

SUPERFUND TECHNICAL SUPPORT PROJECT

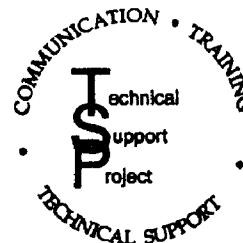


GUIDE FOR RPMs/OSCs

November 1990



SUPERFUND TECHNICAL SUPPORT PROJECT



GUIDE FOR RPMs/OSCs

Prepared for the

Technology Innovation Office
Office of Solid Waste and Emergency Response

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PREFACE

This document provides OSCs and RPMs with a detailed description of the Technical Support Project (TSP) and how the Project can be accessed to provide technical assistance from ORD laboratories and other offices in EPA in support of Regional Superfund Projects. Also included in this document are descriptions of each of the Technical Support Centers (TSCs) that provide these services, and the names and telephone numbers of TSP Forum members and TSC contacts.

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OVERVIEW

The Office of Solid Waste and Emergency Response (OSWER), Regional Superfund Offices, and the Office of Research and Development (ORD) established the Superfund Technical Support Project (TSP) in 1987 to provide technology-based assistance to Regional Remedial Project Managers and On-Scene Coordinators through ORD laboratories. The Project consists of a network of Regional Forums, five specialized Technical Support Centers (TSCs) located in ORD laboratories, and one TSC at OSWER's Environmental Response Team. The objectives of the TSP are to:

- Provide the opportunity for headquarters, Labs, and Regions to work towards a mutual goal of identifying specific needs of OSC/RPMs and Regional technical staff and providing them with state-of-the-science technical assistance;
- Improve communications among Regions and ORD laboratories;
- Ensure coordination and consistency in the application of remedial technologies;
- Furnish high-technology demonstrations, workshops and state-of-the-science information for RPMs and OSCs; and
- Facilitate the evaluation and application of alternative investigatory and remedial techniques at Superfund sites.

Technical Support Centers

Technical Support Centers provide technological support and assistance through telephone communications, site visits, document review, technology evaluation, information clearinghouses, the OSWER Electronic Bulletin Board, demonstration projects, and technical workshops. There are six TSCs providing these services to OSCs and RPMs through the TSP. The Centers provide technology-based assistance in the areas of:

- Monitoring and Site Characterization
- Ground-Water Fate and Transport
- Engineering and Treatment
- Exposure and Ecorisk Assessment
- Emergency Response, Remedial and Removal Technologies
- Health and Risk Assessment

Technical Support Forums

Technical Support Forums are comprised of one or more technical specialists, RPMs, or OSCs from each of EPA's ten regions. Two Forums have been established to date: *Ground-Water Fate and Transport* and *Engineering*. Forum members provide information to OSC/RPMs in their Regions regarding TSP efforts, research undertaken by the Centers, and problems and successes experienced by other Regions including the application of remedial technologies at Superfund sites. Forum representatives:

- Channel communications among the Regions, TSCs, headquarters personnel, and existing EPA technical programs;
 - Identify specific technical issues and needs, and work with the Centers to address these issues in order to facilitate successful completion of Superfund site remediation;
 - Act as a technical resource to the Regions and the Centers; and
 - Route technical assistance information to Regional colleagues.
-

Project Funding

The TSP is accessed by a telephone call or letter to one of the Center Directors. Any Regional staff member involved in the Superfund program can contact the Centers directly or with the assistance of a Forum member in their Region. The Center Director will discuss your problem, and if substantial assistance is needed to solve the problem (*e.g.*, more than one person-day of effort), he or she will initiate a TSP project. All such projects must be formally requested by the Regional recipient in writing (see next page).

Each site is limited to a ceiling of \$50,000 in extramural support through the TSP, unless special written approval is granted from the TSP Project Manager.¹ Additional funding from the Regions is encouraged using site-specific Regional funds that have been allocated through the Superfund Comprehensive Accomplishments Plan (SCAP). The TSCs are responsible for establishing budgets and tracking expenditures for each request and each site. This is important information for determining the level of potential cost recovery for each site and ensuring that the limited resources available under the TSP are equitably distributed amongst the Regions.

¹ To determine the current TSP funding status of a specific site, contact your Forum member or the TSP Project Manager. This information is also available through the OSWER Electronic Bulletin Board (BBS); see the section on Project Tracking for more information.

TECHNICAL SUPPORT PROJECT PROCEDURES

Initiating a Technical Assistance Request All technical support projects must be in writing. To initiate a technical assistance request, follow the procedures outlined below:

1. Contact the appropriate TSC directly to discuss specific technical questions and the nature of the request. This is particularly important to situations where issues may be resolved or questions answered by telephone. It will also assist both you and the TSC in project planning and logistics.

The TSCs may be accessed either directly or through Regional Forum representatives. If you are unsure which center to call, or would like to discuss your need for technical assistance, please contact one of your Regional Forum members or the TSP Project Manager. A list of Forum members and their phone numbers is available in Appendix A. Forum members are well informed of current TSP projects and Center capabilities and will be able to advise you based on their experience.

2. Once it has been established that the TSC can provide the requested services, a **written request** must be transmitted to the Center. The Regional Superfund Branch Chief and the TSP Project Manager **must** receive copies of all written requests. The following information should be included in each written request:

- Requestor's name and position
- Site name and CERCLA site number (sites must fall under the Superfund program)
- Lead status (Superfund/Enforcement)
- Specific product expected from the Center
- Deadline by which it will be needed
- Project funding information, if it is anticipated that funds in addition to those provided by the TSP will be required.

Written requests may be submitted as a letter or by completing a "Request for Technical Support" form. Examples of each format and a blank request form are provided on the following pages.

**Sample
Technical Support Project Request Letter**

MEMORANDUM

SUBJ: Request for OSWER Technical Support Project Assistance

FROM: Jane Doe, Remedial Project Manager
Region XX

TO: John Smith, Director
Technical Support Center
XYZ Laboratory

The purpose of this memorandum is to request Superfund Technical Support Project assistance. This assistance is required for the ABC Landfill enforcement-lead Superfund site, CERCLA site number YZD078964734.

A remedial action Statement of Work (SOW) for the ABC Landfill site is attached. Task 2 of the SOW details the work to be performed in evaluating *in situ* waste stabilization. Expert technical assistance is required in assessing the evaluation. Because of the potential importance of this evaluation, it is necessary that written comments from the Center be provided by no later than January 17, 1991.

This assistance is not expected to exceed \$50K in value, however, should this limit be approached, Region XX must be informed so that alternate funding may be pursued. Alternate funding was not considered for this project as it is not expected that TSP work at this site will exceed \$50K. Please inform me of your receipt of this request, and let me know whether any problems in meeting the required deadline are anticipated.

Attachment

cc: Rich Steimle,
TSP Project Manager

Jann Johnson, Chief
Superfund Programs Branch, Region XX

Request for Superfund Technical Support

☐ RSKERL-Ada

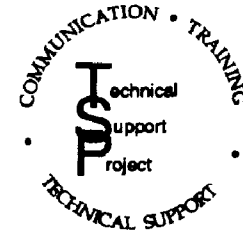
☒ RREL-Cincinnati

☐ ERL-Athens

☐ EMSL-LV

☐ ECAO-Cincinnati

☐ ERT-Edison



Date: May 15, 1990

Requestor: Jane Doe

Region & Division: Region XX, Superfund Construction Section

Superfund Site Name & No.: ABC Landfill - YZD078964734

☐ Fund Lead

☒ Enforcement Lead

Nature of Request

Review Statement of Work for ABC Landfill--Task 2, Evaluating *in situ*
waste stabilization

Deliverables and Due Dates

Written comments on SOW, due January 17, 1991

List of Attachments

Statement of Work

cc: Superfund Branch Chief

TSP Project Manager, OSWER/TIO (OS-110)

Request for Superfund Technical Support

☐ RSKERL-Ada

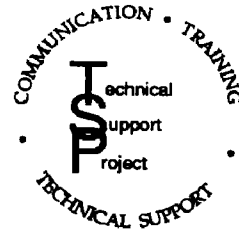
☐ RREL-Cincinnati

☐ ERL-Athens

☐ EMSL-LV

☐ ECAO-Cincinnati

☐ ERT-Edison



Date: _____

Requestor: _____

Region & Division: _____

Superfund Site Name & No.: _____

☐ Fund Lead

☐ Enforcement Lead

Nature of Request

Deliverables and Due Dates

List of Attachments

cc: Superfund Branch Chief

TSP Project Manager, OSWER/TIO (OS-110)

The Center Director may assign your project to one or more members of the Center's Technical Support staff depending on the type(s) of expertise needed. You will work directly with that person and the Center Director to see that your technical assistance needs are filled. The Centers have established methods for providing quick response to technical assistance needs ranging from simple requests for information to detailed technical review of contractor reports or work plans to full-scale treatability studies or other work requiring a site visit. If the needed expertise is not available within the laboratory, the Director can arrange for expert consultants from academia or the private sector to assist you.

Special Procedures

The TSP was designed to provide quick-response technical assistance to Superfund field staff through short-term, relatively inexpensive projects conducted by ORD laboratories or other technical experts. The procedures described above are applicable to more than 80% of requests received by the TSP to date. However, special procedures apply in certain circumstances:

- When the budget for responding to your request is expected to exceed the \$50,000 per site limit, prior written approval by the TSP Project Manager is required. This is necessary in order to stretch limited funds across as many projects as possible. If a critical assistance project is expected to require additional resources, the Region is encouraged to contribute utilizing site-specific Regional SCAP funds.
- If a technical workshop or training course is requested, the request must be signed by the Regional CERCLA Branch Chief. These types of projects can be resource intensive. While it is possible to provide this type of service through the TSP if Regional management is convinced of the need, it is expected that other sources of funds will normally be sought. Requests of this nature may be forwarded to the OSWER Training Program (Marlene Suit, Training Coordinator, FTS 382-4364).
- Research projects, the development of standard protocols, and complex treatability studies are examples of projects which are outside the scope of the TSP. Although these types of projects are undoubtedly quite useful, they should be discussed with the Centers to determine alternate funding approaches.
- Multiple requests at a single site can lead to a few Regions or a few sites receiving substantial support while others are not addressed. It is expected that if a particular site requires substantial technical assistance due either to the nature of the site or the type of remedy, the Region would make provisions for providing funds for technical assistance. Such sites may also be candidates for support from ORD's Superfund Technical Assistance Response Team (START); contact Ben Blaney, RREL (FTS 684-7406), for additional information.

**Follow-up Activities
For Projects**

Once the project has been initiated, the requestor should maintain contact with the TSC to track the project's progress and resolve any deviations from the initial request. It is your responsibility to ensure that the Center obtains any necessary information or documentation on the site. Be very clear in your communication with the Center as to what is needed by what date. Also be sure to inform them if sensitive or confidential data is involved.

Project tracking information is available from your Forum representative. Each Technical Support Center prepares quarterly status reports of projects undertaken and funds expended. Copies of quarterly Technical Support Project reports are provided to Regional Forum representatives by the TSP Project Manager. Forum representatives may have copies of summaries distributed within their Regions. These reports include project descriptions, progress narratives, and information on funds budgeted and expended.

If you experience any problems that can not be resolved by either you or the TSC Director, call your Region's Forum representative or the TSP Project Manager. They are available to provide you with assistance. Their phone numbers are located in the Appendices to this Guide.

Project Tracking

In order to track technical assistance requests issued under the TSP, a project management database has been developed specifically for the project. The database, TSP TRACK, includes the following information for each reported request:

-
- | | |
|----------------------------------|--|
| • Region | • Completion Date |
| • Name of Requestor | • Funds Budgeted (established by TSC) |
| • TSC | • Funds Expended |
| • TSC Contact | • Lead Status (Superfund or Enforcement) |
| • Superfund Site Name and Number | • Nature of Request |
| • Date Request was Issued | |
-

This data is derived primarily from copies of written technical assistance requests sent to the Project Manager and quarterly project reports submitted by the TSCs.

The database facilitates project tracking and reporting processes such as determining the amount of total funds expended for any given site and the number of projects for each Region or each TSC. Information is presented in text, graphic, and accounting formats.

TECHNICAL SUPPORT CENTERS

Selecting a Technical Support Center

Projects implemented under the Superfund program require a vast array of technical knowledge and expertise. This expertise is made available by the Technical Support Centers to all RPMs and OSCs in support of their Superfund projects. Prior to initiating a technical assistance request, the appropriate receiving TSC should be determined. The following shows six broad areas of technical expertise and the corresponding Centers that provide this expertise through the TSP.

TECHNICAL EXPERTISE	TECH SUPPORT CENTER
Ground Water Fate and Transport	Robert S. Kerr Environmental Research Laboratory (RSKERL), Ada, OK
Engineering and Treatment	Risk Reduction Engineering Laboratory (RREL), Cincinnati, OH
Monitoring and Site Characterization	Environmental Monitoring Systems Laboratory (EMSL-LV), Las Vegas, NV
Exposure and Ecorisk Assessment	Environmental Research Laboratory (ERL-Athens), Athens, GA
Emergency Response and Remedial Project Experience	Environmental Response Team (ERT), Edison, NJ
Health and Risk Assessment	Environmental Criteria and Assessment Office (ECAO), Cincinnati, OH

The following subsections include examples of a few of the technical resources available through the TSCs. Additional information regarding the expertise of TSC staff members is contained in Appendices B through G of this Guide.

**Ground-Water Fate and Transport Technical Support Center
Robert S. Kerr Environmental Research Laboratory (RSKERL)**

RSKERL, Ada, Oklahoma, is EPA's center for fate and transport research, focusing its efforts on transport and fate of contaminants in the vadose and saturated zones of the subsurface, methodologies relevant to protection and restoration of ground-water quality, and evaluation of subsurface processes for the treatment of hazardous waste. The Center provides technical assistance in:

- Pump and treat technology for aquifer remediation
- *In situ* bioremediation of soils
- Subsurface geochemistry
- Contaminant transport modeling
- Subsurface contaminant transformation

*Contact: Dick Scalf
FTS 743-2308 or
(405) 332-8800*

**Engineering and Treatment Technical Support Center
Risk Reduction Engineering Laboratory (RREL)**

RREL, Cincinnati, Ohio, plans and conducts engineering, research and development related to treatment of solid and hazardous wastes. RREL personnel provide technical services involving specific treatment technologies and Superfund response processes including:

- Analysis of treatment alternatives
- Treatability studies
- Remedial design review
- Construction QA/QC methods
- Contaminant source control and geotechnical test methods

*Contact: Ben Blaney or Joan Colson
FTS 684-7406 or
(513) 569-7406*

**Monitoring and Site Characterization Technical Support Center
Environmental Monitoring Systems Laboratory, Las Vegas (EMSL-LV)**

EMSL, Las Vegas, Nevada, provides scientific and technical assistance in contaminant detection, hydrologic monitoring, site characterization, data interpretation and geophysics. Services include:

- Saturated and unsaturated zone monitoring
- Remote sensing, mapping, and geostatistics
- Analytical methods and quality assurance
- Bore-hole and surface geophysics
- X-ray florescence field survey methods
- Sampling and monitoring design assistance
- Mixed waste assistance
- Radiological analysis

*Contact: Ken Brown
FTS 545-2270 or
(702) 798-2270*

**Exposure and Ecorisk Assessment Technical Support Center
Environmental Research Laboratory, Athens (ERL-Athens)**

The Environmental Research Laboratory at Athens, Georgia, emphasizes multimedia exposure and risk assessment modeling of remedial action alternatives. An electronic bulletin board (BBS) has been established to disseminate models and databases and to exchange modeling information. The technical support services include:

- Models, databases and analytical techniques
- Multimedia modeling of organic chemical and heavy metal pollutant fate
- Soil/water and surface water/sediment systems
- Ecological impact and ecorisk assessments

*Contact: Bob Ambrose
(FTS) 250-3130 or
(404) 546-3130*

**Environmental Response Team Technical Support Center
OERR Environmental Response Branch (ERT)**

ERT, Edison, New Jersey, provides support in responding to releases of hazardous waste, chemicals and oil. ERT also provides support in risk assessment, multi-media sampling and analysis, health and safety, cleanup techniques, and training for response personnel. Services include:

- Response techniques for emergency hazardous chemical releases
- Treatment technologies, sampling plans, and contaminant assessment
- Technical review for remedial and removal technology, safety, and preparedness
- Hazardous Materials Incident Response Training Program
- Site-safety plans, personnel protection, and safety

*Contact: Joseph Laforanara
FTS 340-6740 or
(201) 321-6740*

**Health and Risk Assessment Technical Support Center
Environmental Criteria and Assessment Office (ECAO)**

The ECAO in Cincinnati, Ohio, functions as the focal point within the Office of Health and Environmental Assessment (OHEA) to coordinate Agency-wide assistance in the area of human health risk assessment. This assistance is conducted in conjunction with OERR's Toxics Integration Branch to identify future research issues, to ensure consistent responses to policy questions, and to better address specific situations that have broader implications. A hotline has been established (FTS 684-7300 or 513/569-7300) The technical support services available include:

- Assistance in interpreting the "Risk Assessment Guidance for Superfund: Human Health Evaluation Manual"
- Chemical-specific health and exposure information
- Site-specific Superfund risk assessments
- Technical review to support cleanup levels based on human health risk
- Site-specific and health-based trigger or cleanup levels for contaminants

*Contact: Pei-Fung Hurst
FTS 684-7300 or
(513) 569-7300*

APPENDICES

Telephone numbers and locations of Technical Support Project contacts are listed in the following appendices. They include:

- Regional Forum Representatives
- Headquarters TSP Staff
- Technical Support Centers

Additional information relating to technology-based support available at each Technical Support Center is also included within each Centers' respective Appendix.

APPENDIX A

SUPERFUND TECHNICAL SUPPORT PROJECT FORUM MEMBERS

Ground Water Fate & Transport Forum	<u>Region</u>	<u>Forum Contact</u>	<u>FTS</u>	<u>Commercial</u>
	1	Richard Willey*	883-1639	(617) 573-9639
		Steve Mangion	883-1718	(617) 573-5718
	2	Kevin Willis	264-1784	(212) 264-1784
		Alison Hess	264-6040	(212) 264-6040
		Fredrick Luckey	264-6786	(212) 264-6786
	3	Kathy Davies*	597-6488	(215) 597-6488
		Phil Rotstein	597-8185	(215) 597-8185
	4	Douglas Bell	257-7791	(404) 347-7791
		Gallo Jackson	257-2643	(404) 347-2643
	5	Doug Yeskis	886-0408	(312) 886-0408
		Luanne Vanderpool	353-9296	(312) 353-9296
	6	Ruth Israeli	255-6735	(214) 655-6735
	7	Steve Kinser	757-2856	(913) 551-7728
		Bill Pedicino	276-7629	(913) 551-7629
	8	Darcy Campbell	330-7596	(303) 294-7596
		Paul Osborn	330-1418	(303) 293-1418
	9	Herb Levine	484-2314	(415) 744-2314
		Richard Frietas	484-2315	(415) 744-2315
	10	Rene Fuentes	399-1599	(206) 442-1599
		Bernard Zavala	399-1562	(206) 442-1562
		Howard Orlean	399-6903	(206) 442-6903

** Forum Co-Chair*

SUPERFUND TECHNICAL SUPPORT PROJECT FORUM MEMBERS

Engineering Forum	<u>Region</u>	<u>Forum Contact</u>	<u>FTS</u>	<u>Commercial</u>
	1	Yoon-Jean Choi	833-9633	(617) 223-5505
		Lynne Fratus	833-9634	(617) 573-9634
		Michael Jasinski	833-5786	(617) 573-5786
	2	Richard Kaplan	264-3819	(212) 264-3819
		Abram "Miko" Fayon	264-4706	(212) 264-4706
	3	Paul Leonard	597-1286	(215) 597-1286
		Terry Stilman	597-0984	(215) 597-0984
	4	Jim Orban	257-2643	(404) 347-2643
		Jon Bornholm	257-7791	(404) 347-7791
	5	Anthony Holoska	886-7503	(312) 886-7503
		Kaushal Khanna	886-3011	(312) 886-3011
	6	Deborah Griswold*	255-6715	(214) 655-6715
		Sherry Fuerst	255-2198	(214) 655-2198
	7	Steve Kovac	757-2856	(913) 551-7698
		Steve Kinser	757-2856	(913) 551-7728
	8	Henry Schroeder	303-7074	(303) 294-7074
		Gerry Snyder	564-7504	(303) 294-7504
	9	Ken Erickson*	484-2324	(415) 744-2324
	10	John Barich	399-8562	(206) 442-8562
		Bob Stamnes	399-8562	(206) 442-8562

** Forum Co-Chair*

SUPERFUND TECHNICAL SUPPORT PROJECT CONTACTS

Headquarters Contacts	Rich Steimle TSP Project Manager TIO (OS-110)	382-7914	(202) 382-7914
	Meg Kelly Deputy Director, TIO	382-7953	(202) 382-7953
	Mark Johnson Project Assistant	475-6781	(202) 475-6781
	EMS Contractor Support		(301) 589-5318
	Ed Hanlon OERR (OS-220)	398-8352	(703) 308-8352
	Patricia Gowland OWPE (OS-510)	398-8622	(703) 308-8622

APPENDIX B

ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY (RSKERL)

**Kerr Lab Road - P.O. Box 1198
Ada, Oklahoma 74820**

*Contact: Marion R. (Dick) Scalf
FTS 743-2308 or 405/332-8800*

RSKERL serves as EPA's center for ground-water research, focusing its efforts on studies of the transport and fate of contaminants in the subsurface, development of methodologies for protection and restoration of ground-water quality, and evaluation of the applicability and limitations of using natural soil and subsurface processes for the treatment of hazardous wastes.

RSKERL has been responsible for the development and demonstration of cost-effective methods of land treatment of municipal waste-waters and petroleum refining and petrochemical wastes, as well as developing technologies for the protection of ground-water quality. RSKERL carries out research through in-house projects and through cooperative and interagency agreements with universities, national laboratories and other research centers.

The following page contains additional information about RSKERL's capabilities including examples of some technical problems that may be encountered and corresponding ground-water fate and transport support available through RSKERL. If you have additional questions regarding RSKERL's activities, contact either Dick Scalf or your Forum representatives.

**Examples of Ground-Water Fate and Transport
Support Available through RSKERL, ADA, Oklahoma**

If You Have Problems With	Technical Support Available
Soil and Subsurface Remediation	<i>In situ</i> Bioremediation Pump and Treat Evaluation Toxicity Testing
Geochemistry	Soil Chemistry Analytical Chemistry
Contaminant Transport Modeling	Ground-Water Modeling Unsaturated Zone Modeling Training and Software
Ground-Water Monitoring	Monitoring Well Construction Sampling Techniques Subsurface Coring Techniques
Underground Injection	Mechanical Integrity

Case Studies

Hastings - The Center conducted monitoring work at the Hastings Superfund site in Region 7. The first step involved collecting and analyzing data from the many studies done previously on the site. By analyzing existing information from numerous sources, Center staff were able to develop plume maps. An additional ground-water investigation using tritium dating was done to locate sources of contamination, and help identify PRPs. Activities also included gamma ray logging of 25 wells across the site and flow meter profiling to obtain a vertical profile of hydraulic conductivity.

Baxter/IP/Rosenberg - The Center provided oversight of bioremediation work done by the PRP at the Baxter/IP/Rosenberg Superfund site in Region 9. Both the soil and ground water on the site are contaminated with PAHs, PCP, TCP, and metals. Problems at the site were discovered when excavation for a new building was begun on site and a floating layer of creosote was found 10 feet under the surface, trapped above the water table. The site was of particular interest because data in the literature suggest that high metal concentrations may inhibit bioremediation, so tests are being done to determine if the microbes have acclimated to the metals. Preliminary results show that bioremediation will not be able to lower the arsenic contamination on the site but may be useful for the organics. After the soil has been treated, the PRP and RSKERL will attack the ground water, but technologies other than bioremediation will eventually be required.

APPENDIX C

RISK REDUCTION ENGINEERING RESEARCH LABORATORY (RREL)

**26 Martin Luther King Drive
Cincinnati, Ohio 45268**

*Contact: Ben Blaney or Joan Colson
FTS 684-7406 or 513/569-7406*

RREL is one of EPA's largest research centers, with responsibility for implementing engineering research and development related to solid and hazardous wastes. RREL personnel can provide a variety of technical services involving several treatment technologies. The Technical Support Center assists OSC/RPMs with the following Superfund response processes:

Remedial Investigation/Feasibility Study

- Determining treatment alternatives
- Determining feasibility of a treatment alternative through data review or in-house treatability studies
- Establishing protocols for determining site-specific feasibility of treatment alternative

Remedial Design

- Determining scale-up requirements
- Fine tuning design by reviewing data or performing in-house treatability studies

Remedial Action and Operation/Maintenance

- Troubleshooting assistance
- Monitoring scheme development

The following page provides examples of problems OSC/RPMs might encounter and corresponding technical assistance that RREL could provide. If you have questions regarding support available from RREL, please contact either Ben Blaney, Joan Colson, or your Forum representatives.

**Examples of Engineering/Treatment Support
Available through RREL, Cincinnati, Ohio**

If You Have Problems With	Technical Support Available
Remedial Actions	Leachate Treatment Stabilization Biodegradation Incineration KPEG Low Temp. Thermal Desorption Soil Washing/Flushing
Construction QA/QC	Methods
Contaminant Source Control and Related Geotechnical Test Methods	Ground-Water Modeling Permeability Tests Soil Physical Testing Waste Leaching Covers/Liners Slurry Walls
Soil and Water Chemistry	Inorganic Organic

Case Studies

Whitehouse Oil Pits - The Center conducted a treatability study for the Whitehouse Oil Pits Superfund site in Region 4. Region 4 initiated the project and was interested in trying an alternative technology: solidification/stabilization was chosen. However, the soil at the site suffered from both organic and metals contamination—presenting a challenge for stabilization techniques and materials. The test was conducted using an organophillic binder since traditional pozzolanic binders do not work for organics. In general, the metals appear to have been stabilized, but a definitive test method for organics leaching has yet to complete peer review. No final report has been published as yet. The site is an especially complicated one that will be turned over the Army Corps of Engineers for RD/RA.

Rocky Mountain Arsenal - For the Rocky Mountain Arsenal site in Region 8, RREL reviewed the draft treatment assessment report and provided comments on the treatment options that were developed by the Department of the Army and Shell Oil. Alternatives reviewed included stabilization, wet air oxidation, electric melting furnace and submerged quench incineration.

APPENDIX D

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY (EMSL-LV)

**University of Nevada - Las Vegas
P.O. Box 93478
Las Vegas, Nevada 89193-3478**

*Contact: Ken Brown
FTS 545-2270 or 702/734-2270*

EMSL's Technical Support Center for Monitoring and Site Assessment provides scientific and technical support to the Regions. The Center's key monitoring issues are:

- Extraction of representative samples
- Well spacing and sampling depths
- Sampling frequency
- Unsaturated zone monitoring
- Distribution and use of hydrogeologic information
- Application of innovative sampling and assessment technologies

Areas of assistance include sampling and monitoring design assistance; remote sensing, mapping, and geostatistics; analytical methods and quality assurance; bore-hole and surface geophysics; field portable X-Ray fluorescence field methods; mixed waste and radiological analysis. Technical assistance is provided in a variety of ways, including information research and retrieval, technology transfer, teleconferencing, video productions, on-site demonstrations, training programs, seminars and workshops.

The following provide examples of problems OSC/RPMs might encounter and corresponding technical assistance that EMSL can provide. For additional information on EMSL's capabilities for providing technical assistance, contact Ken Brown or your Region's Forum representatives.

**Examples of Monitoring/Site Characterization Support
Available through EMSL-LV, Las Vegas, Nevada**

If You Have Problems With	Technical Support Available
Site characterization	Geophysics analysis on site Soils gas analysis Bore hole geophysics
Data interpretation	Geostatistics GIS
Contractor proposals for geophysics studies	Second opinion from EMSL
Sampling plans for hydrologic monitoring	Sampling techniques and review of work plans
Metals analysis	Portable X-ray fluorescence study

Case Studies

XRF Support - At the request of Region 2, the Center provided FPXRF (Field Portable X-Ray Fluorescence) assistance resulting in the identification of an underground leak of solid and liquid waste from one of the buried tanks at the Nascolite site. Additionally, surficial inorganic contamination was discovered and measured. Severe lead contamination as well as significant levels of copper, antimony, and cadmium were recorded. This abandoned plexiglass manufacturing plant site has both organic and inorganic contamination, surficial and underground waste sources. FPXRF provided a quick and inexpensive method for remedial investigation to determine the type and extent of contamination.

The Center has provided FPXRF technical assistance for more than a dozen Superfund sites in Regions 2, 3, 5, 8, 9, and 10. As the program grows, demands for this technology are expected to increase and refinements of the method will enhance its applicability and success.

Geophysics Support - At the request of Region 9, EMSL-LV sent a geophysics field team to the Brown and Bryant site to obtain information about the stratigraphy of the subsurface. By estimating completion depths and interpreting the complex subsurface conditions at the site, EMSL-LV personnel were able to apply electric resistivity, seismic refraction, and down-hole seismic measurements to identify and qualify: acoustic and electrical properties of various sediment and rocks; source of acoustic, electric and magnetic noise; amplitude and frequency of noise; and other factors that

could influence measurements at the facility. The geophysical information obtained at the Brown and Bryant site, combined with some historical logging data, will form a basis for monitoring well placement and future site remediations. The Center has provided geophysical assistance for several Superfund sites through the TSP, including sites in Regions 1, 3, 6, 7, 9.

Sampling Quality Assurance Support - At the request of Region 7, the Center worked with ORD Quality Assurance Management staff to develop an effective sampling strategy to locate and cleanup dioxin contamination. Due to the notoriety and public concern about sites with 2,3,7,8-dioxin, the Center implemented an in-depth QA program to isolate sources of variability in the measurement process. The study takes into account sampling variability, which is suspected to be a major contributor to overall error, as well as handling, transportation, subsampling, batch, and analytical factors. Careful sampling design and special attention to sources of variability aided Region 7 personnel in obtaining an accurate evaluation of this site. Based on the applied statistical method described in "A Rational Document for the Assessment of Errors in the Sampling of Solid" EPA 600/4-90/013, May, 1990, which was successfully applied at this site, EMSL-LV developed a public domain Fortran program, ASSESS, which may be used to calculate sources of variability.

The Center has provided applied statistical assistance for Superfund sites in Regions 3, 6, 7, and 10. As more and more sites are successfully evaluated and remediated, EMSL-LV will expand the statistical capabilities and enhance their applicability to Superfund sites.

Soil Monitoring Support - EPA Region 10 requested a soil-gas survey to help clarify the source of contamination by chlorinated solvents detected in monitoring wells at the Frontier Hard Chrome site in Vancouver, Washington. A soil-gas survey in 1988 indicated high soil-gas concentrations that appeared to be coming from a location upgradient of the site. A more extensive survey in 1989 indicated that contamination was localized, and probably from a near-surface or shallow water table source. A dry well was subsequently discovered immediately adjacent to the site on property formerly occupied by an automotive shop.

The Center offers soil-gas technical assistance on questions related to field collection and analysis of soil-gas, soil or ground water samples contaminated with volatile or semivolatile organic compounds. In addition to field surveys with on-site analysis capability, the Center also provides technical review of proposed work plans and of results of site characterization activities performed by Regional contractors. The Center has provided soil-gas technical assistance to EPA Regions 3, 5, 6, 9, 10.

APPENDIX E

ENVIRONMENTAL RESEARCH LABORATORY - ATHENS (ERL-Athens)

**College Station Road
Athens, Georgia 30613**

*Contact: Robert B. Ambrose, Jr.
FTS 250-3130 or 404/546-3130*

ERL-Athens develops aquatic and terrestrial exposure models and measures or estimates the physical, chemical, and biological properties (rate and equilibrium constants) that are needed for model operation. Environmental decision-making tools include:

- Pollutant fate and exposure models
- Conventional pollutant loading and eco-system response models
- Knowledge-based expert systems
- Multimedia assessment, management, and control strategy development and evaluation methodologies
- Procedures for conducting uncertainty analysis.

Models are applicable to watersheds, surface and ground waters, agricultural areas, hazardous waste sites, spill sites, water treatment plants, wildlife habitats, etc. The Center for Exposure Assessment Modeling (CEAM), located within ERL-Athens, was established in July 1987 to meet the scientific and technical exposure assessment needs of EPA's Program and Regional offices and of State environmental agencies. CEAM provides training, maintains and distributes models through an electronic bulletin board, and provides assistance through "expert witness" testimony and in-depth support for high priority Agency projects.

The following pages provide examples of problems OSC/RPMs might encounter and corresponding technical assistance available through ERL and CEAM. Contact Bob Ambrose or your Forum representatives if you would like additional information about ERL-Athens' capabilities.

**Examples of Exposure and Ecorisk Assessment Support
Available through CEAM, Athens, Georgia**

If You Have Problems With	Technical Support Available
Multimedia modeling of heavy metal pollutants	Aquatic and terrestrial organic chemical and exposure models Evaluation of rate and equilibrium constants needed for operating models
Dose response	Physiologically based pharmacokinetic models
Sustaining a challenge	Expert witness testimony in court for modeling problems
Conducting exposure risk assessments	Exposure assessment and ecological instruction and training Technical assistance

Case Studies

Upper Clark Fork Site - Four Superfund sites are located in the area along the Clark Fork River in Region 8: Montana Post & Pole, Butte, Anaconda, and Mill Town Dam. Copper, zinc, and cadmium pollution has been killing trout in the river, and the toxicity is related to periodic high loadings of contaminants in the surface water. The Center used predictive models as part of an exposure analysis, toxicity assessment, and ecorisk assessment.

A combination of four models were used in the evaluations. The model MINTEQ predicted the chemical compounds that would form given the various elements present. PRZM evaluated the amount of metal entering the river from runoff, erosion, and leaching. PSTOUT4D was used to model flow and mixing, and GCTTRAN was able to predict large colloid transport. Model output compared favorably with empirical data collected upstream during the winter months, but failed downstream—implying that sources not accounted for in the models were active. Year 'round, the models accurately predicted several observed high concentration events.

APPENDIX F

ENVIRONMENTAL RESPONSE TEAM (ERT)

**Woodbridge Ave., Mail Stop 101
Edison, New Jersey 08837**

*Contact: Joseph Laforvara
FTS 340-6740 or 201/321-6740*

The Environmental Response Team (ERT) serves as EPA's center for expertise and assistance in responding to releases of hazardous wastes, chemicals, and oil. ERT responds to unusual emergency response situations both nationally and internationally and provides technical support to both removal and remedial programs. Specific technical support is provided in risk assessment, multi-media sampling and analysis, on-site health and safety, cleanup techniques, and training for response personnel. ERT is located in the EPA facility in Edison, New Jersey and the EPA Facility in Cincinnati, Ohio. ERT provides:

- On-site technical support for removal and remedial activities
- Technical support to the Chemical Emergency Preparedness Staff
- Development and implementation of Superfund safety program activities
- Technical review capabilities for Superfund
- Response training
- Contract management

On-Site Technical Support

Since its inception in 1978, the ERT has responded to over 700 requests from the Regions for technical assistance at sites and releases, including remedial and removal Superfund responses, oil and chemical spills and expert witness requests from the Agency's enforcement personnel. This assistance has included:

- Advising on approaches and methodologies to respond to hazardous chemical releases
- Recommending specific treatment and control technologies
- Developing and implementing sampling plans for soil, water and air contamination
- Developing and implementing ground water and soil studies to determine contaminant levels and recommend cleanup levels
- Advising and providing guidance to RPMs on approaches to Expedited Response Actions

**Preparedness Staff
Technical Support**

In 1984, EPA created the Chemical Emergency Preparedness Program (CEPP) in order to prevent catastrophic chemical accidents. CEPP included provisions for implementing effective emergency response actions in the event that a catastrophic release did occur. Title III of SARA provided the statutory authority for the CEPP and added specific enforcement provisions for obtaining industry compliance. ERT provides the Preparedness Staff with technical assistance and training concerning emergency response issues, and:

- Assists with inspections in chemical plant facilities to develop technology and practices for prevention of toxic chemical air releases
- Provides data and information on status of technology to monitor, detect, and prevent significant releases of hazardous substances
- Advises and assists OSCs, CEPP coordinators, State and local officials, and industry in implementing new procedures and practices to prevent the release of toxic chemicals

**Superfund Safety
Program
Implementation**

ERT is responsible for developing health and safety plans for all EPA employees involved with Superfund field activities. This includes:

- Testing and evaluating new safety equipment in the field and in controlled environments to support development of new technology
- Coordination with the Department of Labor (OSHA) in developing standards for health and safety protection of workers in hazardous waste operations
- Proposing and promulgating standards identical to the OSHA standards for those states that do not have an OSHA-approved State plan
- Ensuring safety of ERT employees by providing state-of-the-art safety equipment and training

**Superfund Technical
Review & Training**

Because of ERT's multi-disciplinary technical expertise, ERT is frequently asked to review and comment on draft documents related to remedial and removal technology, safety, and preparedness. In this same capacity, ERT participates on work groups, task forces, Regional Response Teams (RRTs), and the National Response Team (NRT). OERR is responsible for EPA's program for protecting the public and the environment from releases or potential releases of hazardous materials. As part of this program, ERT has developed a Hazardous Materials Incident Response Training Program for personnel who respond to emergencies or who investigate and cleanup abandoned hazardous waste sites. Training is provided in safety and health as well as in various technical operations needed to identify, evaluate, and control hazardous substances that have been or could be released.

APPENDIX G

ENVIRONMENTAL CRITERIA AND ASSESSMENT OFFICE (ECAO-Cincinnati)

**26 Martin Luther King Drive
Cincinnati, Ohio 45268**

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FTS 684-7300 or (513) 569-7300*

The Superfund Technology Support Center for Health Risk Assessment, located within ECAO-Cincinnati for OHEA, was established in January, 1990 to respond to the technical support needs of Superfund Regional and headquarters staff, and others engaged in Superfund risk assessment. The following list provides an overview of the types of technical assistance available through the Center:

- Provide chemical specific information
- Interpret and answer questions regarding the "Risk Assessment Guidance for Superfund (RAGS): Human Health Evaluation Manual"
- Develop interim or default recommendations or rationale on issues applicable to risk assessment for Superfund sites
- Work with OERR headquarters or Regional staff to develop health-based cleanup levels for a contaminant
- Provide review and comment for site-specific Superfund risk assessments

The Center for Health Risk Assessment has the expertise for responding to a wide variety of questions dealing with health risk assessment, including site scoping, toxicology, exposure assessment, structure-activity relationships, and risk characterization. The Center can also recommend available Superfund risk assessment tools, as well as provide information on the current status of chemicals.

The Center was established to promote consistency in Superfund risk assessment both within and outside the Agency. In order to facilitate interaction and information exchange, the Center, the Toxics Integration Branch of OERR, and Regional toxicologists conduct a monthly tele-conference on the first Wednesday of every month. All Regional risk assessors are encouraged to participate in the monthly discussion.

NOTES