOD Environmental Baseline Surveys | 2 |
| DOD In-Progress Reviews | 2 |
| New GPRA Measures | 3 |
| Agency Dockets | 3 |
| FUDS | 3 |
| Perchlorate Contamination | 3 |
| Munitions | 4 |
| Streamlining Workgroup | 4 |
| One Cleanup Workgroup | 4 |
| DOE Site Cleanups | 4 |
| Emerging Contaminants | 4 |
| Spring Technical Support Project (TSP) Meeting with NARPM | 5 |
| Geophysics for UXO Detection | 5 |
| Perchlorate Issue Paper | 5 |
| Closing Statements | 5 |
| ENGINEERING FORUM | 7 |
| Co-Chair Election Results | 7 |
| Engineering Forum Membership and Participation | 7 |
| New Directions | 7 |
| Topics for Monthly Teleconferences | 8 |
| Engineering Bulletins Update | 8 |
| Update on In-Situ Soil Treatment Issue Paper | 9 |
| Evergreen List Update | 9 |
| Engineering Expertise Survey | 10 |
| Selecting Treatment Process Design Data to Collect at Hazardous Waste Sites | 10 |
| Planning for Fall 2005 TSP Meeting | 12 |
| 120-Day Study Recommendations | 12 |
| GROUND WATER FORUM | 13 |
| TSP Website Disclaimer | 13 |
| Spring 2005 TSP/NARPM Meeting | 13 |
| Project Review and Achievements | 13 |
| Ground-Water/Surface Water Interactions Guidance | 13 |
| ORD's Ground Water to Surface Water Issue Paper | 14 |
| Monitored Natural Attenuation for Inorganics Guidance | 14 |
| Uncertainty Issue Paper | 14 |
| Site Characterization for Monitored Natural Attenuation Issue Paper | 14 |
| Capture Zone Issue Paper | 14 |
| Capture Zone Training | 14 |
| Measurement of Field Parameters Issue Paper | 14 |
| Ground-Water Sampling Guidelines | 14 |
| Ground Water Task Force | 15 |

| | |
|---|-----------|
| Geostatistical Unified Guidance | 15 |
| Strategies for Monitoring the Performance of DNAPL Source Zone Remedies | 15 |
| Multi-Level Well Study | 15 |
| Project Management | 15 |
| DNAPL Fact Sheet | 16 |
| Evaluating Capture Zones with Push Point Sampling | 17 |
| Bottom-Up Vertical Profiling | 18 |
| Nominations for Co-Chair | 18 |
| Principles for Workgroup Participation | 18 |
| TSP/NARPM Co-Chair Meeting | 20 |
| ITRC Activities | 20 |
| Action Items | 21 |
| PARTICIPANTS LIST | 22 |

FEDERAL FACILITIES FORUM

Introduction and Welcome

Federal Facilities Forum, co-chairs Harry Craig (Region 10), Jim Kiefer (Region 8), and Christine Williams (Region 1), welcomed Forum members and guests to the meeting and provided an overview of the Forum's business session agenda.

Regional Roundup

Forum members confirmed or added major issues of concern regarding federal facilities in each of the regions, as first reported during the Forum's September 2004 teleconference. The expanded list includes:

Region 1

- Fort Devens property transfer involving UXO clearance
- Massachusetts Military Reservation CERCLA plume adjacent to SDWA plume
- South Weymouth Naval Air Station privatization efforts
- 1,4-dioxane contamination

Region 2

- Air Force failure to complete federal facilities agreements (FFAs) responding to regional concerns

Region 3

- performance-based documentation, contracts, and activities
- subsurface sampling
- trichloroethene (TCE) contamination
- post-ROD issues
- perchlorate contamination

Region 4

- cleanup at Redstone Arsenal
- cleanup at Oak Ridge National Laboratory
- perchlorate contamination
- post-ROD issues such as land use controls
- placement of sites on the CERCLA docket

Region 5

- renegotiation of FFAs with DOE

Region 6

- performance-based cleanup contracts
- perchlorate monitoring
- PCBs and ecological risk
- early property transfer at Army facilities
- asbestos-removal pilot in Region 6

Region 7

- Army facility decontamination involving burning of buildings
- 1,4-dioxane contamination
- 5-year review issues such as land use controls
- FFA negotiations for a DOD NPL site with current DOE activity

- U.S. Army Corps of Engineers development of engineering regulations for FUDS

Region 8

- Corps of Engineers development of engineering regulations for FUDS
- placement of FUDS on the CERCLA docket
- characterization and cleanup at mining sites

Region 9

- Air Force oversight of land use controls
- McClellan privatization efforts and funding
- contaminated sediment washing from Pearl Harbor to nearby properties
- Navy funding for cleanup at El Toro air base
- Air Force performance-based cleanup contracts
- early property transfers
- costs for implementing and monitoring institutional controls (ICs)
- perchlorate contamination

Region 10

- perchlorate sampling and extent of ground-water contamination at DOD sites
- disposal of perchlorate-contaminated material from Camp Bonneville
- UXO cleanup at Adak Naval Air Station
- 1,4-dioxane contamination at military sites
- Environmental Technology Security Certification Program-sponsored work on statistical sampling
- Navy funding limitations for Adak Naval Air Station and Jackson Park sites
- BRAC '05 funding
- characterization and cleanup at sites undergoing privatization
- placement of sites on the CERCLA docket and NPL
- DOD's readiness and range preservation initiative
- FUDS cleanup
- emerging contaminants

Updates from the Federal Facilities Restoration and Reuse Office (FFRRO)

John Michaud, FFRRO Acting Assistant Director, summarized recent activities and strategies implemented by his office to address ongoing and new issues at federal facilities.

BRAC 2005

By May 16, 2005, DOD is required to announce its list of military installations for which closure or realignment is recommended. Milestones for BRAC '05 have been met consistently, and FFRRO foresees no delays.

DOD Environmental Baseline Surveys

The Navy's overall strategy for conducting environmental baseline surveys (EBSs) reflects an increasing emphasis on the need for due diligence by property purchasers. Decisions regarding the completion of additional environmental studies to fill any information gaps are being made at the installation level, on a case-by-case basis. The Navy's approach to EBS completion, however, may not reflect those of other DOD services.

DOD In-Progress Reviews

DOD's current in-progress review (IPR) expires in September 2006. IPR reporting by the military services has been delayed for various reasons. The Navy's plan for sites identified under BRAC '05, for example does not include cleanup teams. Difficulties in preparing the current IPR are enhanced by a

decreasing number of property transfers occurring between federal agencies due to past complications associated with environmental contamination.

In its July 2003 IPR, DOD expressed concern that alternative methods are needed to determine the extent of EPA resources required to implement the BRAC program. In response, EPA has proposed to DOD that a “report card” method, rather than the current “cost/time” method be used to track EPA’s BRAC resources. Development of an EPA/DOD memorandum of understanding (MOU) may help to improve consistency in resource reporting across DOD (including its installations) and to increase EPA’s funds for BRAC-related work. The extent of funding available to EPA for BRAC ’05 work will be better understood shortly after Congressional appropriations are completed.

New GPRA Measures

Congress has established new Government Performance and Results Act (GPRA) requirements concerning the reuse of federal facility properties. To monitor progress toward meeting the requirements, EPA will begin collecting information on the number of acres that are ready for residential and nonresidential reuse at active military installations. Changes in CERCLIS and companion documents will be made to accommodate the new performance measures. Data collection will begin in FY 2005, with formal reporting to start in FY 2006.

Agency Dockets

Responsibility for maintaining the Federal Facility Docket was transferred recently to FFRRO from the Federal Facility Enforcement Office. FFRRO is working with the Federal Facilities Leadership Council to determine the best methods for assuming the role. Re-evaluation of the criteria used for placing sites on the docket is anticipated. FFRRO also anticipates that the placement process will require increased involvement from EPA regions. The Forum agreed that additional information is needed to clarify the docket’s purpose and to differentiate it from the federal facility list maintained under CERCLA Section 120.

FUDS

Development of the Agency’s FUDS inventory is on schedule, with projected completion by the end of 2004. Additionally, DOD has completed FUDS statewide management action plans for all states except Alaska and Nebraska.

DOD now conducts cleanups at FUDS in accordance with an engineering regulation recently issued by the Corps of Engineers. The Forum expressed concern, however, that the regulation does not comply with CERCLA requirements and often results in site-specific administrative records containing insufficient information. Efforts are underway within the Agency’s One Cleanup Program to improve coordination and communication among EPA, the Corps of Engineers, and federal land managers when dealing with problems such as FUDS cleanup.

Perchlorate Contamination

The Agency has worked with DOD since Spring 2004 to address the potential problems posed by perchlorate contamination at military sites. DOD has drafted a report to Congress on the extent of perchlorate contamination in the southwestern United States, on which EPA has submitted comments. To better determine the extent of perchlorate occurrence and identify imminent dangers, DOD has agreed to continue monitoring and remediation at sites where such activities already have begun.

DOD has expressed its position, however, that the Department will not actively address potential perchlorate contamination at additional sites in the absence of EPA regulatory standards—most specifically, a maximum contaminant level (MCL). EPA has responded that the establishment of an

MCL for perchlorate or its designation as a CERCLA hazardous substance is not required in order for DOD to meet its obligation to complete site cleanups and address unacceptable risk.

The Forum recognizes that resolution of the problem may help to clarify DOD's overall compliance with CERCLA requirements. The Forum also recognizes the Agency's need to investigate potential perchlorate contamination at non-military sites such as wastewater treatment plants or commercial blasting facilities, and to determine whether multiple contaminant sources are involved at perchlorate sites.

To help clarify some of these issues, FFRRO is developing an interactive map illustrating the extent of perchlorate detections across the U.S. In addition, the Forum has drafted a technical issue paper addressing perchlorate treatment technologies. Release of the final issue paper is expected in early 2005.

Munitions

DOD recently published its draft guidelines on munitions response and is now incorporating public comments. EPA's concurrence on the guidelines has been requested. Incorporation of public comments on DOD's munitions handbook also is underway. DOD anticipates training sessions to help users implement the new guidance and handbook.

DOD also issued directives in mid 2004 concerning the management of explosives at active military ranges, and is now developing a concept paper on explosives hazard assessment. The Forum expressed a need for a comprehensive listing of DOD's various fact sheets, guidance materials, and technical papers on munitions and UXO.

Streamlining Workgroup

The Agency's Streamlining Workgroup is working with DOD to prepare a streamlined ROD development process and ROD model. The anticipated workgroup products will help to eliminate ROD redundancy and reduce paperwork while retaining core elements required by the National Contingency Plan (NCP). A series of remedial action completion reports also is being developed to help to cross-reference documentation. EPA headquarters will solicit two rounds of regional comments concerning the streamlined process, which uses a ROD model based on the Navy's Little Creek facility in Region 3.

One Cleanup Workgroup

The interagency One Cleanup Workgroup continues its efforts to integrate program-specific requirements and activities for site cleanup. Recent workgroup efforts involved establishing a policy on mining waste management at joint repositories and developing a model MOU on RCRA/CERCLA integration. Federal land managers have begun working with the Corps of Engineers and states to better coordinate FUDS activities, and are expected to join with EPA shortly in an MOU concerning the coordination of federal land cleanups.

DOE Site Cleanups

DOE has expressed concern over inconsistencies in EPA's role at DOE sites. EPA's primary concerns at DOE sites relate to management of transuranic waste, the increased role of commercial contractors in site management decisions, the complexity of waste transportation issues, and the use of risk-based end states for cleanup.

Emerging Contaminants

FFRRO is closely tracking developments concerning environmental fate and cleanup of selected emerging contaminants: 1,4-dioxane, nanotechnology compounds, N-nitrosodimethylamine (NDMA),

“tungsten bullets,” and compounds potentially found at military ranges. FFRRO also is tracking the results of emerging contaminant studies initiated or planned by the State of California. The ECOS-DOD Sustainability Workgroup announced during its October 2004 meeting that it will sponsor a conference in 2005 dedicated to the subject of emergent contaminants.

Spring Technical Support Project (TSP) Meeting with NARPM

Forum co-chairs confirmed that the Spring 2005 TSP meeting will be held in conjunction with the annual meeting of NARPM. The joint meeting is scheduled for May 2005 in Phoenix, AZ. The co-chairs will continue discussions with NARPM co-chairs regarding potential meeting topics and Forum contributions. Potential topics suggested by the Ground Water Forum include contaminant source removal, permeable reactive barrier (PRB) performance monitoring, monitored natural attenuation of inorganic contaminants, and cleanup optimization and cost savings.

The Forum also will suggest training sessions on munitions management, downhole monitoring well techniques, and the process for partial delisting of sites on the NPL. In response to NARPM’s call for technical papers, Forum members will submit abstracts on federal facility issues such as privatization and BRAC ’05. The Forum also will suggest training modules on: (1) the use of geophysical digital mapping techniques for QA/QC purposes, possibly combined with a field demonstration; (2) intermediate training on radioactive materials management; and (3) early transfers and related reuse issues associated with BRAC properties.

Geophysics for UXO Detection

Lorraine Godwin (Geosoft Inc.) presented information on state-of-the-art geophysical techniques for identifying UXO. Geosoft’s software can be used to manage digital geophysical mapping (DGM) data obtained through use of magnetometers and electromagnetic induction tools. Effective UXO information management strategies can produce effective digital maps, validate data, detect field problems, store large volumes of data, and provide data archives.

Following a demonstration of DGM products using site-specific data from Region 10, the Forum discussed various problems encountered during UXO site investigations and the potential benefits of using DGM techniques. Uncertainty during characterization of UXO sites generally stems from complex data processing and interpretation, the large areal extent of target sites, local geologic conditions, instrument noise, and the amount of historical data available for estimating UXO types and locations. The Forum will investigate the possibility of sponsoring a similar but expanded training session on geophysics for UXO detection during the Spring TSP/NARPM meeting.

Perchlorate Issue Paper

John Quander (TIFSD) distributed copies of the October 13, 2004, draft issue paper on perchlorate treatment technologies. Early comments indicate that the draft should include an expanded list of information resources, process diagrams illustrating typical treatment technologies, and discussion of additional technologies such as reverse osmosis. Relevant updates from the Agency’s program offices will be integrated into the draft, as will enhanced figures. Following the incorporation of Forum comments, the draft will be submitted to the Interagency Perchlorate Workgroup for review. Subsequent drafts also will be provided to the Ground Water Forum and the Interstate Technology and Regulatory Council (ITRC) for additional review.

Closing Statements

Members noted other recent activities and publications relevant to cleanup at federal facilities. The ITRC is preparing munitions-related documents on: (1) the role of historical data review in munitions response; and (2) techniques for conducting geophysical prove-outs. The Corps of Engineers also is

preparing a document on the use of field screening methods for perchlorate detection. The Forum will investigate the availability of recently prepared DOD listings of sites at which perchlorate is currently used or was used in the past.

ENGINEERING FORUM

Co-Chair Election Results

Sharon Hayes (Region 1) ran unopposed for reelection as Engineering Forum (EF) co-chair and began a new two-year term at the fall meeting. Gene Keeper's (Region 6) co-chair position will end at the Spring 2005 meeting.

Engineering Forum Membership and Participation

EF members are required to sign a participation agreement stipulating that they will regularly participate in monthly teleconferences and biannual meetings (resources permitting), and that they will actively engage in transferring technical knowledge to interested parties in their Regions. In addition, EF members should be willing to participate on EF subgroups and standing committees and assume responsibility for drafting and reviewing EF work products. If the EF is to maintain its usefulness and viability, members must make a concerted effort to fulfill their obligations by volunteering to work on deliverables, submitting technical topics, and participating on teleconferences.

Julie Santiago (Region 4) suggested that the EF co-chairs give a presentation at the Spring 2005 NARPM/TSP Meeting to enlighten RPMs about the EF's purpose and to highlight the services that the Forum can provide. If more RPMs are aware of the EF's mission, then EF members may get more requests for technical assistance. EF members suggested several ways that the Forum could market its services, including:

- Drafting or reviewing innovative technical issue papers and engineering bulletins that serve as tangible tools for RPMs;
- Creating an EF booth that details the EF's mission and that can be set up at large conferences, such as NARPM;
- Creating an EF "pocket guide" or brochure that summarizes the EF and the contents of the poster;
- Sponsoring technical sessions at NARPM to discuss emerging topics (such as remedy failure, 5-year reviews, and O&M);
- Holding a 2-hour technical question and answer session at NARPM (for which questions will be submitted ahead of time);
- Updating the EF resource directory that lists all EF members and their areas of expertise; and
- Creating an index of engineering-related websites.

Action Items:

- *Sharon Hayes (Region 1) will contact Mark Granger (Region 2) to get the latest draft of the EF resource directory; and*
- *Andy Palestini (Region 3) volunteered to update the EF resource directory.*

New Directions

Frank Vavra (Region 3) suggested that the EF look for new and emerging technologies or topics upon which issue papers, technical topics, and other work products could be based. By staying at the forefront of innovation, the Forum could generate interest while fulfilling its mission. Ray Cody (Region 1) agreed with Frank, noting that the Administration is quickly moving forward with new initiatives that the EF should become involved with. By being proactive, the EF can develop work products that are of greater use to RPMs. Steve Kinser (Region 7) said the EF needs to express engineering solutions for problems that are inherent to the technologies being used. Bernie Schorle (Region 5) agreed, further stating that the EF may want to focus on reuse.

Topics for Monthly Teleconferences

In recent months, few technical topics have been submitted to the co-chairs for discussion during the monthly EF teleconferences. These technical topics are crucial components to the EF's mandate to facilitate technology transfer among and between regions, headquarters, and labs. Members should consult with their colleagues regularly to solicit technical topics that can be discussed during the calls. These topics should be forwarded to the co-chairs in advance of the call so they can inform the EF members beforehand about the call topics.

At the suggestion of several members, time will be devoted to discussing "quick questions" and regional issues during each teleconference. When an EF member or friend receives a request for information on a technical topic, they should forward that information to the co-chairs for distribution to the entire forum. During the call, the individual who forwarded the issue will lead a discussion of the topic and will be responsible for reporting back to the person asking for the information. Time also will be allocated for a "regional roundtable," during which each Region will have the opportunity to discuss topics of interest to their region. Dave Reisman (NRMRL-Cincinnati) noted that ORD is working on an Agency-wide electronic bulletin board/instant messaging interface that will greatly enhance the ability to transfer information.

Engineering Bulletins Update

Dave Reisman reported on the status of the engineering bulletins being updated or drafted by EPA's National Risk Management Research Laboratory (NRMRL) in Cincinnati. The format for these 600-level publications has been standardized by EPA, so there is little leeway in changing the format of the final products. All engineering bulletins acknowledge the EF and list the names of EF members. The revised oxygenates bulletin is undergoing final review and will be published before the end of the calendar year. Four additional bulletins that will be published in the first two quarters of the new year include:

- Bioremediation (both in-situ and ex-situ);
- Treatment of mine water (does not cover coal mining);
- PCB remediation (will require policy and bureau review); and
- In-situ chemical oxidation (ISCO).

ORD also will begin working on a soil capping bulletin that does not include sediments. Finally, a bulletin focusing on in-situ thermal treatment will be drafted. As drafts of these bulletins are finished, Dave will send them to the following appointed EF contacts for review and comment:

| Engineering Bulletin | EF Contact |
|----------------------------|----------------------------|
| Oxygenates | Frank Vavra (Region 3) |
| Bioremediation | Jon Bornholm (Region 4) |
| Mine Water | Frank Vavra (Region 3) |
| PCB Remediation | Steve Kinser (Region 7) |
| In-Situ Chemical Oxidation | Hilary Thornton (Region 3) |
| Soil Capping | Carlos Sanchez (Region 6) |
| In-Situ Thermal Treatment | Leo Romanowski (Region 4) |

Dave said his office has additional funds for contractor support that can be used by the EF for an issue paper of their choosing. Among the topics suggested by EF members were:

- Open burning/open detonation (opportunity to work jointly with the Federal Facilities Forum);
- Site reuse engineering/sustainability;
- Engineering design considerations for vapor intrusion barriers; and
- Bioreactors.

Following discussion, the EF decided to use ORD's money to prepare an engineering bulletin on engineering design considerations for vapor intrusion barriers.

Action Items:

- *Ray Cody will draft an abstract of the vapor intrusion barriers concept and send it to Harry Ball (Region 9) and Frank Vavra for review; and*
- *Following review, Ray will forward the draft to Dave Reisman.*

Update on In-Situ Soil Treatment Issue Paper

Gene Keeper updated EF members on the status of the in-situ soil treatment issue paper. He mentioned that thermal treatment options may be cut from the final paper, although he welcomes comments from EF members on this topic. Leo Romanowski, Ray Cody, and Bill Rothenmeyer (Region 8) agreed to review sections of the paper dealing with treatment options at RCRA sites. All comments should be sent to Dave Reisman or Marta Richards (NRMRL-Cincinnati), with a copy to Gene, by December 1, 2004.

Steve Kinser has reviewed the paper and suggested preparing an executive summary, complete with tables, to be inserted at the front of the document. Dave Reisman agreed that an executive summary would be useful, and noted that a brief (2-3 page) fact sheet or web-based abstract could also be drafted to accompany the paper. The final product will be finished by early March 2005. Dave Reisman volunteered to present a summary of this paper at NARPM.

Action Item:

- *Dave Reisman and Gene Keeper will prepare an abstract of the in-situ soil treatment paper and submit it to NARPM (Mary Cooke and Rob Pope) by the December 1 deadline.*

Evergreen List Update

Hilary Thornton led EF members through an exercise designed to update the evergreen list. The following topics were removed from the high and medium priority lists:

- Limitations of geosynthetic clay liners (topic has been addressed, although EF could prepare a brief fact sheet on the topic and make sure that an update is presented at a future meeting);
- Energy audit checklist (complete);
- Conducting 72-hour pump tests during an RI to accurately determine hydrology parameters for FS/RD;
- Optimization of pump-and-treat (done by Kathy Yager [TIFSD] and Geotrans);
- Considerations in deciding to treat contaminated soils in-situ;
- Remedial designs;
- Design of slurry walls;
- Extraction well design and biofouling; and
- Reactive barrier performance monitoring (being done by Bob Puls [GWERD-Ada] and an ITRC workgroup).

The following topics were kept on the list:

- Storm-water control at remediation sites (topic could be discussed in a fact sheet, summary document, or roundtable discussion at a future TSP meeting);
- SOP for O&M reporting for [insert specific technology] (could be used to add to, alter, or refine the energy audit checklist or USACE checklists);
- Summary of material-handling equipment commonly used with a list of benefits and disadvantages (including production rates);
- SVE optimization;
- Low-temperature thermal desorption/thermal desorption;
- Data requirements for design considerations for eco-remediation;
- Water flooding for enhanced contaminant recovery; and
- Design considerations for site-reuse engineering and sustainability (moved from medium to high priority).

The following topics were added to the list:

- 1,4-dioxane treatment technologies (high priority);
- Engineering design considerations for vapor intrusion barriers; and
- Update to the RD/RA handbook.

Dave Reisman mentioned that the Agency may need technical engineering assistance dealing with emerging sediment issues.

Action Item:

- *The co-chairs will follow up with Kelly Madalinski (TIFSD), who will check if the EF can play a role in helping EPA with technical sediments issues.*

Engineering Expertise Survey

In an effort to inventory and assess the engineering resources currently available to RPMs and other professional staff, the EF distributed a questionnaire to Superfund RPMs last spring. The survey response rate was 39 percent. The EF, with assistance from EMS, is preparing a summary report detailing the results of the survey. Regional and national results were compiled and tabulated, and summaries and conclusions are in the process of being drafted. Within the next month, Bill Rothenmeyer (Region 8) will distribute an outline for the final report and a template to be used for describing who was surveyed and when. He also asked regional representatives to review the data summary sheets compiled by EMS. Once a draft is completed, it will be sent to NARPM for review and comment. Bill hopes to have the final report ready for review by the end of 2004.

Action Items:

- *Bill Rothenmeyer will distribute a template, along with regional summary data sheets, to regional representatives; and*
- *Regional representatives will review the data sheets, complete the who and when section using Bill's template, and draft preliminary conclusions and next steps.*

Selecting Treatment Process Design Data to Collect at Hazardous Waste Sites

Ed Mead (U.S. Army Corps of Engineers) presented his latest draft of the Remedial Process Characterization Screening Data Collection Guidance. He asked the EF for comments and requested feedback based on pilot field application. He is particularly interested in feedback on the water analytics matrix. Based on feedback that has been provided so far, Ed will add cost and quantitation limits to Table 4, add a double line to better distinguish between lab and field test results, and add dollar signs to cost values. Mike Gill (Region 9), Jon Bornholm, Leo Romanowski, Julie Santiago, Kelly Madalinski, and Bernie Schorle agreed to review the paper. Bernie Schorle will put together an abstract to submit to

NARPM as a possible information session topic at the spring meeting. If any EF members know of experts who are willing to review the paper and matrices, they should send the names to Bernie.

Action Items:

- *Ed Mead (USACE) will send the latest draft of the screening data collection paper to the EF for review;*
- *All comments, including points of contact for expert reviewers, should be forwarded to Bernie Schorle by November 15, 2004, who will compile them and forward them to Ed;*
- *Ed will make the changes to the document and send a final version back to Bernie;*
- *Bernie will forward the final version to Kelly Madalinski for formatting;*
- *Kelly will return the formatted document to Bernie, who will then distribute it for final technical review by external experts by mid-January 2005.*

Topics for Spring 2005 TSP/NARPM Meeting

Bernie Schorle (Region 5) led a discussion of proposed session topics for submission to NARPM's spring meeting planning committee. He first reviewed the following list of suggested topics prepared by the Ground Water Forum (EF comments in parenthesis):

- Geostatistics training (not for everyone; too broad);
- Conventional statistics training (not for everyone; too broad);
- Uncertainty issues (too vague);
- Remediation timeframe estimation (good idea, but it is impossible to adequately cover the wide variance in sites);
- Mining site issues (limited geographic applicability);
- Mining workshop (similar to one being done by OSRTI and Region 8; the problem is specific to ground water and may not interest engineers);
- Source removal (somewhat vague topic; already a Ground Water Task Force option paper);
- Performance monitoring of PRBs (report will not be ready in time for the spring meeting);
- Monitored natural attenuation (MNA) of inorganics (GWERD-Ada is working on this topic at the moment); and
- Optimization with emphasis on cost saving components (good engineering topic).

EF members suggested the following topics:

- Corrective Action Management Units, Temporary Units, and Areas of Contamination—how many people use them, and how can EPA encourage states to get facilities to implement these remedies?;
- Risk assessment/risk management issues;
- Field screening techniques (e.g., immunoassay versus analytical laboratory techniques);
- Cost estimation of project activities;
- Construction management and associated oversight costs;
- How to determine production rates and reasonable accomplishments;
- Capping issues (sediment and surface);
- Dynamic project management;
- Cost risk analysis;
- Long-term remedial action;
- Engineering designs for vapor issues;
- Engineering storm-water controls at remediation sites (possible roundtable);
- Ed Mead's screening data collection paper and matrix; and
- Gene Keepper's in-situ soil treatment issue paper.

Several of these topics could be lumped together into one EF session at NARPM. EF members also recommended that NARPM hold some advanced training courses at the spring meeting, as many of last year's courses were too introductory. Following discussion, the EF agreed to submit abstracts for the following topics (with EF lead(s) in parentheses):

- Engineering Design Considerations for Vapor Intrusion Barriers (Ray Cody, Frank Vavra, Harry Ball, and Dave Reisman);
- In-Situ Contaminated Soil Treatment Technologies (Gene Keeper and Dave Reisman);
- Comparison of Laboratory Results with Popular Field Screening Techniques (Leo Romanowski);
- RPM Engineering Expertise Survey (Sharon Hayes);
- Selecting Treatment Process Design Data (Ed Mead and Bernie Schorle); and
- Stormwater Management at Hazardous Waste Cleanup Sites (Steve Kinser and Bill Rothenmeyer).

A seventh potential NARPM presentation topic (capping for sediments) was discussed at the meeting, but later deemed implausible due to Agency personnel changes and changes in capping project schedules.

Action Items:

- *EF leads will draft abstracts and send them to Sharon Hayes by November 22;*
- *Sharon Hayes (Region 1) will collect the abstracts and submit them to NARPM before the November 30 deadline.*

Planning for Fall 2005 TSP Meeting

The EF has the lead for planning the Fall 2005 TSP meeting. Sharon Hayes, Gene Keeper, Bernie Schorle, Bill Rothenmeyer, and Steve Kinser volunteered to serve on a planning subcommittee. Among the potential focus areas for the meeting are:

- Optimization of existing systems (repair, design for reuse/sustainability);
- Long-term performance monitoring (could tie-in with the National Academy of Sciences' (NAS) study of surface and subsurface engineered barriers being funded by EPA); and
- Engineering design for vapor intrusion barriers.

Kelly Madalinski will inform EF members of any developments relating to the NAS study, and will try to get the scope of work for distribution to members.

Action Item:

- *EF members should send ideas or suggestions for meeting topics or potential locations to the co-chairs.*

120-Day Study Recommendations

Kelly Madalinski distributed copies of a summary of recommendations from EPA's 120-Day Study. He asked that EF members review the topics and recommendations and forward to the co-chairs any topics that may be of interest to the EF. The recommendations could serve as the basis for future EF products or as technical topics for future EF teleconferences.

GROUND WATER FORUM

TSP Website Disclaimer

The Ground Water Forum (GWF) has been developing disclaimer statements to include with items posted on the TSP's web page. The need for disclaimers grew out of a discussion of whether statements or actions by a GWF member represent the opinion of the Agency or the individual. Development of a disclaimer has also been embraced by the other TSP Forums. Dick Willey (co-chair, Region 1) distributed drafts of disclaimers that he proposed for use for the following website items: meeting and teleconference minutes; review comments by forum members on documents prepared by EPA or other organizations; and documents developed by or for the TSP. He asked GWF members to review the drafts and e-mail comments to him.

Spring 2005 TSP/NARPM Meeting

Dick distributed a list of proposed papers and workshop topics for the Spring 2005 joint TSP/NARPM meeting. He and Jeff Johnson (co-chair, Region 7) plan to meet with the NARPM co-chairs on Tuesday afternoon to discuss potential topics for the spring meeting. He asked the GWF members to rank the topics both in terms interest to members and usefulness to RPMs.

Howard Orlean (Region 10), chair of the workgroup on TSP/NARPM meeting topics, indicated that GWF members can propose any topics they want for TSP workshops, but they should consider the interests of everyone for ranking the NARPM sessions. Rich Steimle (TIFSD) remarked that several topics of interest to the GWF may be of interest to the wider NARPM audience. He added that since GWF members are responsible for providing technical support to RPMs they should be in a good position to suggest topics that would benefit them the most. Rich reminded the GWF that the joint meeting format came about because of budget considerations, and it was in everybody's interest to try to make it work.

Brian Lewis (CA DTSC) recommended that the GWF endorse the monitoring network optimization course that Kathy Yager (TIFSD) is sponsoring. Kathy will be presenting the course in Sacramento this spring and had mentioned that she would like to present a shortened version for NARPM.

Project Review and Achievements

Ground-Water/Surface Water Interactions Guidance

Kathy Davies (Region 3) reported that the Ecological Risk Assessment Forum (ERAF) has finished another review of the draft guidance. The GWF revised the most recent draft of the joint ERAF/GWF guidance to give more of a hydrogeologic perspective and listed questions that they thought the ERAF needed to address. ERAF hired a contractor to address the GWF's concerns. The revised draft is now ready for GWF members for review. Kathy asked that the GWF provide her with comments by October 29.

A general discussion followed on the importance of understanding ground-water/surface water interactions in order to determine where to collect samples for baseline human health and ecological risk assessment data. The GWF felt that importance of these interactions in selecting sampling locations is not understood, so it was suggested that a member submit an abstract to present a paper at the Spring 2005 meeting. Kay Wischkaemper (Region 4) noted that she recently made a presentation on modeling presentation that included ground-water/surface water interactions as an example so she volunteered to prepare the abstract.

ORD's Ground Water to Surface Water Issue Paper

Dave Burden (GWERD-Ada) indicated that ORD has received both internal and external review comments on the draft issue paper and expects to finish the paper in November and publish it in December.

Monitored Natural Attenuation for Inorganics Guidance

Dave said that drafts of the remaining chapters in the guidance document will be completed by February 2005; a draft for external review should be ready by May. Kathy asked Dave if the GWF could have another opportunity to review the old chapters. Kathy agreed to ask the workgroup if they want to review the old chapters. Dave will ask Bob Puls (GWERD-Ada) if he will accept new comments and determine if GWF state representatives can participate in the review.

Uncertainty Issue Paper

Dave reported that he contacted Ruth Izraeli (Region 2) who indicated that with a few minor comments she was comfortable with the document and that it is ready for external review.

Site Characterization for Monitored Natural Attenuation Issue Paper

Dynamac plans to submit the latest draft of the issue paper to Dave by late November.

Capture Zone Issue Paper

Luanne Vanderpool (Region 5) has submitted the GWF's comments to Dave, and he expects to receive ORD's internal comments by the end of October. He indicated that the comments are minor so they should be addressed quickly.

Capture Zone Training

The draft slides for the training are ready for review and Dave will send them to Kathy or Luanne for distribution to the GWF workgroup. Depending on when Dave receives the workgroup's comments, ORD should be able to schedule two beta sessions in early 2005 in Regions 3 and 9. Dick asked whether ORD should revisit the idea of offering the training online, since they are also developing the capture zone toolbox. The GWF discussed how the two activities were related, the value of the toolbox, and the pros and cons of different presentation methods. For the benefit of senior management, Dick said that he, Herb Levine (Region 9) and Rich Steimle (TIFSD), with input from the workgroup, will prepare a white paper to show how it all fits together. He noted that based on Matt Tonkin's presentation (*Assessing Hydraulic Capture through Combined Analytic Elements and Interpolation*) during Monday's technical session, Tonkin's approach may add another layer of complexity to the issue. Dick commented that the affect this approach has on the toolbox's traditional approach should be determined. Perhaps it also should be included in the toolbox. Dick will contact Kathy, Luanne, and Kay for input on the technical merits of the Tonkin approach. He also needs to determine the intended audience of the toolbox and how complex it is.

Measurement of Field Parameters Issue Paper

Bernie Zavala (Region 10) said he would forward GWF's comments to Dave by the end of October. When these comments are incorporated, the issue paper should be ready for external review.

Ground-Water Sampling Guidelines

Bernie indicated that the workgroup had responded to all of ASTM's comments. Rich noted that Walt Kovalick (TIFSD) wrote to ASTM indicating that ASTM references would be added to the document, but the guidelines would not be revised. He also assured them that the GWF would maintain better communications with ASTM. Steve Gardner (ORD-Las Vegas) will keep the GWF apprised of new

ASTM standards and has sent Bernie a list of new proposed standards. The GWF discussed what their responsibilities would be under this agreement.

Ground Water Task Force

Ken Lovelace indicated that the task force has organized the external comments they've received on the option papers, *Cleanup Goals Appropriate for DNAPL Source Zones* and *Ground Water Use, Value, and Vulnerability as Factors in Setting Cleanup Goals*, and considered them when selecting which options to recommend (five options and three options, respectively). The "Ground Water Use" options dealt with: (1) constructing an educational website; (2) asking the Census Bureau to reinstate a question on the census about private wells; and (3) encouraging better use of the source area drinking water program. The "DNAPL Source Zone" options were to: (1) write a policy paper clarifying cleanup goals for source areas; (2) update the Technical Impracticability guidance; (3) continue funding laboratory research and field tests on remediation and characterization of DNAPL source zones; (4) obtain better documentation from actual remediation sites to support source depletion decisions; and (5) construct an educational website. The recommendations are now being revised to reflect comments from task force members. A final draft of the recommended options is expected in December.

Geostatistical Unified Guidance

Bernie indicated that development of the guidance has been funded by Guy Tomassoni (OSW) and Ken Lovelace (OSRTI), has agreed to develop fact sheets. Mike Gansecki (Region 8) has agreed to serve as the work assignment manager. He has indicated to Bernie that the project is not moving forward because the principal author, is very busy with other projects. The GWF discussed options to complete the guidance sooner. The co-chairs agreed to contact Guy regarding how to get the project moving.

Strategies for Monitoring the Performance of DNAPL Source Zone Remedies

Gregg Lyssy (Region 6) reported that he forwarded comments on the document to the Interstate Technology Regulatory Council (ITRC) but did not receive a response. The document was published in August. The ITRC's other DNAPL paper addressed community involvement, and the GWF did not comment on it.

Multi-Level Well Study

Dick noted that Kevin Willis (Region 2) revised his original proposal for the study and will send it to GWERD-Ada and the U.S. Geological Survey to develop a more thorough approach to the study, including a work plan and schedule. The proposal suggests conducting both the short-term comparison and a long-term performance component test tasks at the Stennis Space Center in Mississippi. GWERD will need to work with people like Eric Koglin (NERL-Las Vegas) to ensure that the experimental design of the long-term component is robust. Both Dick and Kevin want the GWF to be part of the review process.

Project Management

The GWF discussed goal setting and methods to keep their projects on track. They also discussed the process for choosing documents to review and meeting review deadlines. Steve White (U.S. Army Corps of Engineers) commented that the problems brought up during these discussions were really about project management. He suggested that the GWF set up project-tracking spreadsheets (e.g., Ghent charts) that lay out milestones and due dates so that all can easily discern progress toward meeting deadlines. Dick suggested that it also would be helpful to post project progress information on a website for everyone to access more than once a month.

It was suggested that the monthly teleconference agenda include an update on progress status and upcoming due dates. The co-chairs, Rich Steimle, and EMS plan to discuss how to set up an online tracking system that would meet the GWF's needs.

DNAPL Fact Sheet

Luanne prefaced the discussion of the GWF's DNAPL fact sheet by saying that the forum's review workgroups normally operate under the expectation that consensus can be reached. In the case of this fact sheet, consensus was not reached. Since there is not consensus, the GWF needs to determine how to proceed. Although the GWF currently does not have a process for dealing with this situation, it is developing one. In the meantime, Kay Wischkaemper (Region 4) developed an interim process, which included discussing the fact sheet with the entire GWF in Sacramento. The discussion will prepare the GWF for a formal vote on the comment package to decide if it will be submitted to ORD as the GWF's opinion.

Kay explained that the workgroup assembled the comment package after a year of review and a number of conference calls. The package contained 16 pages covering 115 comments on a 20-page fact sheet. The workgroup aimed to provide young practitioners (e.g., RPMs) with a helpful fact sheet, not a guidance or a protocol document. The fact sheet helps determine if a site has DNAPL and how to delineate its extent. The two non-concurring members of the workgroup would like to break out the delineation component as a separate document. One of their major concerns is the use of indirect indicators for DNAPL source delineation.

Kay will send comment package it to the entire GWF for review. She proposed a 30-day review period at the end of which the GWF would vote on whether the package is submitted to ORD. As a reminder, Luanne read from the GWF bylaws which state that when there is disagreement on an issue, each region will have two votes that can be split into fractions if need be (e.g., 1.5 for position A and 0.5 for position B). Seven regions are needed for a quorum, and a simple majority rules.

Citing a flowchart from the fact sheet, Dick noted that indicators are first used to assess whether a DNAPL source zone is likely present at a site. Then, they are used to determine the location and limits of the source area. The problem with this flowchart is that the utility of individual criteria—and the weight that one might assign to them—changes when viewed from an assessment perspective versus as a delineation tool. In his comments on the fact sheet, Dick advocates splitting the document into two parts but not into two separate documents. The fact sheet should clarify how the criteria will be used for both assessment and delineation.

Steve Mangion (ORD/HSTL, Region 1) commented that he believes is the assessment part of the fact sheet is ready to give to ORD, along with the GWF's comments. The delineation section, however, requires rewriting and considerable additions because it deals with a much more complex situation. Steve cited an example that showed how PRPs could use indirect indicators and secondary lines of evidence to estimate a DNAPL source zone that is much larger than actually exists. As a result, the PRPs can request a technical impracticability waiver due to size of the source. Since the document is directed at young practitioners (RPMs), who may not be experienced enough to question the PRPs, it needs more work.

Kay responded that problems can occur when each line of evidence is considered individually rather than as a whole; considered together, errors in the lines of evidence are less likely. She added that the issues that Steve raised are included in the comment package to ORD.

Jeff asked Steve whether it was possible that DNAPL may have moved outside the source zone to areas where there are high secondary indicator parameters, but it just wasn't detected. Steve conceded that this scenario was possible, but continuous coring with direct push rigs found the source zone material but did not find any DNAPL in the outer areas. Given the amount of coring done and the concentrations detected in the ground water, one would expect to have found at least some DNAPL in the outer area, if the indicator parameters were accurate.

The converse example to Steve's site is a site where the indicator parameters indicate the presence of DNAPL, but it cannot be found. How does one proceed? PRPs will say that unless there is direct indication of the presence of DNAPL, it is not there. Steve responded that if the indicators suggest there is a DNAPL present, then he accepts that finding, but indicators cannot be used to delineate the DNAPL's location. If it can't be found, perhaps the investigators were looking in the wrong area.. You can inform the PRPs that DNAPL is present, although its location is uncertain. It is the PRP's responsibility to find it.

Bill Brandon (Region 1) pointed out that the fact sheet presents the multiple lines of evidence for delineating a DNAPL source area without presenting any examples of how to use them. Although there is a list of criteria, it is unclear what weight they should be given in a situation. In addition there are no examples that show how to apply them and no road map. Hence, he does not think the fact sheet is ready to go forward.

Steve White agreed that the indicator parameters are useful in determining the presence of DNAPL but are more problematic in predicting the boundary of the source zone. Perhaps the fact sheet should provide some guidance on how the criteria could be applied to different conceptual site models. He reminded the GWF that the target audience for the fact sheet will probably not make nuanced interpretations, but will apply the information literally.

Jeff added that the fact sheet should not be overly prescriptive and mandate that certain outcomes in order to delineate a source zone sufficiently for it to be addressed. In some cases, visual observation is a valid criterion for delineating the source zone. In others, visual observation may be insufficient, and secondary lines of evidence will be needed to help make decisions.

Dick noted that regardless of what the GWF recommends to ORD, the GWF would like to review the fact sheet again when revised.

Evaluating Capture Zones with Push Point Sampling

Mark Henry (MI DEQ) explained a method for evaluating the capture zone of pumping wells near a surface water body using a push point sampler. The method is quick and easy to use. Mark used a 6-foot long sampler to push into the site side of a creek. If the head in the sampler was above the surface of the water, the location was assumed to be outside the capture zone; if the head was lower, the location was inside the capture zone. Mark also took ground-water samples at each head measurement point and tested them for physical parameters, including temperature and specific conductance, which helped confirm whether the location was inside or outside the capture zone. If the temperature of the water sample was high, then the sample was assumed to have a surface water origin; thus, it was in the capture zone. If it was low, the origin was ground water indicating the location was outside the capture zone. Similarly, a specific conductance higher than 400 corresponded to a surface water origin, and lower than 400 corresponded to a ground water origin. Mark found that dissolved oxygen and pH measurements did not have give an indication of where the water was originating.

Bottom-Up Vertical Profiling

Mark also described a site with contamination to a depth of 250 feet below ground surface (bgs). The site was underlain by multiple till layers with ground water occurring at approximately 50-60 bgs. The State is insisting that the responsible parties do vertical profiling to determine which zones should be monitored for their points of compliance. The responsible parties were using a dual-tube air rotary rig and estimated that each hole would cost \$200,000.

As an alternative, Mark proposed using a Prosonic® rig to do bottom-up sampling. The 6-inch sonic tube was advanced to the depth that needed to be sampled. There was no telescoping of the hole at the different till layers. A monitoring well with a 5-foot screen and a tremie pipe was placed in the hole and the tube withdrawn allowing the formation materials to collapse (or not). The monitoring well was then pulled up and samples taken at various depths determined based on examination of the continuous core. When the last sample was taken, the hole was abandoned using the tremie tube to grout from the bottom-up. A sonic rig is good for drilling in most subsurfaces, but Mark does not recommend using this technique for bedrock investigations.

Questions and Answers

Question: What about the potential for vertical cross-contamination?

Answer: Sampling is conducted over a few hours, so there is little opportunity for vertical mixing.

Question: While vertical migration of contaminated water may not be an issue, wouldn't DNAPL migration be an issue?

Answer: I do not recommend this approach in a suspected DNAPL area.

Question: How accurate is your concentration data?

Answer: The data do not need to be extremely accurate since the objective is to find zones of relatively higher concentrations. Being 10-20% off should not make a difference with this objective in mind.

Question: Of what type of materials is the well constructed?

Answer: The well has a stainless steel screen with a 2-inch steel water pipe for strength.

Nominations for Co-Chair

Dick opened the floor for nominations for GWF co-chair. Dick's 2-year term as co-chair is complete as of this meeting. Kay nominated Greg Lyssy. Howard Orlean was nominated prior to the meeting. The nomination process is open until the November 4 teleconference. After that, the regional members should send their ballots to EMS to be tallied. Each region has two votes.

Principles for Workgroup Participation

Luanne Vanderpool explained that the issue this workgroup is addressing is how to resolve disagreements within a workgroup when they arise. The current process followed by the GWF is not sufficiently defined in the forum's bylaws. Therefore, the workgroup has developed a "principles document" and a "procedures document" for consideration.

Luanne requested comments from the GWF during the meeting or via e-mail by October 31st. The workgroup will revise the documents based on comments received and will submit them to the co-chairs. The workgroup is not proposing to amend the bylaws, although they do want the documents to be binding and followed.

Luanne said the workgroup used the following guiding principle for the documents: clarity and transparency, without slowing down the process (expediency). The workgroup laid out the principles document as follows:

- Section 1 summarizes the bylaws.
- Section 2 emphasizes that differences should be resolved as quickly as possible, but leaves the time frame vague.
- Section 3 addresses keeping an open mind and respecting your colleagues.
- Section 4 addresses conflicts of interest and specifies that workgroups establish time lines for review that all members agree to. Failure to meet the review deadline means the loss of the right to comment. The workgroup decided that the best course of action would be to reference the EPA peer review handbook regarding conflicts of interest; it is up to the reviewer to determine if such a conflict exists. Bill Brandon suggested the text should also address when a person involved in the review is also an author or co-author of the document.
- Section 5 states that workgroup participants should avoid any communication with document authors and external parties regarding internal workgroup deliberations. Jeff asked that the document clarify that “external” means anyone outside the workgroup while deliberations are going on.
- Section 6 covers sensitive and confidential information. The GWF decided to delete this section.
- Section 7 sets guidelines for comments made by workgroup members. The GWF members requested several word changes and clarification.
- Section 8 covers recordkeeping. The GWF decided to delete this section because recordkeeping is covered in the procedures document.
- Section 9 says that no workgroup member will represent the official policy of his or her office or agency. Once the product is approved by the GWF, it will represent the opinion of the GWF.

The review procedures document is laid out as follows:

- Section 1 describes the process by which the GWF agrees to review a document.
- Section 2 explains how a workgroup is formed. The GWF discussed how many people need to be on a workgroup for it to function. They also discussed how a workgroup chair should be selected and what authority the chair should have over setting work rules and dealing with dissent.
- Section 3 states that the workgroup chair will distribute the document for review to other members of the workgroup, explain the nature and scope of the review, and set a deadline for comments.
- Section 4 requires written comments to be submitted to the chair and other members of the workgroup by e-mail.
- Section 5 lays out the process of consolidating comments and how to resolve conflicting comments. It allows any workgroup member to request discussion of an issue by the workgroup as a whole.
- Section 6 provides for the review of draft consolidated comments by the workgroup as a whole and requires that objections to the draft be sent to the workgroup chair in writing along with a rationale for the objection and suggested substitute wording.
- Section 7 states that if differences cannot be resolved within the workgroup, the workgroup chair will prepare a conflict summary and submit it to the GWF co-chairs. The GWF co-chairs will distribute the summary to GWF members for regional voting (two votes per region). State representatives have full voting rights within the workgroup but do not have voting rights for the regional vote. Following the vote, a “final” draft will be prepared and submitted to the GWF co-chairs for distribution to all forum members for their review. Any objections should be submitted to the workgroup chair along with rationale and proposed alternative wording. During

discussions, it was requested that a copy of the original document be provided for reference along with the final draft for GWF review. Also discussed was whether or not a workgroup member should be able to submit comments to the GWF if he or she feels their comments were not addressed in the workgroup review package. There was a proposal to add a procedure for removing a member from a workgroup.

- Section 8 describes the procedure for transmitting the comments to the review requestor.
- Section 9 explains how to handle a response to comments if provided by the document's authors.
- Section 10 covers recordkeeping.

TSP/NARPM Co-Chair Meeting

Jeff and Dick met with the other forum co-chairs and the NARPM co-chairs during Tuesday's sessions. The NARPM co-chairs plan to support the incorporation of four of the GWF's suggested topics into their agenda. Three of the four topics were high on the GWF list, and one was strongly supported by the other forums. The topics are source removal with reference to the Ground Water Task Force's options papers (*Cleanup Goals Appropriate for DNAPL Source Zones* and *Ground Water Use, Value, and Vulnerability as Factors in Setting Cleanup Goals*), performance monitoring of permeable reactive barriers, monitored natural attenuation of inorganics, and optimization with an emphasis on cost saving components.

While NARPM has agreed to support these topics, it is up to the GWF to develop them. This task will fall to TSP/NARPM topics workgroup. Dick said he was encouraging Bernie Zavala (Region 10) and Kathy Yager (TIFSD) to write the proposal for optimization and for Kathy Davies to sponsor a TI waiver panel. Matt Charsky (OSRTI) indicated that there is NARPM funding for outside speakers, if needed.

Besides the four topics that are the responsibility of the GWF, any forum member interested in other NARPM topics may submit an abstract to the NARPM co-chairs by the end of November. The GWF co-chairs will tell the NARPM co-chairs that the forum would like to set aside two days for business sessions.

ITRC Activities

Dick made available ITRC's CD-ROM on diffusion sampling. Most of the material on the CD is also on their website (<http://www.itrcweb.org>), but the CD includes a very good training video. Part of ITRC's website is set up to respond to questions on diffusion samplers. ITRC also is building a webpage that provides descriptions of each type of sampler.

ITRC will hold its fall meeting in Albuquerque, NM, October 26-29, 2005. ITRC also is offering an Internet-based training course this week on *Strategies for Monitoring the Performance of DNAPL Source Zone Remedies*.

Action Items

- GWF members must review the draft document disclaimers and provide comments to Dick Willey.
- GWF members must submit comments on the most recent draft of the Ground Water/Surface Water Interactions Guidance to Kathy Davies by October 29.
- Kay Wischkaemper will prepare and abstract on the influence of ground-water/surface water interactions on selecting sampling locations. She will submit the abstract to the NARPM co-chairs to propose as a topic for the Spring 2005 meeting.
- Kathy will clarify when the comments are due on the upcoming drafts of chapters in the MNA for inorganics guidance.
- Dick will solicit volunteers for a workgroup to propose options for dealing with ASTM documents.
- Kay will finish summarizing comments on the DNAPL fact sheet and submit them to the co-chairs for distribution to the GWF for a vote. The distribution will include a copy of the original fact sheet. The voting will conclude before the December call, and the results announced then.
- GWF members should send comments on the principles and procedures documents to Luanne by October 29.
- The co-chairs, Rich Steimle, and EMS will discuss setting up a project-tracking program online for to follow the progress of workgroup projects.
- GWF members must submit nominations for co-chair are by the November 4 teleconference.
- Dick will work with members to clarify what should be done with the capture zone toolbox.
- Jeff Johnson will ask Ruth Izraeli about the time line for finishing the uncertainty issue paper.
- Howard Orlean and the co-chairs will discuss actions needed to address the four NARPM topic areas.
- Dick and Jeff will talk with Guy Tomassoni (OSW) about encouraging progress on the Geostatistical Unified Guidance.
- Rich will determine the date that the capture zone training will be ready for presentation.
- Dick and Jeff will inform the NARPM co-chairs that the GWF will require two days of business at the Spring 2005 meeting.

PARTICIPANTS LIST FALL 2004 TSP MEETING

Todd Anderson
Texas Tech University
Box 41163
Lubbock, TX 79409-1163
Phone: 806-885-4567 Fax: 806-885-2132
todd.anderson@ttu.edu

Keith Arnold
EMS, Inc.
8601 Georgia Ave., Suite 500
Silver Spring, MD 20910
Phone: 301-589-5318 Fax: 301-589-8487
keith.arnold@emsus.com

Harold Ball
U.S. EPA - Region 9
75 Hawthorne St. SFD-8-4
San Francisco, CA 94105
Phone: 415-972-3047 Fax: 415-947-3520
ball.harold@epa.gov

Joshua Barber
U.S. EPA
1200 Pennsylvania Ave., NW 5106G
Washington, DC 20460
Phone: 703-603-0265 Fax: 703-603-0043
barber.joshua@epa.gov

Jim Barksdale, Jr.
U.S. EPA - Region 4
61 Forsyth St., SW 4WD-FFB
Atlanta, GA 30303
Phone: 404-562-8518 Fax: 404-562-8537
barksdale.james@epa.gov

Katherine Baylor
U.S. EPA - Region 9
75 Hawthorne St.
San Francisco, CA 94105
Phone: 415-972-3351
baylor.katherine@epa.gov

Bill Beckman
CalEPA, Dept. of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806
Phone: 916-324-8293 Fax: 916-322-1005
wbeckman@dtsc.ca.gov

Harry Beller
Lawrence Livermore National Laboratory
7000 East Ave.
P.O. Box 808
Livermore, CA 94551
Phone: 925-422-0081
beller2@llnl.gov

Heidi Blischke
OR Dept. of Environmental Quality
2020 SW 4th St., Suite 400
Portland, OR 97201
Phone: 503-229-5556 Fax: 503-229-6899
blischke.heidi@deq.state.or.us

Jon Bornholm
U.S. EPA - Region 4
61 Forsyth St. 4WD-SRSEB
Atlanta, GA 30303
Phone: 404-562-8820 Fax: 404-562-8788
bornholm.jon@epa.gov

William Brandon
U.S. EPA - Region 1
1 Congress St., Suite 1100 HBT
Boston, MA 2114
Phone: 617-918-1391 Fax: 617-918-1294
brandon.bill@epa.gov

Sandy Britt
ProHydro, Inc.
1011 Fairport Rd.
Fairport, NY 14450
Phone: 585-355-3121 Fax: 585-385-1774
sandy.britt@prohydroinc.com

Glenn Bruck
U.S. EPA - Region 9
75 Hawthorne St. SFD-84
San Francisco, CA 94105
Phone: 415-972-3060
bruck.glenn@epa.gov

David Burden
U.S. EPA
P.O. Box 1198
Ada, OK 74821
Phone: 580-436-8606 Fax: 580-436-8614
burden.david@epa.gov

Judy Canova
SC Dept. of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201
Phone: 803-896-4046 Fax: 803-896-4292
canovajl@dhec.sc.gov

James Chang
U.S. EPA - Region 9
75 Hawthorne St.
San Francisco, CA 94105
Phone: 415-972-3193
chang.james@epa.gov

Matthew Charsky
U.S. EPA
1200 Pennsylvania Ave., NW 5204G
Washington, DC 20460
Phone: 703-603-8777 Fax: 703-603-9133
charsky.matthew@epa.gov

Raphael Cody
U.S. EPA - Region 1
1 Congress St., Suite 1100 HBT
Boston, MA 2114
Phone: 617-918-1366 Fax: 617-918-0366
cody.ray@epa.gov

Mary Cooke
U.S. EPA - Region 3
1650 Arch St. 3HS13
Philadelphia, PA 19103
Phone: 215-814-5129 Fax: 215-814-3051
cooke.maryt@epa.gov

David Cooper
U.S. EPA
1200 Pennsylvania Ave., NW 5202G
Washington, DC 20460
Phone: 703-603-8763 Fax: 703-603-9100
cooper.davide@epa.gov

Edward Coppola
Applied Research Associates, Inc.
430 W. 5th St., Suite 700
Panama City, FL 32401
Phone: 850-914-3188, ext 111
Fax: 850-914-3189
ecoppola@ara.com

Harry Craig
U.S. EPA - Region 10
811 SW 6th Ave., 3rd Fl. 0
Portland, OR 97204
Phone: 503-326-3689 Fax: 503-326-3399
craig.harry@epa.gov

Jerald Cross
U.S. EPA - Region 8
999 18th St., Suite 300 8EPR-F
Denver, CO 80202
Phone: 303-312-6664 Fax: 303-312-6067
cross.jerald@epa.gov

Andy Crossland
U.S. EPA - Region 2
290 Broadway, 18th Fl.
New York, NY 10007
Phone: 212-637-4436 Fax: 212-636-4360
crossland.andy@epa.gov

Kathy Davies
U.S. EPA - Region 3
1650 Arch St. 3HS41
Philadelphia, PA 19103-2029
Phone: 215-814-3315 Fax: 215-814-3015
davies.kathy@epa.gov

Rula Deeb
Malcolm Pirnie
2000 Powell St., Suite 1180
Emeryville, CA 94608
Phone: 510-735-3005 Fax: 510-596-8855
rdeeb@pirnie.com

Kevin Depies
CalEPA, Dept. of Toxic Substances Control
8880 Cal Center Dr.
Sacramento, CA 95826
Phone: 916-255-3688 Fax: 916-255-3734
kdepies@dtsc.ca.gov

Jane Dolan
U.S. EPA - Region 1
One Congress St., Suite 1100
Boston, MA 2114
Phone: 617-918-1272
dolan.jane@epa.gov

Betsy Donovan
U.S. EPA - Region 2
290 Broadway, 19th Fl.
New York, NY 10007
Phone: 212-637-4369 Fax: 212-637-4429
donovan.betsy@epa.gov

Diane Dopkin
EMS, Inc.
8601 Georgia Ave., Suite 500
Silver Spring, MD 20910
Phone: 301-589-5318 Fax: 301-589-8487
diane.dopkin@emsus.com

Dave Drake
U.S. EPA - Region 7
901 N. 5th St. SUPR/FFSE
Kansas City, KS 66101
Phone: 913-551-7626 Fax: 913-551-7063
drake.dave@epa.gov

Graham Fogg
University of California
One Shields Ave.
Veihmeyer Hall
Davis, CA 95616
Phone: 530-752-6810 Fax: 530-752-1552
gefogg@ucdavis.edu

Howard Fribush
U.S. EPA
1200 Pennsylvania Ave., NW 5204G
Washington, DC 20460
Phone: 703-603-8831 Fax: 703-603-9100
fribush.howard@epa.gov

Michael Gill
U.S. EPA - Region 9
75 Hawthorne St. SFD-84
San Francisco, CA 94105
Phone: 415-972-3054 Fax: 415-947-3520
gill.michael@epa.gov

Don Gronstal
Air Force Real Property Agency
3411 Olson St.
McClellan, CA 95652
Phone: 916-643-3672, ext 24
Fax: 916-643-5880
donald.gronstal@afropa.pentagon.af.mil

Sharon Hayes
U.S. EPA - Region 1
One Congress St., Suite 1100 RAA
Boston, MA 02114-2023
Phone: 617-918-1081 Fax: 617-918-0081
hayes.sharon@epa.gov

Joseph Healy
U.S. EPA - Region 9
75 Hawthorne St. SFD-8-1
San Francisco, CA 94105
Phone: 415-972-3269 Fax: 415-947-3528
healy.joseph@epa.gov

Mark Henry
MI Dept. of Environmental Quality
P.O. Box 30426
Lansing, MI 48909
Phone: 517-335-3390 Fax: 517-335-4887
henryma@michigan.gov

Steven Hirsh
U.S. EPA - Region 3
1650 Arch St. 3HS13
Philadelphia, PA 19103
Phone: 215-814-3352 Fax: 215-814-3051
hirsh.steven@epa.gov

Anthony Holoska
U.S. EPA - Region 5
77 W. Jackson Blvd. SRT-4J
Chicago, IL 60604
Phone: 312-886-7503 Fax: 312-353-8163
holoska.anthony@epa.gov

Eugene Jablonowski
U.S. EPA - Region 5
77 W. Jackson Blvd. SR-6J
Chicago, IL 60604
Phone: 312-886-4591 Fax: 312-353-8426
jablonowski.eugene@epa.gov

William Johnson
U.S. EPA - Region 7
901 N. 5th St. ARTD/RCAP
Kansas City, KS 66101
Phone: 913-551-7849 Fax: 913-551-9849
johnson.jeff@epa.gov

Stephen Kalkhoff
U.S. Geological Survey
400 S. Clinton St., Rm. 269
Iowa City, IA 52244
Phone: 319-358-3611
sjkalkho@usgs.gov

Gene Keepper
U.S. EPA - Region 6
1445 Ross Ave., Suite 900 6EN-HX
Dallas, TX 75202-2733
Phone: 214-665-2280 Fax: 214-665-6437
keepper.gene@epa.gov

James Kiefer
U.S. EPA - Region 8
999 18th St., Suite 300 8EPR-F
Denver, CO 80202-2466
Phone: 303-312-6907 Fax: 303-312-6067
kiefer.jim@epa.gov

Buck King
CalEPA, Dept. of Toxic Substances Control
700 Heinz Ave., Suite 100
Berkeley, CA 94710-2721
Phone: 510-540-3955 Fax: 510-540-3937
bking@dtsc.ca.gov

Steven Kinser
U.S. EPA - Region 7
901 N. 5th St. SUPR/MOKS
Kansas City, KS 66101
Phone: 913-551-7728
kinser.steven@epa.gov

Glenn Kistner
U.S. EPA - Region 9
75 Hawthorne St. SFD 8-1
San Francisco, CA 94105
Phone: 415-972-3004 Fax: 415-947-3520
kistner.glenn@epa.gov

Laurie LaPat-Polasko
Geomatrix Consultants
8777 E. Via De Ventura, Suite 375
Scottsdale, AZ 85258
Phone: 480-348-1283 Fax: 480-348-1245
llapat@geomatrix.com

Herbert Levine
U.S. EPA - Region 9
75 Hawthorne St. SFD-8-4
San Francisco, CA 94105
Phone: 415-972-3062 Fax: 415-947-3520
levine.herb@epa.gov

Brian Lewis
CalEPA, Dept. of Toxic Substances Control
8800 Cal Center Dr.
Sacramento, CA 95826
Phone: 916-255-6532 Fax: 916-255-3596
blewis@dtsc.ca.gov

Robert Lowery
U.S. Air Force Regional Environmental Office
333 Market St, Suite 625
San Francisco, CA 94105-2196
Phone: 415-977-8845 Fax: 415-977-8900
robert.lowery@brooks.af.mil

Greg Lyssy
U.S. EPA - Region 6
1445 Ross Ave. 6PD-F
Dallas, TX 75202
Phone: 214-665-8317 Fax: 214-665-7263
lyssy.gregory@epa.gov

Alexander MacDonald
CA Regional Water Quality Control Board
11020 Sun Center Dr., Suite 200
Rancho Cordova, CA 95670-6114
Phone: 916-464-4625 Fax: 916-464-4797
macdona@rb5s.swrcb.ca.gov

Kelly Madalinski
U.S. EPA (5102G)
1200 Pennsylvania Ave., NW 5102G
Washington, DC 20460
Phone: 703-603-9901 Fax: 703-603-9135
madalinski.kelly@epa.gov

Vic Madrid
U.S. DOE, Lawrence Livermore National
Laboratory
P.O. Box 808
Livermore, CA 94551
Phone: 925-422-9930 Fax: 925-424-5432
madrid2@llnl.gov

Mark Malinowski
CalEPA, Dept. of Toxic Substances Control
8800 Cal Center Dr.
Sacramento, CA 95826
Phone: 916-255-3717 Fax: 916-255-3697
mmalinow@dtsc.ca.gov

Vincent Malott
U.S. EPA - Region 6
1445 Ross Ave. 6SF-AP
Dallas, TX 75202
Phone: 214-665-8313 Fax: 214-665-6660
malott.vincent@epa.gov

Steve Mangion
U.S. EPA - Region 1
1 Congress St., Suite 1100 HBS
Boston, MA 2114
Phone: 617-918-1452 Fax: 617-918-1291
mangion.steve@epa.gov

Scott Marquess
U.S. EPA - Region 7
901 N. 5th St. SUPRFFSE
Kansas City, KS 66101
Phone: 913-551-7131 Fax: 913-551-7063
marquess.scott@epa.gov

Kevin Mayer
U.S. EPA - Region 9
75 Hawthorne St. SFD-7-2
San Francisco, CA 94105
Phone: 415-972-3176 Fax: 415-947-3526
mayer.kevin@epa.gov

Edward Mead
U.S. Army Corps of Engineers
12565 W. Center Rd.
Omaha, NE 68144
Phone: 402-697-2576 Fax: 402-697-2595
s.ed.mead@usace.army.mil

John Michaud
U.S. EPA
1200 Pennsylvania Ave., NW 2366A
Washington, DC 20460
Phone: 202-564-5518
michaud.john@epa.gov

Thomas Mohr
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118
Phone: 408-265-2607, ext 3760
tmohr@valleywater.org

Bill Myers
EMS, Inc.
8601 Georgia Ave., Suite 500
Silver Spring, MD 20910
Phone: 301-589-5318 Fax: 301-589-8487
bill.myers@emsus.com

Sandra Novotny
EMS, Inc.
8601 Georgia Ave., Suite 500
Silver Spring, MD 20910
Phone: 301-589-5318 Fax: 301-589-8487
nova2000@verizon.net

Howard Orlean
U.S. EPA - Region 10
1200 6th Ave. AWT-121
Seattle, WA 98101
Phone: 206-553-2851 Fax: 206-553-8509
orlean.howard@epa.gov

Martha Otto
U.S. EPA
1200 Pennsylvania Ave., NW
Washington, DC 20460
Phone: 703-603-8853 Fax: 703-603-9135
otto.martha@epa.gov

Andy Palestini
U.S. EPA - Region 3
1650 Arch St. 3HS23
Philadelphia, PA 19103
Phone: 215-814-3233 Fax: 215-814-3002
palestini.andy@epa.gov

J. Gareth Pearson
U.S. EPA
P.O. Box 93478
Las Vegas, NV 89193-3478
Phone: 702-798-2101 Fax: 702-798-3146
pearson.gareth@epa.gov

Robert Pope
U.S. EPA - Region 4
61 Forsyth St. 4WD-FFB
Atlanta, GA 30303
Phone: 404-562-8506 Fax: 404-562-8518
pope.robert@epa.gov

John Quander
U.S. EPA (5102G)
1200 Pennsylvania Ave., NW
Washington, DC 20640
Phone: 703-603-7198 Fax: 703-603-9135
quander.john@epa.gov

Keith Roberson
CA Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612
Phone: 510-622-2404 Fax: 510-622-2464
ker@rb2.swrcb.ca.gov

J. Mario Robles
U.S. EPA - Region 8
999 18th St., Suite 300 8EPR-SR
Denver, CO 80202
Phone: 303-312-6160 Fax: 303-312-6897
robles.mario@epa.gov

Evelia Rodriguez
CalEPA, Dept. of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812
Phone: 916-322-3810 Fax: 916-322-1005
erodrigu@dtsc.ca.gov

Leo Romanowski, Jr.
U.S. EPA - Region 4
61 Forsyth St., SW
SNAFC - 10th Fl.
Atlanta, GA 30303
Phone: 404-562-8485 Fax: 404-562-8439
romanowski.leo@epa.gov

William Rothenmeyer
U.S. EPA - Region 8
999 18th St., Suite 300 8P-HW
Denver, CO 80202
Phone: 303-312-6045 Fax: 303-312-6064
rothenmeyer.william@epa.gov

Carlos Sanchez
U.S. EPA - Region 6
1445 Ross Ave.
Dallas, TX 75202
Phone: 214-665-8507 Fax: 214-665-6660
sanchez.carlos@epa.gov

Carmen Santiago-Ocasio
U.S. EPA - Region 4
61 Forsyth St., SW WMD-SRTSB
Atlanta, GA 30303
Phone: 404-562-8948 Fax: 404-562-8896
santiago-ocasio.carmen@epa.gov

Bernard Schorle
U.S. EPA - Region 5
77 W. Jackson Blvd. SR-6J
Chicago, IL 60604
Phone: 312-886-4746 Fax: 312-886-4071
schorle.bernard@epa.gov

Tracey Seymour
U.S. EPA
1200 Pennsylvania Ave., NW 5106G
Washington, DC 20460
Phone: 703-603-8712
seymour.tracey@epa.gov

Rich Steimle
U.S. EPA (5102G)
1200 Pennsylvania Ave., NW
Washington, DC 20460
Phone: 703-603-7195 Fax: 703-603-9135
steimle.richard@epa.gov

Lida Tan
U.S. EPA - Region 9
75 Hawthorne St.
San Francisco, CA 94105
Phone: 415-972-3018 Fax: 415-947-3520
tan.lida@epa.gov

Neil Thompson
U.S. EPA - Region 10
1200 6th Ave. ECL-113
Seattle, WA 98101
Phone: 206-553-7177 Fax: 206-553-0124
thompson.neil@epa.gov

Hilary Thornton
U.S. EPA - Region 3
1650 Arch St. 3HS23
Philadelphia, PA 19103
Phone: 215-814-3323 Fax: 215-814-3002
thornton.hilary@epa.gov

Matthew Tonkin
SS Papadopulos and University of Queensland
7944 Wisconsin Ave.
Bethesda, MD 20814
Phone: 301-718-8900, ext 208
Fax: 301-7188-909
matt@sspa.com

Tami Trearse
CalEPA, Dept. of Toxic Substances Control
8800 Cal Center Dr.
Sacramento, CA 95826
Phone: 916-255-3747
ttrearse@dtsc.ca.gov

John Tunks
Parsons
1700 Broadway, Suite 900
Denver, CO 80290
Phone: 303-831-8100, ext 8740 Fax:
303-831-8208
john.tunks@parsons.com

Gary Turner
U.S. EPA
1200 Pennsylvania Ave., NW 5102G
Washington, DC 20460
Phone: 703-603-9902 Fax: 703-603-9135
turner.gary@epa.gov

Luanne Vanderpool
U.S. EPA - Region 5
77 W. Jackson Blvd. 5SR-5J
Chicago, IL 60604
Phone: 312-353-9296 Fax: 312-886-4071
vanderpool.luanne@epa.gov

Frank Vavra
U.S. EPA - Region 3
1650 Arch St. 3HS13
Philadelphia, PA 19103-2029
Phone: 215-814-3221 Fax: 215-814-3051
vavra.frank@epa.gov

Chris Villarreal
U.S. EPA - Region 6
1445 Ross Ave. 6SF-AP
Dallas, TX 75202-2733
Phone: 214-665-6758 Fax: 214-665-6660
villarreal.chris@epa.gov

Stephen White
U.S. Army Corps of Engineers
12565 W. Center Rd.
Omaha, NE 68144
Phone: 402-697-2660
stephen.j.white@nwd02.usace.army.mil

Richard Willey
U.S. EPA - Region 1
One Congress St., Suite 1100 HBS
Boston, MA 02114-2023
Phone: 617-918-1266 Fax: 617-918-0266
willey.dick@epa.gov

Christine Williams
U.S. EPA - Region 1
1 Congress St., Suite 1100 HBT
Boston, MA 02114-2023
Phone: 617-918-1384 Fax: 617-918-1291
williams.christine@epa.gov

Kay Wischkaemper
U.S. EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30303
Phone: 404-562-8641 Fax: 404-562-8896
wischkaemper.kay@epa.gov

Bernie Zavala
U.S. EPA - Region 10
1200 6th Ave., 9th Fl. OEA-095
Seattle, WA 98101
Phone: 206-553-1562 Fax: 206-553-0119
zavala.bernie@epa.gov