



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

August 25, 2004

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

OSWER 9283.1-25

**MEMORANDUM**

**SUBJECT:** Distribution of the final "Action Plan for Ground Water Remedy Optimization"

**FROM:** Michael B. Cook, Director /s/  
Office of Superfund Remediation and Technology Innovation

**TO:** Superfund National Policy Managers, Regions 1-10  
OSWER Office Directors

**PURPOSE**

The purpose of this memorandum is to transmit to you the final "Action Plan for Ground Water Remedy Optimization." The Office of Superfund Remediation and Technology Innovation (OSRTI) developed this action plan in order to demonstrate our strong commitment to effective management of our long-term remedies. This final version incorporates recent comments from Regional management requesting flexibility with the implementation of site-specific recommendations, and expressing concern over the budget implications of the Regions performing their own optimization reviews. This final plan suggests that the Regions pursue their own reviews where candidate sites exist, and we will work with you to ensure funding is available.

**IMPLEMENTATION**

The efforts outlined in the attached action plan will focus on applying important lessons learned in order to fully integrate optimization into the Superfund cleanup process. Regular reviews of operating remedies, such as optimization reviews, is just one example of the Environmental Management Systems (EMS) approach involving a continuous cycle of planning, implementing, reviewing and improving practices at each site. Our new attention to the routine optimization of operating treatment systems, as well as increased oversight of Regional funding requests, will result in improved system efficiency and reduced LTRA costs.

## CONCLUSION

We greatly appreciate the time and attention that you and your staff have given to remedy optimization. The latest documents on optimization can be found on the internet at the following addresses: <http://www.epa.gov/superfund/action/postconstruction/optimize.htm> or <http://www.cluin.org/optimization/>. The OSRTI points of contact on optimization are Jennifer Griesert, Assessment and Remediation Division (ARD) at (703) 603-8888, and Kathy Yager, Technology Innovation and Field Services Division (TIFSD) at (617) 918-8362.

### Attachment

cc: OSRTI Managers  
Nancy Riveland, Superfund Lead Region Coordinator, USEPA Region 9  
Eric Steinhaus, FY05 Superfund Lead Region Coordinator, USEPA Region 8  
NARPM Co-Chairs  
Joanna Gibson, OSRTI Documents Coordinator  
Robert Springer, Senior Advisor to OSWER AA  
Jim Woolford, FFRRO  
Debbie Dietrich, OEPPR  
Matt Hale, OSW  
Cliff Rothenstein, OUST  
Linda Garczynski, OBCR  
Earl Salo, OGC  
Charles Openchowski, OGC  
Dave Kling, FFEO  
Susan Bromm, OSRE

## **Action Plan for Ground Water Remedy Optimization**

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The Office of Solid Waste and Emergency Response (OSWER) developed the pilot Fund-lead Pump and Treat (P&T) optimization initiative as part of the FY2000-FY2001 Superfund Reforms Strategy, dated July 7, 2000 (OSWER 9200.0-33). The optimization initiative intended to encourage systematic review and modification to existing P&T systems to promote continuous improvement and to enhance overall remedy and cost effectiveness. To date, EPA has conducted Remediation System Evaluations (RSEs) at 29 Superfund sites, as well as several sites regulated by the Resource Conservation and Recovery Act (RCRA) and Underground Storage Tank (UST) programs. The information presented in this action plan only addresses private sites regulated by the Superfund program, particularly Fund-lead sites. Additional background information on the pilot optimization effort and lessons learned is available on the internet at the following addresses: <http://www.epa.gov/superfund/action/postconstruction/optimize.htm> or <http://www.cluin.org/optimization/>.

The pilot phase of the optimization initiative demonstrated that this effort offers measurable benefits in the form of cost savings and improved remediation systems. This action plan will focus on applying important lessons learned in order to fully integrate optimization into the Superfund cleanup process. In order to promote this integration we will carry out the following activities:

- Conduct additional optimization reviews at high priority, Fund-lead sites,
- Provide funding for the implementation of recommended system changes,
- Monitor implementation progress in the Regions,
- Develop appropriate guidance and training tools,
- Coordinate with State counterparts and responsible parties (RPs), and
- Establish a network of Regional Optimization Liaisons.

### **Additional Optimization Reviews at High Priority Sites**

OSRTI expects to fund independent, technical experts to conduct Remediation System Evaluations (RSEs) at 5-8 high priority, Fund-lead sites each year (depending on available resources). We will collect updated information from the Regions on cost and performance of operating Fund-lead pump and treat (P&T) systems in order to select sites for future RSEs. A scaled-down version of the RSE (referred to as an "RSE-lite") may be used at the least complex sites undergoing optimization, in order to conserve resources while increasing the number of sites to receive reviews.

In addition to these OSRTI-led reviews, each Region is expected to develop an approach for targeting their high cost sites for optimization. Each Region should pursue an RSE at a minimum of one site each year, where suitable candidate sites exist. In situations where funding

limitations inhibit a Region's ability to conduct their own RSE, the Region should alert OSRTI. The Regions should ensure that evaluations are done in an independent manner and not directly by system operators. Contractual access to OSRTI's RSE experts will be made available to the Regions for this purpose, if needed. OSRTI points-of-contact for these issues are provided at the end of this Action Plan.

Our approach for selecting sites to receive future RSEs will include, at a minimum, a review of annual operating costs, the age of the system, and concerns for remedy protectiveness and system efficiency. Ground water remedies with the highest annual operating costs are the Superfund program's highest priority for RSEs, because these sites likely offer the greatest opportunities for cost savings and increased efficiency for both EPA and the States. Furthermore, RSEs may be most appropriate at systems that have been operating for two to four years, in order to maximize early opportunities for improvements and cost savings. In setting priorities, OSRTI will carefully consider the timing of RSEs to ensure that recommended system changes are addressed before transferring sites to States for continued operation and maintenance (O&M).

In addition to cost savings, optimization is intended to identify opportunities to improve remedy effectiveness. Regardless of annual operating costs or the age of the system, site managers are encouraged to recommend sites for optimization if there are concerns about the protectiveness of the remedy or the efficiency of the P&T system (e.g., significant system downtime, evidence that the plume is not contained, or continuing sources of contamination are present). Regions should consider whether an RSE will help address Five-Year Review recommendations related to plume containment or P&T system effectiveness.

### **Priority Funding for Implementation of Recommendations**

OSRTI is fully committed to funding system changes at Fund-lead sites that result from an RSE in order to ensure that the Superfund program is operating the most efficient and effective remedies possible. Optimization-related site activities will receive priority funding, typically from the ongoing Remedial Action (RA) Advice of Allowance (AOA). The Regions should request ongoing RA funds as part of the current budget process. The Regions may need to perform additional characterization or design work in some situations. These funds may also come from the RA budget, if approved by HQ, or from the Regional Pipeline AOA.

Site-specific progress in optimization implementation will be a significant factor in addressing Regional funding requests. OSRTI will carefully examine the basis of funding requests for sites where the Region has not demonstrated a commitment to address recommendations that may result in significant enhancements or cost savings. Due to funding limitations, we are not in a position to continue funding non-optimized systems at the same levels as previous years. The status of the Region's additional evaluations will also be considered when reviewing funding requests. Regions are encouraged to identify funding needs for the implementation of RSE recommendations during semi-annual work planning discussions.

## **Monitoring Implementation Progress**

Annual follow-up discussions between OSRTI and the Regions are very valuable, highlighting the outcome of each recommendation and obstacles to implementation that require additional attention. These discussions also address the March 2003 Office of Inspector General (OIG) evaluation of the optimization initiative, in which the OIG recommended a systematic approach to monitoring implementation efforts (“Improving Nationwide Effectiveness of Pump-and-Treat Remedies Requires Sustained and Focused Action to Realize Benefits” Report 2002-0000326). Our continuous oversight of Regional progress at RSE sites is necessary to ensure the Superfund program is operating the most efficient and effective remedies possible.

Each site that receives an optimization review will be the subject of annual OSRTI/Region conference calls for at least two years after the RSE report is finalized. Conference call participants will typically include the Remedial Project Manager (RPM), Regional Optimization Liaison (details below), State project manager, OSRTI staff, and the RSE contractor. In an effort to increase awareness and accountability for the optimization effort, Regional management (Section or Branch Chief, as appropriate) will be included in these discussions as well. Site managers should be prepared to discuss the status of RSE recommendations as well as associated cost savings or expenditures. We will also ask for projected annual operating costs so that trends in costs can be documented before and after optimization. We will compile an annual summary of the follow-up discussions in order to document overall implementation progress.

OSRTI recognizes that RSEs generate a number of suggestions, ideas and recommendations which need to be discussed and evaluated. Regions weigh many factors including, but not limited to, technical feasibility, short-term implementation issues, long-term benefits, public and State acceptance, contractual requirements, protectiveness and availability of funding when determining whether to implement optimization recommendations. Significant disagreements regarding the implementation of a significant cost-saving recommendation may be elevated to the Regional Division Director and Director of OSRTI for resolution.

OSRTI anticipates that considerable progress will be made at most sites after two years of follow-up. Beyond two years, our oversight of implementation efforts will focus on recommendations of particular concern that have not been appropriately addressed. Technical assistance will still be available to RPMs to aid in the implementation of system changes. This assistance may include a variety of efforts by the RSE team, such as an independent review of a work plan for implementing recommendations, an evaluation of the outcome of recommended changes, or justification of cost estimates provided in the RSE report.

## **Developing Tools to Support Optimization**

OSRTI is currently developing a variety of technical tools to apply lessons learned and overcome implementation obstacles identified during the pilot initiative. Once completed, we will

encourage the Regions to apply these tools during routine management of all P&T systems, regardless of whether the site received an RSE. The first of these tools is the fact sheet “Elements for Effective Management of Operating Pump and Treat Systems” (EPA 542-R-02-009, December 2002) which is a comprehensive review of the most common deficiencies in the management of P&T systems that were identified through optimization.

Many of the other efforts underway are intended to elaborate on the 2002 fact sheet. The products identified below are expected to be available to site managers by the end of FY04, and several additional efforts are underway. We will continue to identify new tools to assist the Regions in operating the most efficient remedies possible. The latest documents on optimization can always be found on the internet at the following addresses:

<http://www.cluin.org/optimization/> or  
<http://www.epa.gov/superfund/action/postconstruction/optimize.htm>.

- *Cost-Effective Design of Pump and Treat Systems* (EPA 542-R-04-007)
- *Effective Contracting Approaches for Operating Pump and Treat Systems* (EPA 542-R-04-005)
- *O&M Report Template for Ground Water Remedies (With Emphasis on Pump and Treat Systems)* (EPA 542-R-04-006)
- *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Sites* (in progress)
- *Ground Water Remediation Optimization: Benefits and Approaches* (OSWER 9283.1-17FS, in review)

### **Coordination with State Counterparts**

Site managers are expected to closely coordinate all optimization efforts with their appropriate State counterparts. OSRTI expects to include State project managers in the RSE site visit and interview process, as well as the annual follow-up discussions. RPMs should consult with their State counterparts throughout the implementation of optimization recommendations.

The majority of Fund-lead sites that receive optimization reviews will be in the LTRA phase of the remedial pipeline, which allows for ten years of Fund-lead system operation at ground water restoration sites. At the end of this period, EPA expects to transfer an effective remedy to the State for O&M. Early and frequent communication between EPA and the State regarding optimization recommendations and potential system changes will allow for a smooth transition at the end of the ten-year LTRA period. In some situations, optimization efforts may necessitate revisions to the scope of an existing State Superfund Contract (SSC). Additional information regarding optimization considerations during LTRA can be found in the fact sheet *Transfer of Long-Term Response Action (LTRA) Projects to States* (EPA 540-F-01-021, July 2003).

## **Applicability to Responsible Party Sites**

EPA conducted optimization reviews at a number of active facilities and responsible party (RP) sites in addition to the Fund-lead sites that were the focus of the pilot initiative. These reviews demonstrated that similar opportunities for system improvements and cost savings exist at RP sites. Responsible parties can also benefit from the many technical tools currently under development to address lessons learned from optimization.

Regions are encouraged to work with responsible parties to identify opportunities to improve remedy effectiveness, where practicable. When evaluating optimization opportunities at responsible party sites, site managers should consider the following, on a case-by-case basis:

- concerns about the protectiveness of the remedy or the efficiency of the P&T system,
- any relevant information provided by the responsible party, including the impacts of system changes suggested by the RP,
- whether the RP has been cooperative in carrying out the terms and conditions of the site agreement to conduct remedial work, and
- revisions to the site agreement and decision documents as a result of system changes.

## **Maintaining a Network of Optimization Liaisons**

At the start of the pilot optimization initiative, staff in each Region volunteered to serve as points of contact for the project. A current list of liaisons is provided below. These Regional Optimization Liaisons will continue to play an important role as the Regions and OSRTI work together in fully integrating optimization into the cleanup process. The liaisons represent a cross section of program staff, including RPMs, Ground Water Forum members, hydrogeologists and other interested individuals. Appropriate OSRTI contacts are also included in the table below.

Regional liaisons are particularly helpful in gathering information on sites that may benefit from optimization. The liaisons should contact OSRTI whenever they identify a P&T site with system protectiveness or efficiency concerns. We also depend on the liaisons to provide guidance or technical assistance to RPMs on the implementation of RSE recommendations, and to participate in the annual followup discussions described above. Finally, we will work closely with the Regional Optimization Liaisons to promote national consistency and increase awareness of optimization. Above all, support from the Regional Optimization Liaisons is essential to the successful implementation of this action plan.

Regions should contact the OSRTI staff listed below with any questions or concerns related to remedy optimization. These staff are able to assist the Regions in many ways, including the identification of appropriate RSE candidate sites, providing access to contractors with optimization expertise, and providing technical or programmatic assistance with the implementation of RSE recommendations.

### Headquarters and Regional Optimization Liaisons

<b>Location</b>	<b>Optimization Liaison</b>	<b>Telephone</b>
HQ/OSRTI	Jennifer Griesert (Assessment & Remediation Division)	(703) 603-8888
	Kathy Yager (Technology Innovation & Field Services Division)	(617) 918-8362
Region 1	Darryl Luce	(617) 918-1336
Region 2	Rob Alvey Diana Cutt	(212) 637-3258 (212) 637-4311
Region 3	Kathy Davies	(215) 814-3315
Region 4	Kay Wischkaemper	(404) 562-8641
Region 5	Dion Novak	(312) 886-4737
Region 6	Vince Malott	(214) 665-8313
Region 7	Dave Drake	(913) 551-7626
Region 8	Helen Dawson	(303) 312-7841
Region 9	Herb Levine	(415) 972-3062
Region 10	Bernie Zavala	(206) 553-1562