



ENGINEERING FORUM HISTORY

MAY, 2014

EXECUTIVE SUMMARY

In late 2013, a few current members of the Engineering Forum decided to write this history of the Engineering Forum, outlining many of its activities over the first 25 years or so of its existence. Through the efforts of Jon Bornholm, Mike Gill, Michelle Kerr, Julie Santiago-Ocasio, Bernie Schorle and Hilary Thornton, the development history and efforts are catalogued here. Many former members contributed as well and their input is appreciated. And finally, to the Ground Water Forum who provided the template for this document with a copy of their own history, we thank them. Any corrections to the document are certainly welcomed.

Technical Support Project

The United States Environmental Protection Agency's Office of Solid Waste and Emergency Response (OSWER), Regional Waste Management Offices, and the Office of Research and Development (ORD) established the Technical Support Project (TSP) in 1987 to provide technical assistance to Regional Remedial Project Managers (Superfund), Corrective Action Staff (RCRA), and On-Scene Coordinators (Emergency Response). The Project consists of a network of regional forums and specialized Technical Support Centers located in ORD and the Office of Radiation Programs (ORP) laboratories, and OSWER's Environmental Response Team. The objectives of the TSP are to network with other EPA programs and other Federal agencies. (TSP website: <http://epa.gov/superfund/remedytech/tsp/>)

Regional Forums

Regional technical personnel have established three technical Forums within the TSP. First, shortly after the foundation of the TSP in 1987, came the Ground Water Forum; then, in approximately 1989, the Engineering Forum; and most recently, in approximately 1994, the Federal Facilities Forum. Members of these Forums work to improve communications and assist in technical transfer between the Regions and the Centers. The Forums also act as technical resources, and disseminate information resulting from the Project to their Regional colleagues. They also meet occasionally to discuss technical and policy issues, new technologies, and to network with other Federal agencies. Originally, the Forums were set up to have an equal representation from Superfund and RCRA staff. In recent years, the RCRA membership seems to have decreased for various reasons. The Forums are provided with professional guidance as well as financial needs by EPA headquarters' staff in the Office of Superfund Remediation and Technology Innovation. This support covers meetings, document preparation, web needs, etc.

Engineering Forum

As one of the EPA Technical Support Project's three technical forums, the **Engineering Forum (EF)** provides technical support on engineering issues to the regional offices and serves as a line of communication between the regions, headquarters, and the laboratories of EPA's Office of Research and Development (ORD). The EF encourages information exchange among these entities regarding innovative site cleanup and characterization technologies. Site-specific engineering issues; which include problems encountered, solutions, and lessons learned, are elements of the EF's focus. The EF's webpage is here:

<http://www.epa.gov/superfund/remedytech/tsp/engforum.htm> .

Forum membership is comprised of regional engineers and other technical professionals who are knowledgeable and interested in environmental engineering technologies. In addition, "Friends of the Forum" representing the ORD laboratories, headquarters program offices, state agencies, and the US Army Corps of Engineers participate actively in forum activities. Included activities consist of monthly teleconferences, training activities, technical presentations, occasional technical meetings, and the development of issue papers, reports, and other Forum products.

The Technical Support Project webpage is found here:

<http://www.epa.gov/superfund/remedytech/tsp/index.htm> . The Forum also holds face-to-face meetings, most recently on an annual basis in conjunction with the National Association of Remedial Project Managers (NARPM) conferences. Minutes for these events are located at the following websites.

Face to Face meetings -> <http://epa.gov/superfund/remedytech/tsp/meetings.htm>

Monthly teleconferences -> http://epa.gov/superfund/remedytech/tsp/eng_telemins.htm

Through its teleconferences and meetings, the EF aims to:

- * **Facilitate** resolution of technical problems encountered by site personnel
- * **Develop and Present** training and technical presentations on current and emerging technologies to meet needs of site managers
- * **Maintain and Enhance** technology transfer among cleanup programs within EPA
- * **Formulate and Review** issue papers, flash bulletins and other technical documents
- * **Provide** EPA programmatic and regional personnel with a focal point for site information exchange and technical support
- * **Interact** and exchange technical information among EPA regions, State and Federal partners

According to early organizers, the EF was organized the same fiscal year as the Groundwater Forum (1989), but maybe three or four months later. The founding members of the EF were Jim

Orban, Region 4, and John Barich, Region 10. Paul Leonard (Region 3), Deborah Griswold (Region 6) and Ken Erickson (Region 9) were early co-chairs. Both Jim and Deborah later transferred to DOE. Shortly before its formal creation (October, 1988), the first joint national meeting of the Groundwater and Engineering Forums was held and led by the EF and hosted by Region 10. Jim and Deborah were involved in a pre-NARPM OSC/RPM support group at this time. This OSC/RPM support group, and possibly the forums, were begun as a result of discussions held during the pilot OSC/RPM Basic Course in October 1986 at the National Emergency Training Center in Emmitsburg, MD. In the beginning, the EF had two co-chairs, each with a two year term. This 2-year term remained until around the year 2000, but then a third co-chair was added to share the workload. Their terms end on opposing years so only one co-chair is replaced at a time.

EF Greener Cleanup Subcommittee

The EF formed a Greener Cleanup Subcommittee (EFGCS) in 2008 to facilitate the flow of information about greener cleanups among Office of Solid Waste and Emergency Response (OSWER) programs and our State and Federal partner organizations.

The EFGCS is involved with EPA HQ's Office of Superfund Remediation and Technical Innovation as a key technical reviewer in the development of guidance and training on Best Management Practices for incorporating green remediation into the cleanup process. The EFGCS briefs the EF monthly on late breaking green remediation issues. In October 2010, the EFGCS hosted a national Green Remediation Coordination Workshop in Atlanta, GA that brought together the EPA Regions, EPA HQ, representatives of OSWER's cleanup programs, and two of our key State partner organizations. Starting in about 2009, the EFGCS led Greener Cleanups training sessions at four successive NARPM conferences, as well as webinars in months that followed to allow others to learn as well.

The following EF members have acted as EFGSC Co-Leads:

2008	Raji Josiam (R6)
2009	Raji Josiam (R6) and Julie Santiago-Ocasio (R4)
2010-2012	Hilary Thornton (R3) and Julie Santiago-Ocasio (R9)
2013	Stephanie Vaughn (R2)

Strategic Plan

Sometime around 2006 the EF developed a Strategic Plan document concisely stating its mission, goals, current membership, membership qualifications and responsibilities, recent publications, current and planned projects, and organizational procedures. Typically updated annually, the latest Strategic Plan is dated February, 2013.

List Of Known Co-Chairs

A search was done to fill in a table of the EF co-chairs. Many past members were interviewed to assist with this effort, but there are still some gaps. The authors of this document spoke to and thank the following former members, many who have since retired: Paul Leonard (R3), Camille Hueni (R6), Steve Kinser (R7), Steve Kovac (R7), Vance Fong (R9), Ken Erickson (R9), John Barich (R10), Neil Thompson (R10), and Deborah Griswold (DOE). The table below reflects our current knowledge of co-chairs, based on input from past and current members.

Meeting	Co-chairs				
Fall 1989, 1990	Deborah Griswold	6	Ken Erickson	9	
1991	Deborah Griswold	6	Ken Erickson	9	
1992	Paul Leonard	3	Ken Erickson	9	
1993	Paul Leonard	3	Ken Erickson	9	
1994	Paul Leonard	3	Ken Erickson	9	
1995	Paul Leonard	3	Ken Erickson	9	
1996	Bob Stamnes	10	Ken Erickson	9	
1997	Frank Vavra	3	Bob Stamnes	10	
1998	Jo Ann Cola	9	Bob Stamnes	10	
1999	?		?		
Spring 2000	Jo Ann Cola	9	Camile Hueni	6	Steve Kinser 7
Fall 2000	Jo Ann Cola	9	Camile Hueni	6	Steve Kinser 7
Spring 2001	Jo Ann Cola	9	Camile Hueni	6	Steve Kinser 7
Fall 2001	Chet Janowki	1	Camile Hueni	6	Neil Thompson 10
Summer 2002	Chet Janowki	1	Camile Hueni	6	Neil Thompson 10
Fall 2002	Sharon Hayes	1	Bill Rothenmeyer	8	Neil Thompson 10
Spring 2003	Sharon Hayes	1	Bill Rothenmeyer	8	Neil Thompson 10
Fall 2003	Sharon Hayes	1	Bill Rothenmeyer	8	Neil Thompson 10
Spring 2004	Sharon Hayes	1	Bernie Schorle	5	Gene Keepper 6
Fall 2004	Sharon Hayes	1	Bernie Schorle	5	Gene Keepper 6
Spring 2005	Sharon Hayes	1	Bernie Schorle	5	Gene Keepper 6
Fall 2005	Sharon Hayes	1	Bernie Schorle	5	Gene Keepper 6
Summer 2006	Sharon Hayes	1	Bernie Schorle	5	Jon Bornholm 4
Fall 2006	Steve Kinser	7	Mike Gill	9	Jon Bornholm 4
Spring 2007	Gary Miller	6	Mike Gill	9	Jon Bornholm 4
Fall 2007	Gary Miller	6	Mike Gill	9	Jon Bornholm 4
Summer 2008	Gary Miller	6	Mike Gill	9	Hilary Thornton 3
Winter 2009	Gary Miller	6	Stephanie Vaughn	2	Hilary Thornton 3
Spring 2009	Donna McCartney	3	Stephanie Vaughn	2	Hilary Thornton 3
Fall 2009	Donna McCartney	3	Stephanie Vaughn	2	Hilary Thornton 3
Spring 2010	Donna McCartney	3	Stephanie Vaughn	2	Raji Josiam 6
Fall 2010	Donna McCartney	3	Mike Gill	9	Raji Josiam 6
Spring 2011	Michelle Kerr	5	Mike Gill	9	Raji Josiam 6
Spring 2012	Michelle Kerr	5	Mike Gill	9	Suzanne Davis CA
Fall 2012	Michelle Kerr	5	Mike Gill	9	Suzanne Davis CA
Spring 2013	Michelle Kerr	5	Kira Lynch	10	Suzanne Davis CA
Fall 2013	Michelle Kerr	5	Kira Lynch	10	Suzanne Davis CA

Documents

The documents catalogued below, one of the primary deliverables of the Forum, were authored by members of the EF and are posted on the Technical Support Project webpage:

<http://epa.gov/superfund/remedytech/tsp/issue.htm#EF>

2013

EPA 542-F-13-001, March 2013

[Sustainable Materials Management in Site Cleanup \(PDF\)](#) (12pp, 1.3 MB)

2011

[Obtaining Assistance from the EPA Technical Support Centers \(PDF\)](#) (2pp, 312KB)

A guide to obtaining assistance from the EPA Technical Support Centers.

2008

EPA 600-R-08-115, October 2008

[Indoor Air Vapor Intrusion Mitigation Approaches \(PDF\)](#) (49pp, 807KB)

This paper is focused on the mitigation of vapor intrusion to prevent human exposure to anthropogenic soil and groundwater contaminants. The document is designed to provide sufficient information to allow the reader to understand the range of mitigation technologies available. The document also provides information on selecting appropriate technologies in consultation with qualified engineering and risk management professionals.

EPA 542-F-08-003, April 2008

[Online Hazardous Waste Cleanup Technical Resources \(PDF\)](#) (12pp, 564KB)

This issue paper is intended to give the reader examples of some online technical resources that can assist with hazardous waste cleanups in the Superfund, Resource Conservation and Recovery Act (RCRA), and Brownfields programs. Given the dynamics of online resources, this paper provides only a snapshot of the resources available at the time of publication.

2006

EPA 542-F-06-013, November 2006

[In Situ Treatment Technologies for Contaminated Soil \(PDF\)](#) (35pp, 929KB)

This issue paper provides summary information on a wide variety of in situ technologies for the treatment of contaminated soil in both the vadose zone and saturated and unsaturated zones. It presents information on common practices such as soil vapor extraction and bioventing and, less frequently used technologies such as in situ thermal treatment. The paper includes a basic description of the technology, its implementation, applicability based on contaminants and site characteristics, general limitations, costs, and status of the technology's application.

EPA 625-R-06-014, October 2006

[Management and Treatment of Water from Hard Rock Mines \(PDF\)](#) (43pp, 1.8 MB)

The purpose of this document is to present the “state of the science” regarding management and treatment of hard-rock mines.

EPA 600-R-06-072, August 2006

[In-Situ Chemical Oxidation \(PDF\)](#) (60pp, 2.5 MB)

This Engineering Issue Paper is intended to provide remedial project managers (RPMs), on-scene coordinators (OSCs), contractors, and other state, industry, or private remediation managers with information to assist in the evaluation and possible selection of appropriate in-situ chemical oxidation (ISCO) remedial alternatives.

2004

[Introduction to Energy Conservation and Production at Waste Cleanup Sites \(EPA 542-S-04-001\) \(PDF\)](#) (36pp, 443KB).

This issue paper, prepared by EPA’s Engineering Forum under the Technical Support Project, provides an overview on the considerations for energy conservation and production during the design and operation and maintenance (O&M) phases of waste cleanup projects. The paper presents four case studies highlighting energy conservation or production, including a site using landfill generated methane gas directed to operate microturbines. The issue paper also introduces an “energy checklist” as a suggested tool to help project managers consider energy conservation or production at their sites.

2002

[Proven Alternatives for Aboveground Treatment of Arsenic in Groundwater \(PDF\)](#) (68pp, 605KB)

This issue paper, developed for EPA's Engineering Forum, identifies and summarizes experiences with proven aboveground treatment alternatives for arsenic in groundwater, and provides information on their relative effectiveness and cost. The four technologies included in the report are precipitation/coprecipitation, adsorption, ion exchange, and membrane filtration. The report describes the theory and operation of each technique, available project-specific performance and cost data, and limitations. The report also discusses special considerations for retrofitting systems to meet the lower arsenic drinking water standard (maximum contaminant level or MCL) of 10 ug/l.

More arsenic treatment information is available at <http://clu-in.org/arsenic>.

1997

January 1997, EPA 540-F-95-031

[Thermal Desorption Implementation Issues \(Engineering Forum\) \(PDF\)](#) (8pp, 119KB)

January 1997, EPA 540-F-95-030

[Soil Vapor Extraction Implementation Experiences \(Engineering Forum\) \(PDF\)](#) (10pp, 75KB)

1995

[Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites \(PDF\)](#) (32pp, 210KB)

1993

December 1993, EPA 540-S-93-502

In Situ Bioremediation of Vadose Zone Soils (SPRD-Ada)

December 1993, EPA 540-S-94-500

[Considerations in Deciding to Treat Contaminated Unsaturated Soils In Situ \(PDF\)](#) (26pp, 2.2 MB)

1992

April 1992

[Superfund Technical Review Process \(Ground Water & Engineering Forums\) \(PDF\)](#) (5pp, 518KB)

September 1992, EPA 540-S-92-014

[Considerations for Conducting Treatability Studies to Evaluate the Impact of Metals Partitioning During the Incineration of Contaminated Soils From Superfund Sites \(RREL\)](#)

October 1992, EPA 540-R-92-073

[Construction Quality Management for Remedial Action and Remedial Design Waste Containment Systems \(RREL\)](#)

1991

July 1991

[Data Gaps in Remedial Design \(USACE\) \(PDF\)](#) (5pp, 343KB)

April 1991, EPA 540/2-91/009

[Treatment of Lead-Contaminated Soils \(RREL\) \(PDF\)](#) (10pp, 241KB)

February 1991, EPA 540/2-91/004

[Issues Affecting the Applicability and Success of Remedial/Removal Incineration Projects \(RREL\)](#)

Engineering Forum Meetings

All existing meeting summaries, presentations, etc. are online here:

<http://epa.gov/superfund/remedytech/tsp/meetings.htm> . Thanks go to the Groundwater Forum for their compilation of many of these meetings, where the EF met as well.

Meeting dates and locations:

May 1987. A meeting occurred in Las Vegas, in conjunction with "ad-hoc future Ground Water Forum members" attendance at Outdoor Action Conference. Note that the Ground Water Forum is not officially formed at this point.

Sept 1987. Meetings in Ada, OK, and Las Vegas, NV, with ORD Laboratory members.

April 1988. Meeting in Washington, DC with Headquarters.

May 1988. Meeting in Las Vegas during and after NWWA Outdoor Action Conference.

Oct 1988. Meeting in Seattle with Regional Office staff (Field trip to Western Processing Superfund Site). This was the first EF meeting where co-chairs were established. The EF had attempted to organize before this meeting, however, this is recalled as the meeting where that Ken Erickson and Deborah Griswold (as 2 of only 3 EF representatives) got together and “decided to take matters into our own hands and declare ourselves co-chairmen and begin moving the EF forward.”

June 1989. Meeting in Chicago with Regional Office staff (Field trip to Byron Superfund Site).

Feb 12-15, 1990. Meeting in Kansas City with USACOE.

Dec 4-5, 1990. Meeting in Athens, GA. with ORD lab (training sessions on computer modeling).

April 1991. Meeting in Dallas, TX. with Regional Office. Discussions began which led to formally inviting RCRA to join into the previously Superfund-only Ground Water Forum.

Nov 1991. Meeting in Ada, OK. with ORD Laboratory (Visit to field site used for testing well logging equipment).

May 1992. Meeting in Cincinnati with ORD labs (Field trip to field projects, including hydrofracturing and bioremediation and drilling/geophysics).

- Nov 1992. Meeting in San Francisco with Regional Office (Seminar on Organic Chemistry). By this meeting RCRA issues have been incorporated into Ground Water Forum and agenda, and RCRA staff members are coming to meetings as Forum members.
- June 15-17, 1993. Meeting in DC/Virginia with HQ management (OERR, OSW, OSWER).
- Dec 6-10, 1993. Meeting in Santa Fe, NM with the Los Alamos and Sandia DOE Research Laboratories (Field trip to Los Alamos and Sandia National Laboratories).
- June 6-10, 1994. Meeting in Denver, CO. with USGS, Colorado Dept. of Health, and USEPA Regional Office (Visit to Rocky Mountain Arsenal Superfund Site and short seminar on cap design).
- Jan 23-37, 1995. Meeting in Las Vegas with EMSL-LV Lab and USAF
- June 1995. Meeting in Boston, MA with Regional Office.
- Dec 1995. Fall/Winter Meeting canceled due to lack of budget
- August 11-15, 1996. Meeting in San Francisco with US Navy.
- Feb. 1997. Meeting took place in St. Petersburg, FL after the *International Containment Conference* national meeting. Rich Steimle asked the Ground Water Forum if it would be willing to develop a list of state technical contacts who could act as liaisons between the Forum and the states.
- July 1997. Meeting at ORD Kerr Lab in Ada, OK, mostly related to Natural Attenuation Protocol development.
- Feb. 1998. Meeting in Salt Lake City, UT, major topics at the meeting were Monitored Natural Attenuation and Thermal Treatment Technologies.
- July 1998. Meeting in Baltimore, MD, major topic was the visit to, and technology at the USA Aberdeen Proving Ground, presentations from USACE and US Army Environmental Center. Also Roundtable discussion on Ground Water Treatment Systems.
- Nov 17-20, 1998. TSP Meeting in San Antonio, TX (with AFCEE)
Tech Presentations and EF Business Session
- June 1999. Meeting in St. Louis, MO, with Subsurface Remediation Conference sponsored by Federal Facilities Technologies Roundtable, June 8-11, 1999.
- Oct 25-28, 1999. Meeting in Las Vegas, NV with Department of Energy Technology Information Exchange Workshop, October 26-28, 1999. Had a field trip to

USDOE Yucca Mountain (proposed nuclear waste repository), and to the Ash Meadows National Wildlife Refuge, where there are large flowing springs discharges (Crystal Springs) and wetlands near Yucca Mountain.

- April 2000. Meeting in Washington D.C., with USEPA Headquarters Program Offices, and a short Phytoremediation Training.
- Oct 23-27, 2000. TSP Meeting in Charleston, SC.
Field workshop on Ground Water / Surface Water Field Techniques
Short Course: Groundwater Geochemistry of Contamination Assessment and Remediation.
- May 7-10, 2001 TSP Meeting in San Diego, CA.
Tech Presentations and EF Business Session
Field Trip to SPAWAR and the US Navy base at North Island
- Nov 5-8, 2001. TSP Meeting in Cambridge, MA.
Tech Presentations and EF Business Session
Field trips: USArmy Ft. Devens, MMR, Shepley's Hill Landfill, the "Big Dig".
- June 3-6, 2002. TSP Meeting in Denver, CO. (with ITRC)
Tech Presentations and EF Business Session
Field trip to Argo Mine Tunnel, Clear Creek Mine, Virginia Canyon Mine
- Nov 18-21, 2002. TSP Meeting in Pensacola, FL
Tech Presentations and EF Business Session
Field trip to nearby USEPA Gulf Breeze ORD Laboratory
- April 21-25, 2003. TSP Meeting in Seattle, WA.
Tech Presentations and EF Business Session
Field trip to the Wyckoff Eagle Harbor Superfund site, Bainbridge Island, WA
- Oct 20-23, 2003. TSP Meeting in Niagara Falls, NY.
Workshop on Hydrogeology of Fractured Rock
Tech Presentations and Business Session
Field Trip - "Toxic Tour" to some of the area's earliest Superfund hazardous waste sites of national prominence (Love Canal, S Area, and 102nd St. Landfill), as well as a visit to view the strata along the Niagara Gorge. Also an optional geology field tour to the Penn Dixie Paleontological Site.
- May 24-29, 2004 TSP Meeting with NARPM in Miami Beach, Florida
Tech Presentations and EF Business Session
Field Trips to Biscayne National Park and Everglades National Park
- Oct 18-22, 2004. TSP Meeting in Sacramento, CA.
Tech Presentations and EF Business Session

Field Trip - Aerojet General Corp, Rancho Cordova, CA

May 24-27, 2005. TSP Meeting with NARPM in Phoenix, AZ
Tech Presentations and EF Business Session

Oct. 2005. Meeting in San Antonio, TX. Long Term Monitoring Optimization Training was one short course presented.

June 19-23, 2006 TSP Meeting with NARPM in New Orleans, LA
Tech Presentations and EF Business Session
Highlights link – <http://www.epa.gov/tio/tsp/meetings.htm> and

Nov 13-16. 2006. TSP Meeting in Long Beach, CA.
In conjunction with GRAC's Symposium on High Resolution Site
Characterization & Monitoring. Event details at <http://www.grac.org/hires.asp>
Tech Presentations and EF Business Session

May 2007. TSP Meeting with NARPM in Baltimore, MD
Tech Presentations and EF Business Session
EF contributed to sessions:

- Engineering Design Considerations for VI Mitigation
- Nanotechnology: Solutions, Challenges and Implications for \$Fund
- Engineering Forum Remedial Technology Update

Highlights here:
http://www.epa.gov/tio/tsp/download/2007_spring_meeting/spring_2007_highlights.pdf

Nov 5-8, 2007. TSP Meeting ORD Lab in Las Vegas, NV. Highlights can be found at:
http://www.epa.gov/tio/tsp/download/2007_fall_meeting/fall_2007_highlights.pdf
AMPAC Perchlorate Remediation System Tour, Henderson, NV

July 7-11, 2008. TSP Meeting with NARPM in Portland, OR
NARPM Summary: <http://www.epanarpm.org/2008/home.htm>
Engineering Forum led sessions:

- Green Remediation: Opening the Door To Field Use
- Nanotech: Practical Considerations for Use in GW Remediation

Field Trips: Portland Harbor and Portland Wellfield Cascade Corp \$Fund Site

Jan 26-29, 2009. TSP Meeting, San Diego, CA
Presentations from USGA Toxic Substances Hydrology Program
EF Business Session
Field Trips (SPAWAR, UC San Diego SRP Program)

June 2-5, 2009. TSP Meeting with NARPM, Atlanta, GA.
Meeting summary: <http://www.epanarpm.org/2009/home.htm>

Tech Presentations and EF Business Session

Field Trips:

- Hydrogeology of Igneous and Metamorphic Rocks in a Piedmont Setting–Water Supply and Contaminant Migration (Lawrenceville)
- Clayton County Water Reclamation and Wetlands Center
- Redevelopment and Reuse Sites: Hopeville, GA
- Savannah River Superfund Site

EF Led Sessions:

- Superfund Green Remediation Strategy
- Green Remediation: What’s Next?

Nov 17-19, 2009 TSP Meeting in San Antonio, Texas, with State Coalition for the Remediation of Drycleaners
Tech Presentations and EF Business Session
Field Trips – Aquarina Springs and Edwards Aquifer

May 2010. Ground Water Forum attended the 20th Anniversary National Association of Remedial Project Manager (NARPM) Annual Meeting in Washington, DC.

Nov 16-18, 2010. Engineering Forum attended the TSP/SCRD Meeting in Orlando, FL.

- EF Business Sessions
- USGS Workshop -- Evaluating Capture Zones in Fractured-Rock Aquifers.
- Field Trip – EPA TSP Tour of 45th Space Wing / NASA at Cape Canaveral Air Force Station sites and facilities historical museums (Blockhouse at lunch and Air Force Space & Missile Museum at Hangar R, Cape Canaveral Air Force Station).

May 16-20, 2011 TSP Meeting with NARPM, Kansas City, MO.
Tech Presentations and EF Business Session
Engineering Fourm Sessions:

- Greener Cleanups – Case Studies and Discussion
- ISCO – Effectiveness and GW Sampling Caveats and Guidelines

Field Trips:

- Hallmark (Zero Waste)
- Harley Davidson (Green Manufacturing)
- Lake City Army Ammo Plant \$Fund Site
- Urban Geology and Caves Tour

Meeting Summary, etc.: <http://epa.gov/superfund/remedytech/tsp/meetings.htm>

Nov 2011. Technical Support Project meeting cancelled due to financial issues, but EF held a “Virtual TSP Business Session”

May 2012 Oklahoma City, OK Technical Support Meeting May 1-3, 2012

Nov 26-30, 2012 TSP Meeting with NARPM, Henderson, NV
EF hosted 6 Tech Presentations Sessions

- Greener Cleanups and the Role of BMPs
- Renewable Energy Credits and RE Assessment
- Environmental Footprint Methodology Training
- EF Case Studies Session
- DNAPLs
- ISCO

EF Business Meeting
Field Trips to NV Test Site and Las Vegas Wash
<http://narpm.trainex.org/agenda.cfm>