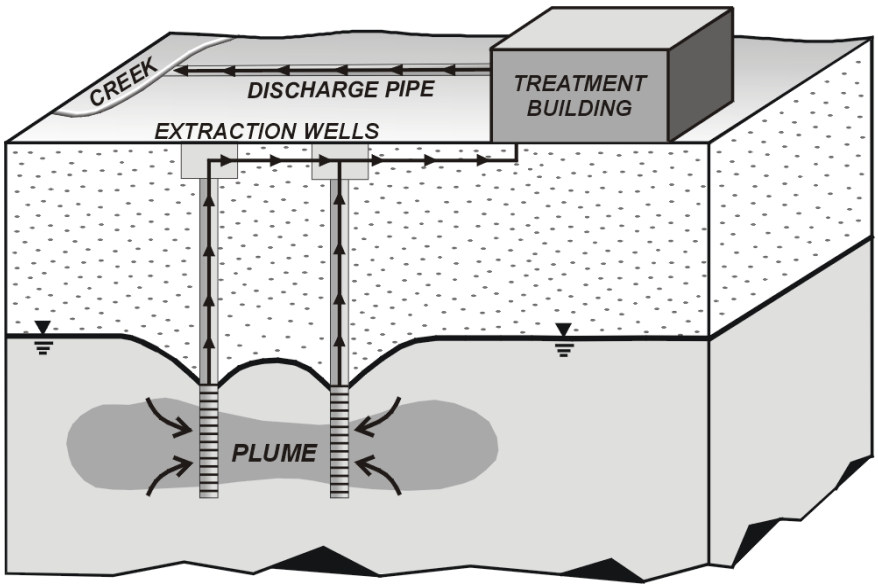
United States
Environmental Protection
Agency

Groundwater Pump and Treat Systems: Summary of Selected Cost and Performance Information at Superfund-financed Sites



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PREFACE

This report summarizes Phase 1 (the data collection phase) of the Nationwide Fund-lead Pump and Treat Optimization Project. This phase included contacting a project liaison for each of the EPA Regions, identifying the Fund-lead pump-and-treat (P&T) systems in each Region, collecting baseline information about each system through a web-based questionnaire or phone interview, and selecting a total of 20 Fund-lead systems to receive RSEs. Four of the 20 P&T systems (two in Region 4 and two in Region 5) were previously selected and evaluated as part of a demonstration project completed in 2000.

Data presented in this report reflect estimates provided by site Remedial Project Managers. These estimates may, in some cases, vary from actuality. In addition, the data—including the number, status, and costs of systems—may change over time.

ACKNOWLEDGMENTS

The project team is grateful for the help provided by the EPA Project Liaisons from each Region. They were vital in selecting the Fund-lead P&T systems to be evaluated and in facilitating communication between the project team and the Remedial Project Managers (RPMs). The authors also extend sincere thanks to the principal investigators from the U.S. EPA Technology Innovation Office (TIO) and U.S. EPA Office of Emergency and Remedial Response (OERR).

EXECUTIVE SUMMARY

This first phase of the Nationwide Fund-lead Pump and Treat Optimization Project successfully identified a total of 88 Fund-lead (EPA-lead and State-lead with Fund money) pump-and-treat (P&T) systems within the Superfund Program. Of the 88 systems identified, 67 are operational and 21 are pre-operational (i.e., the Records of Decisions for the pre-operational systems specify pump-and-treat, but these systems are in the design stage or some other stage prior to full operation). System identification was accomplished through use of online databases and discussions with project liaisons in each Region. The number of Fund-lead P&T systems in a Region ranged from zero in Region 8 to 22 in Region 2.

Remedial Project Managers (RPMs) of the identified systems submitted data and information on their systems through a web-based questionnaire. Phone interviews were utilized in a limited number of cases. A screening methodology using the collected data was applied to prioritize these systems with respect to potential life-cycle savings resulting from optimization. Based on this screening and discussions with the project liaison in each Region, specific systems in each Region were selected to receive Remediation System Evaluations (RSEs). The RSE process was developed by the United States Army Corps of Engineers (USACE) to evaluate a remediation system and provide recommendations to improve effectiveness and reduce costs. Including the demonstration optimization project conducted in 2000, a total of 20 Fund-lead P&T systems were selected to receive RSEs.

This report identifies the 88 Fund-lead P&T systems, summarizes the information submitted by the RPMs, and presents the screening and selection of those systems to receive RSEs.

Data presented in this report reflect estimates provided by site Remedial Project Managers. These estimates may, in some cases, vary from actuality. In addition, the data— including the number, status, and costs of systems—may change over time.

The following summaries result from the estimated cost data and system projections provided by the RPMs:

- The estimated average annual operation and maintenance (O&M) cost for a Fund-lead P&T system (based on those 79 systems providing cost data) is approximately $570,000 and the median cost is $350,000. The discrepancy between these two statistics is due to a small number of systems with relatively high O&M costs.

- Based on the 79 systems that provided cost information, the estimated total annual O&M cost for operating the Fund-lead P&T systems in 2002 is approximately $38 million, with EPA incurring approximately $32.5 million of the total annual cost and the associated States incurring the remaining $5.5 million.

- Based on the 79 systems that provided cost information, the estimated future cost for Long-term Remedial Action (LTRA) O&M for all of these systems exceeds $210 million with discounting (i.e., net present value)* and exceeds $270 million without discounting. LTRA refers to the first 10 years of operation of a groundwater or surface water restoration action. During this period,

*Net present value reflects the discounted or reduced cost of future expenditures due to interest gained between the present and the time of the expenditure. A discount rate of 5% is assumed. Please see Section 4.0 for more information on discounting and net present value as they apply to the presented costs.

EPA typically funds 90% of the cost and the associated State funds 10% of the costs. These percentages translate directly to the presented costs; therefore, the Superfund is expected to pay approximately $189 million ($243 million without discounting) and the States are expected to pay approximately $21 million ($27 million without discounting).

- Based on the 79 systems that provided cost information, the estimated future cost for O&M of Fund-lead P&T systems until remediation completion is achieved is approximately $470 million with discounting (net-present value) and $790 million without discounting. (These estimates of future O&M costs are based on the annual costs of systems and expected durations of systems as specified by the site managers. For some systems where expected system duration is unknown, a value of 30 years may have been used as a default value for this parameter. While the practice of using 30 years as a default was prevalent in the past, more recent EPA guidance on feasibility study preparation recommends that 30 years not be used as a default.)

- 13 of the 79 systems that provided costs account for approximately 50% of the total reported annual O&M costs.

A total of 26 States reportedly have Fund-lead P&T systems. Upon completion of the 10-year LTRA period each system will be transferred to its associated State and that State will assume 100% of the remaining O&M costs. For systems where restoration is not a goal (i.e., containment and water supply systems) the systems are typically transferred to the States after one year. The collected data suggest that the States will incur between approximately $250 million with discounting or $520 million without discounting in post-LTRA O&M costs for Fund-lead P&T systems that reported annual O&M costs. Furthermore, the data suggest that the following five States will likely incur 78% of these post-LTRA O&M costs:

- New Jersey (27.6%)

- Massachusetts (22.6%)

- New York (9.7%)

- Pennsylvania (9.6%)

- Michigan (8.4%)

In addition to cost information, the following statistics about the Fund-lead P&T systems were also gleaned from the information reported by the system RPMs:

- 40 of 67 operating systems are reported to be controlling plume migration.

- 60 of the 67 operating systems have groundwater restoration as a goal but 21 of that 60 do not have estimates of the progress toward that restoration. Of the 39 systems that have both groundwater restoration as a goal and an estimate of progress toward restoration, 7 are estimated to have made more than 80% progress toward restoration.

- 52 of the 88 systems have three or more primary contaminants of concern, and chlorinated solvents are the most prevalent contaminants as they are addressed by 56 of the 88 systems.

- 35 of the 88 Fund-lead P&T systems are associated with sites where non-aqueous phase liquid (NAPL) has either been observed or suspected.

- Carbon adsorption and air stripping are the most prevalent treatment processes (carbon adsorption is used at 50 of the 88 systems and air stripping is used at 41).

- Based on 64 of 88 systems where RPMs were able to determine costs specifically used for groundwater monitoring, Fund-lead P&T systems have, on average, 23 monitoring wells for groundwater sampling that are sampled three to four times per year for an average cost of $112,000 per year.

- 36 of the 67 operating systems have previously had performance and effectiveness evaluated and found "sufficient" while 7 had performance and effectiveness found "not sufficient" (the remaining systems are either being evaluated, have not been evaluated, or have not provided information regarding previous effectiveness evaluations).

Although the RSE selection process targeted systems in each Region that had effectiveness problems or relatively high operating costs, a number of systems with similar issues still remain, and additional RSEs are recommended to address these remaining systems.

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1.0 INTRODUCTION

1.1 BACKGROUND

As part of an overall commitment toward optimization, U.S. Environmental Protection Agency (EPA) Headquarters continually offers resources and support to the EPA Regions to improve their operating remedies. A large percentage of these remedies are pump-and-treat (P&T) systems designed to restore groundwater, contain contaminant sources, or supply water. Thus, the EPA Technology Innovation Office (TIO) and Office of Emergency and Remedial Response (OERR) have commissioned Remediation System Evaluations (RSEs) for Fund-lead P&T systems in each of the EPA Regions in an effort to optimize their performance.

The Remediation System Evaluation (RSE) concept was developed by the U.S. Army Corps of Engineers (USACE) to improve remedies already in place. An RSE begins with the formation of a team of experts including experienced engineers and hydrogeologists. Once a system has been selected for an RSE, the team reviews site-related documents, visits the site to tour the facility and interview the site managers, and compiles a report to document findings and any recommendations to improve the remedy. Recommendations typically fall into the following categories:

- recommendations to improve system effectiveness;
- recommendations to reduce operation and maintenance (O&M) costs;
- recommendations for technical improvement; and
- recommendations to gain site close out.

1.2 DEMONSTRATION FUND-LEAD PUMP AND TREAT OPTIMIZATION PROJECT

A demonstration optimization project of Fund-lead pump and treat systems conducted in Regions 4 and 5 identified a total of 28 planned or operating pump-and-treat (P&T) systems that are Fund-lead (or state-lead with Superfund financing). On average, those systems cost approximately $300,000 per year per site for operations and maintenance (O&M). Extrapolation of these results suggested that 140 such systems might exist through the nation at a total estimated O&M cost of $4 million per year. Many of these systems are anticipated to operate for decades with costs split between Superfund and the individual states. For the first 10 years of operation of most Fund-lead sites, the Superfund Program pays for 90% of the O&M costs and the State pays the remaining 10%. The State then assumes 100% of the costs incurred after the initial 10 year period.

In addition to identifying the Fund-lead P&T systems, the pilot optimization study also included Remediation System Evaluations (RSEs) of four P&T systems. These four evaluations resulted in a number of recommendations to improve effectiveness and/or reduce O&M costs for each of the systems. Thus, the results of this pilot study highlighted the benefits of optimizing Fund-lead systems.

1.3 NATIONWIDE FUND-LEAD PUMP AND TREAT OPTIMIZATION PROJECT

Based in part on the results of the demonstration project described above, *OSWER Directive No. 9200.0-33 (Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*)

http://www.epa.gov/superfund/programs/reforms/docs/strat00.pdf outlined a commitment to optimize the Fund-lead P&T systems. To achieve that goal, a Nationwide RSE Optimization Project was commissioned to accomplish the following tasks:

- identify the Fund-lead P&T systems in each of the EPA Regions;
- gather baseline data and information on these identified systems;
- prioritize the systems in terms of optimization potential;
- select 16 additional systems to receive RSEs;
- conduct these RSEs; and
- follow up with EPA project managers to track and facilitate implementation of resulting recommendations.

This report summarizes Phase 1 of this project, which entails the first four of these six elements.

2.0 SYSTEM IDENTIFICATION

The first step of the project involved determining the number of Fund-lead P&T systems in each EPA Region and identifying key aspects of those systems for assessing optimization potential. For this project, a Fund-lead P&T system must meet the following criteria:

- pump-and-treat (sometimes referred to as groundwater extraction and treatment) must be identified as a remedy in the Record of Decision (ROD) for the site;
- the system must be either EPA-lead or State-lead with funding from the Superfund Program; and
- the system must be operational or pre-operational (i.e., pre-design, design, being installed, or installed but not yet operating). It should be noted that, consistent with the first criteria, "pre-design" refers to systems that have RODs specifying pump and treat but that have not begun the design process.

Thus, this project does not include Fund-lead P&T systems that are no longer operating due to a change in remedy or Fund-lead P&T systems that have been fully transferred to States or responsible parties. In some cases, sites were identified where a P&T system will likely not be installed even though it is specified in the ROD. Such systems are included as Fund-lead P&T systems in this project unless the ROD already has been changed. In addition to systems not meeting the above criteria, Fund-lead well-head treatment systems in Region 9 and a Fund-lead NAPL (non-aqueous phase liquid) extraction system in Region 8 were not included in the project.

During the demonstration project in Region 4 and Region 5, it was initially hoped that the Fund-lead P&T systems could be easily identified by an on-line search of the Superfund Hazardous Waste Sites:

http://www.epa.gov/superfund/sites/query/advquery.htm

However, it was quickly determined that no set of search criteria would specifically yield the Fund-lead P&T systems. Therefore, an initial set of sites was developed with the following query:

Category	Entry	Display	Count
Site Name	"blank"	T	
State/Territory/EPA Region	Region 1 (example)	T	
Activity Type	Remedial Design Construction Completion Remedial Action		T
Activity Lead	EPA Fund-financed State, Fund-financed Tribal-lead, Fund-financed	T	
Contaminated Media	Groundwater		T
Site Listing Narrative		T	
Site Fact Sheet		T	
Site Cleanup Decision		T	

ROD abstracts for these sites were reviewed and those sites without existing or planned P&T systems were removed from the list.

During that process it became evident that isolating Fund-lead P&T systems was not straightforward. One complication is that the on-line databases are not completely up-to-date, and some systems that are Fund-lead at one point in time become "PRP-lead" once responsible parties are defined and/or consent decrees are put in place. As a result, the project liaisons for each Region were asked to identify the Fund-lead or Fund-financed P&T systems in their Regions, which they typically did by interviewing the branch chiefs and/or individual Remedial Project Managers (RPMs). The project liaisons were able to quickly remove sites from the initial list because there was no P&T system (existing or planned) or because the system was no longer Fund-lead. In some cases, the project liaisons also added systems that did not appear on the initial list. In rare cases the on-line databases identified Fund-lead P&T systems not identified by the EPA project liaison.

The identified systems are presented in table format in Section 4.0; however, the following table summarizes for each Region the number of operational and pre-operational (i.e., pre-design, design, being installed, or installed but not yet operating) Fund-lead P&T systems.

Table 2-1: Number of Identified Fund-lead P&T Systems in each Region

Region	# of Pre-operational Fund-lead P&T Systems	# of Operational Fund-lead P&T Systems	Total
Region 1	1	7	8
Region 2	4	18	22
Region 3	2	10	12
Region 4	3	7	10
Region 5	3	12	15
Region 6	3	6	9
Region 7	2	1	3
Region 8	0	0	0
Region 9	2	2	4
Region 10	1	4	5
Total	**21**	**67**	**88**

Presented data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of sites, may change over time.

Notes:

1. Fund-lead refers to systems where oversight is provided by the EPA or by a State with financial support from Superfund.
2. Pump-and-treat (P&T) systems are those systems in which the extraction of groundwater and subsequent treatment is specified in the Record of Decision (ROD). In this study, systems designed for water supply in Region 9 and a non-aqueous phase liquid (NAPL) extraction system in Region 8 were not included.
3. Pre-operational P&T systems refer to those systems that are pre-design, design, being installed, or installed but not yet operating. The systems must have RODs specifying P&T.
4. Operational P&T systems are those that currently are operating or have operated and are shutdown temporarily.
5. The demonstration project yielded 14 operational and 4 pre-operational P&T systems for Region 5. Information collected during the nationwide effort determined that site enforcement had changed for three sites in Region 5. The above chart reflects the updated information.

3.0 DATA COLLECTION

Once the Fund-lead P&T systems were identified, a web-based questionnaire, accessed from the EPA-TIO webpage, was completed for each system by the EPA or State project manager for the associated site. The questionnaire required responses to the following items or questions.

1. Site or system name, location, and CERCLIS number

2. Name and contact information of the individual that completed the questionnaire

3. Is the site Fund-lead (or State-lead and financed by Superfund) with a ROD and a P&T system that currently exists or is planned?
   Explanation: If the answer to this question is "no", then the system is no longer considered for this project.

4. EPA Remedial Project Manager (RPM) name and contact information

5. State Manager or Regulator name and contact information

6. Contractor name and contact information

7. Site lead or management (EPA/Fund-lead or State-lead financed by Superfund)

8. The date the Record of Decision (ROD) for the remedy was signed

9. The date of most recent ROD modification, if any

10. Type of ROD (for an interim remedy or for a final remedy)

11. Status of P&T system
    Explanation: One of the following responses could be selected:
    - pre-design
    - design
    - designed/not installed
    - being installed
    - installed
    - operational
    - completed

    It should be noted that a system classified as "pre-design" must have a ROD that specifies P&T. In addition, for the purposes of data analysis, "pre-operational" refers to those classifications in the above list that precede operational.

12. Primary goal of the P&T system
    Explanation: One of the following responses could be selected:
    - restoration
    - containment
    - both restoration and containment
    - water supply

13. Primary contaminants of concern

14. Presence or absence of contamination as a non-aqueous phase liquid (NAPL)

15. Approximate annual O&M costs
    Explanation: This is an approximate (i.e., plus or minus 25%) value of annual O&M costs ($/yr) including monitoring and analysis costs. Typical components of annual O&M costs include labor, electricity, materials, discharge fees, analytical costs, consulting costs, etc.

16. Portion of that cost used for monitoring
    Explanation: Of the approximate annual O&M cost ($/yr), this cost is the portion costs associated with long-term groundwater monitoring of the aquifer (labor associated with sample collection and data reduction, analytical costs, etc.). It should not include process monitoring of the above-ground treatment components, or monitoring associated with discharge of treated water.

17. An approximate representative pumping rate in gallons per minute (gpm)

18. Number of extraction wells (not including injection wells, drains, or trenches)

19. The date (month and year) when construction of the systems was completed

20. The date (month and year) when the system became operational and functional

21. The date (month and year) when the system is expected to be transitioned to the State
    Explanation: For Fund-lead remedies of surface or groundwater where restoration is the goal, EPA typically manages the site and funds 90% of the cost (versus 10% from the State) for the first 10 years after the site becomes operational and functional. This period is known as a Long-term Remedial Action (LTRA). After this 10-year period the site is fully transitioned to the State, and the State is responsible for site management and 100% of the funding.

22. The date (month and year) the remedial action is expected to be complete
    Explanation: This estimate for system shut-off date is subject to great uncertainty. An estimate of 30 years from the date the system became operational and functional is often used for financial reasons and may not represent operational projections. Other estimates may be taken directly from the Record of Decision (ROD), and given that a ROD is written before operation of a system, this estimate may not reflect operation data.

23. Approximate amount of system downtime per year
    Explanation: The estimated number of weeks per year that the system does not operate as anticipated.

24. Types of above-ground treatment processes

Explanation: This item includes above-ground treatment processes only. It does not include in-situ processes. One or more of the following processes could be selected.

metals precipitation	filtration
air stripping	ion exchange
biological treatment	reverse osmosis
UV oxidation	off-gas treatment
carbon adsorption	other/not sure

25. Number of groundwater monitoring wells regularly monitored

26. Frequency of groundwater monitoring (i.e., annually, semi-annually, quarterly, etc.)

27. Assessment of plume migration control

Explanation: Based on current information, if any portion of the plume is continuing to migrate beyond the current plume extent in a manner that is of concern, the answer is YES. If plume is migration is currently controlled, the answer is NO. If current information is not adequate to make this determination, the answer is DON'T KNOW. If plume migration beyond the current plume extent is not a concern, the answer is CONTROLLING PLUME MIGRATION IS NOT A GOAL OF THIS SYSTEM.

28. Progress toward cleanup

Explanation: The purpose of this item is to determine if the progress regarding plume restoration, in terms of plume area reduction, is known, and if so, how much progress in terms plume area reduction has been achieved. Note this question is not asking about mass removal, but instead is asking about plume area. One of the following descriptions could be chosen:

- A small portion (e.g., less than 20%) of the original plume area has been restored to required cleanup levels.
- A “significant” portion of the original plume area (e.g., more than about 20%) has been restored to required cleanup levels.
- Most of the original plume area (e.g., more than about 80%) has been restored to required cleanup levels.
- Don’t know
- Aquifer restoration is not a goal of this system.

29. Result of previous (if any) evaluations of performance and effectiveness

Explanation: According to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP), a 5-year review must be conducted for all remedial actions that do not allow unlimited use and unrestricted exposure. The purpose of these reviews is to ensure that the remedies are protective of human health and the environment and therefore include a statement regarding the effectiveness and performance of the system. This item refers to 5-year reviews or other such evaluations but does not refer to the RSEs conducted as part of this project. One of three choices could be selected in response to this item:

- Performance/effectiveness has not been adequately evaluated.
- Performance/effectiveness has been evaluated, and is not sufficient.
- Performance/effectiveness is sufficient, further evaluation should be prioritized based on potential cost savings that maintain equivalent effectiveness.

30. Degree of difficulty (socially or politically) in implementing recommendations

Explanation: Answers to this item could range from "little difficulty expected for minor or major changes" to "severe difficulty expected for minor or major changes".

31. Other comments

In cases where RPMs had technical difficulty with the questionnaire, information was gathered via a phone interview with the RPM or the State project manager. In addition, phone interviews were used for this nationwide project to confirm or update the information gathered during the demonstration project from RPMs in Regions 4 and 5. Information sheets with the information and data for each system are provided as Appendix A. Summary information and data for each Region were provided in the form of Region-specific summary reports, which are included as Appendix B.

4.0 SUMMARIES OF COLLECTED DATA

A note on discounting (net present value) as it applies to the reported estimates of future costs

Because funds not spent at present can be invested a rate that exceeds inflation, current funds can yield additional money for future expenditures thereby making present-day dollars worth more than future dollars. As a result, future costs are often discounted and reported in net present value (NPV).

The net present value of a series of annual future costs with discounting in all but the first year is determined with the following relationship:

$$C_{NPV} = \sum_{i=1}^{n} \frac{c_A}{(1+D)^{i-1}}$$

where:

C_{NPV}	=	NPV of all of the annual costs incurred between the present and *n* years from the present
c_A	=	annual costs incurred each year between the present and *n* years from the present
D	=	discount rate (e.g., use 0.05 for 5%)

The actual discount rate (*D*) is a function of inflation, investment rates, and other opportunity costs associated with present and future value of money. Complications in calculating net-present value can include formulation of the discount rate with or without inflation, variation in the discount rate over time, and a change in annual costs over time. A full explanation of the discount rate is beyond the scope of this document. The reader is referred to the following references for a detailed explanation.

- Damodaran, Aswath, 1994. *Damodaran on Valuation*, John Wiley & Sons.
- Ross, Stephen A., Randolf W. Westerfield, and Bradford D. Jordan, 1995. *Fundamentals of Corporate Finance, 3rd edition*, Irwin Publishing.

For the future cost estimates discussed herein, a discount rate of 5% is applied and assumed constant.

4.1 SUMMARIES OF SYSTEM COSTS AND PROJECTIONS

Tables 4-1 through 4-9 present the following summary information for each Region (except Region 8, which had no Fund-lead P&T systems):

- the result of previous evaluations with respect to performance and effectiveness (see item 29 in Section 3.0);
- the estimated time remaining in the LTRA period (see item 21 in Section 3.0);
- the estimated time remaining until remediation is complete (see item 22 in Section 3.0);
- the annual O&M cost for each system (see item 15 in Section 3.0);
- the expected future cost (in net present value) to be incurred by Superfund for LTRA O&M;

- the expected future cost (in net present value) of O&M remaining to be incurred until remediation is complete; and

- the systems selected for RSEs in **bold**.

In these tables, net-present value is calculated with a 5% discount rate, with no discounting in the first year. Compiling information from Table 4-1 through Table 4-9 yields the following results regarding system O&M costs:

- The estimated average annual O&M cost of a system (based on the 79 systems providing cost data) is approximately $570,000 and the median is $350,000. This discrepancy is due to a small number of systems with relatively high O&M costs.

- The estimated total annual O&M cost for operating the Fund-lead P&T systems in 2002 is approximately $38 million, with EPA incurring approximately $32.5 million of the total annual cost and the associated States incurring the remaining $5.5 million.

- The estimated future cost for LTRA O&M at all of these systems exceeds $210 million with discounting (i.e., net present value) and exceeds $270 million without discounting. For each system, Superfund is expected to pay 90% of the O&M cost and the associated State is expected to pay 10%. These percentages translate directly to the presented costs; therefore, the Superfund is expected to pay approximately $189 million ($243 million without discounting) and the States are expected to pay $21 million ($27 million without discounting).

- The estimated future cost to reach remediation completion for all Fund-lead P&T systems is approximately $470 million with discounting (i.e., net present value) and $790 million without discounting. (These estimates of future O&M costs are based on the annual costs of systems and expected durations of systems as specified by the site managers. For some systems where expected system duration is unknown, a value of 30 years may have been used as a default value for this parameter. While the practice of using 30 years as a default was prevalent in the past, more recent EPA guidance on feasibility study preparation recommends that 30 years not be used as a default.)

4.2 Summary of Cost Data as it Pertains to the States

Assuming no viable parties are found for these 88 Fund-lead P&T systems, the States will eventually assume both management and funding responsibility for the systems. Figures 4-1 and 4-2 show projected trends of agency financial responsibility and annual costs from 2001 through 2015. These trends are best estimates based on the data provided by the site RPMs. Furthermore, because the actual O&M costs and site enforcement may change with time, these projected trends may also change.

Figure 4-1 shows two projected trends between 2001 and 2015 for 78 Fund-lead P&T systems (the 10 systems with unknown costs or transition dates are excluded). The first trend is the number of Fund-lead P&T systems funded 90% by EPA and 10% by the States. The second trend is the number of Fund-lead P&T systems that are the full responsibility of the States. When counting the number of systems for a particular year, if the system transfer from the EPA to the State occurs before July, then the system is counted as a State system. If the system transfer from EPA to the State occurs after July, then the system is counted as an EPA system.

Figure 4-2 also shows two trends between 2001 and 2015 for the same 78 systems. The first trend is the

total annual cost of Fund-lead P&T systems assumed by the EPA. This cost is 90% of the O&M costs of the Fund-lead P&T systems. The second trend is the total annual cost of Fund-lead systems assumed by the States. This cost is 10% of the O&M costs of Fund-lead P&T systems before transition to the State and 100% of the cost subsequent to the transition. When calculating the costs of systems for a particular year, if the system transfer from the EPA to the State occurs before July, then the State assumes the cost for that year. If the system transfer from EPA to the State occurs after July, then the EPA assumes the cost for that year.

Table 4-10 provides a list of the States that currently have operational or pre-operational Fund-lead P&T systems. It also provides the number of Fund-lead P&T systems in each State and the expected future costs (based on the estimates provided) each State is likely to incur from future O&M of these systems. These future costs are provided both with discounting (net present value) and without discounting. Discounted costs assume a 5% discount rate with no discounting in the first year. The expected future costs are calculated based on the following information:

- the current annual O&M estimates for each system (see item 15 in Section 3.0);
- the estimated date of transition to the State (see item 21 in Section 3.0); and
- the estimated date the remedy will be complete (see item 22 in Section 3.0).

An analysis of the data in Table 4-10 shows that a total of 26 States currently have operational or pre-operational Fund-lead P&T systems. The estimated total post-LTRA O&M costs expected to be incurred by all of the States ranges from approximately $250 million with discounting to $520 million without discounting. Approximately 78% of these costs, however, will be incurred by the following five the States:

- New Jersey (27.6%)
- Massachusetts (22.6%)
- New York (9.7%)
- Pennsylvania (9.6%)
- Michigan (8.4%)

It should be noted that the expected future costs to be incurred by the States are only estimates and are subject to variation. This variation may result from a number of reasons:

- the estimated annual O&M costs will likely change in the future;
- the estimated dates, especially the dates the remedies are expected to be complete, may vary significantly from the actual dates;
- the expected future costs do not include the cost of aquifer monitoring subsequent to remedy completion. Additional Fund-lead P&T systems may arise in the future and eventually be transitioned to the States; and
- the responsible parties at some of the current Fund-lead P&T systems may assume the financial burden for their systems.

The Fund-lead P&T systems in each Region and the associated costs are listed according to State in Table 4-11 through Table 4-19. For each system, the table provides the date of transition to the State, the estimated annual O&M cost, and the expected future O&M cost (with and without discounting) to be assumed by the State.

4.3 Status and Progress of the Fund-lead P&T Systems

The collected data can be used to categorize the 88 Fund-lead P&T systems according to their status and/or progress. The status may range from the "pre-design" to "operational" as described in item 11 of Section 3.0, and the progress of systems with restoration as a goal may range from less than 20% progress toward restoration to more than 80% progress toward restoration as described in item 28 in Section 3.0.

Figure 4-3 groups the 88 Fund-lead systems according to their status (i.e., pre-design, design, designed/not installed, being installed, installed but not operational, or operational). Of the 88 systems, 67 are operational systems. As shown in Figure 4-4, 60 of the 67 operating systems are reported to have groundwater restoration as a goal, but 21 of that 60 do not have estimates of the progress toward that restoration. Of the 39 systems that have both groundwater restoration as a goal and an estimate of progress toward restoration, 20 are estimated to have made less than 20% progress toward restoration and 7 are estimated to have made more than 80% progress toward restoration. The remaining 12 systems are estimated to have made between 20% and 80% progress toward restoration. Those systems that report less than 20% restoration have operated, on average, for approximately 4 years. Those systems that report 20% to 80% restoration have operated, on average, for approximately 6 years. Finally, those systems that report more than 80% restoration have operated, on average, for 7 years.

In addition to progress toward restoration, the submitted information (not shown in a figure) indicate that 40 of the 67 operating systems are reportedly controlling migration of the plume.

4.4 System Goals

The majority of the systems have aquifer restoration specified in the ROD as a remedy objective. During data collection for this project, the remedy goal was not ascertained for two systems. Of the remaining systems, one has public water supply as a goal (restoration may also be a goal) and seven have containment as the only goal. Aquifer restoration is the primary goal for 22 of the systems and 56 of the systems have both containment and restoration as primary goals.

4.5 Contaminants of Concern, Treatment Processes, and Monitoring

The collected data show that more than three contaminants of concern are identified for 52 of the 88 Fund-lead P&T systems. The prevalence of certain categories of contaminants, as identified by the system RPMs, are highlighted in Table 4-20. Chlorinated solvents such as tetrachlorethylene (PCE) represent the most prevalent contaminant category identified by RPMs with this contaminant category addressed by 56 of the 88 systems.

Non-aqueous phase liquids (NAPLs) (see item 14 in Section 3.0), if present in the subsurface, will act as continuing sources of some contaminants. The collected data indicate that 35 of the 88 Fund-lead P&T systems are associated with sites where NAPL has either been observed or is suspected. The collected data also indicate that 38 of the Fund-lead P&T systems are associated with sites where NAPL is not present. The presence of NAPL at sites for the remaining 15 systems is not known.

Many of the P&T systems use multiple treatment processes to remove these contaminants from the extracted water. Of the 88 systems, 32 are reported to have three or more treatment processes. Figure 4-5 shows the number of systems that use each of the 10 treatment processes (see item 24 in Section 3.0). Carbon adsorption and air stripping are the most prevalent treatment processes. These two statistics correlate with the prevalence of chlorinated solvents as identified contaminants of concern, because these two treatment processes are commonly used to address those contaminants.

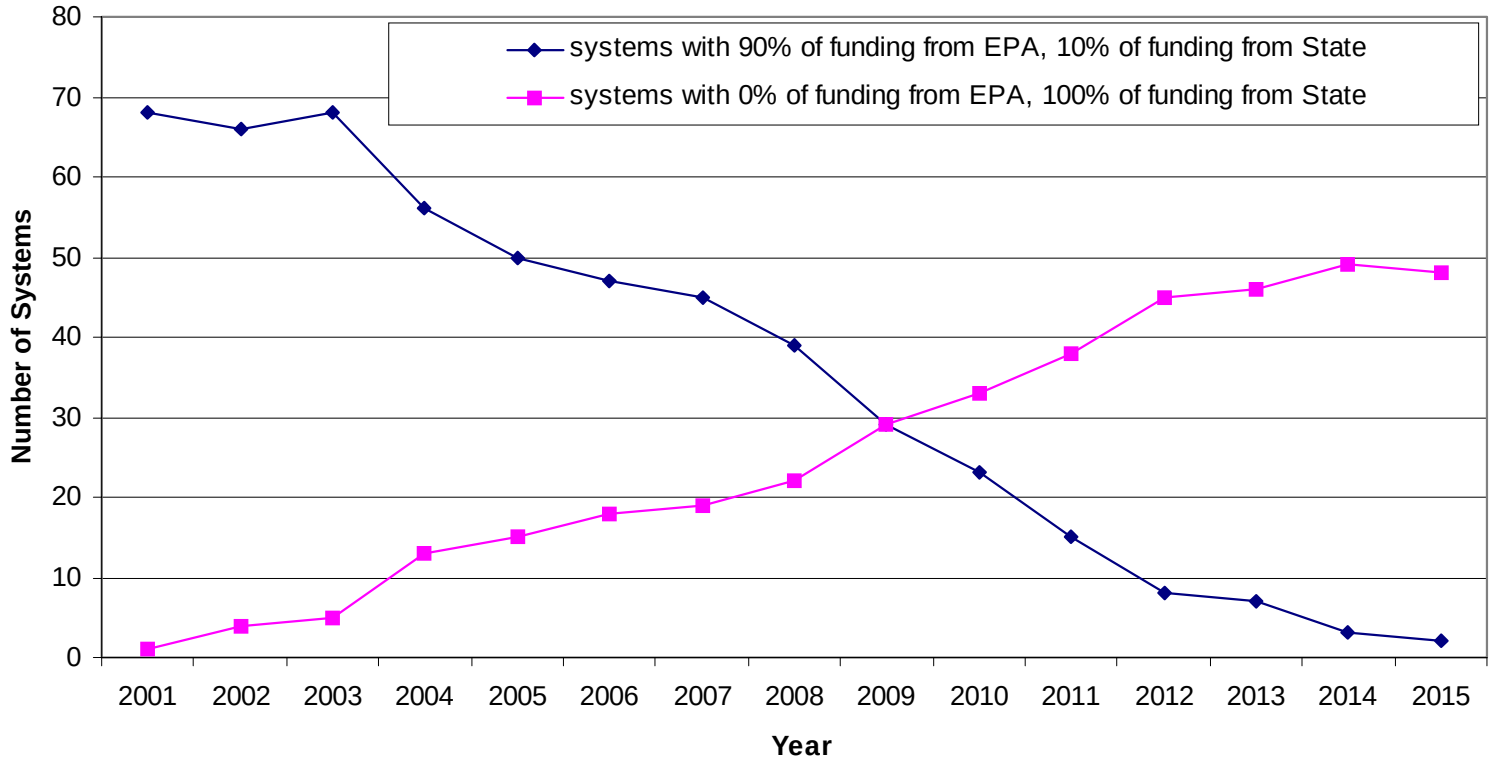
The collected data include the number of monitoring wells, the frequency of monitoring, and costs associated with monitoring (see items 25, 26, and 16 in Section 3.0). As identified in the collected data, the number of monitoring wells associated with a Fund-lead P&T system ranges from 3 to 80 with an average of approximately 23 wells per system (based on 79 of 88 systems where RPMs provided non-zero responses). The minimum sampling frequency (other than no sampling) is once per year whereas the maximum sampling frequency is once per week. On average, monitoring wells at the Fund-lead P&T systems are sampled between 3 and 4 times per year, and on average there are more than 80 samples of groundwater collected per Fund-lead P&T system in a year. As identified by the RPM, monitoring costs range from as little as $5,000 per year to as much as $800,000 per year with an average of approximately $112,000 per year (based on 64 of 88 systems where RPMs were able to determine costs specifically used for groundwater monitoring).

4.6 Summary of Previous Effectiveness Evaluations

According to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP), a 5-year review must be conducted for all remedial actions that do not allow unlimited use and unrestricted exposure. The purpose of these 5-year reviews is to ensure that the remedies are protective of human health and the environment. They therefore include a statement regarding the effectiveness and performance of the system. Tables 4-1 through 4-9 provide the results of 5-year reviews or other such evaluations, if they have been conducted, at each site. It should be emphasized that these are not the results of RSEs conducted as part of this project. They are the findings from 5-year reviews or similar evaluations that were conducted at these sites prior to this Nationwide Optimization Project and reported by the RPM as part of this survey. The following points summarize these results.

- 36 of the 67 operating systems are reported to have had performance and effectiveness evaluated and found to be sufficient;
- 7 of the 67 operating systems are reported to have had performance and effectiveness evaluated and found to be not sufficient;
- 22 of the 67 operating systems reportedly are either currently being evaluated or have not been evaluated with respect to effectiveness; and
- the evaluation status of two of the systems was not determined.

Figure 4-1: Trend of Financial Responsibility of Fund-lead P&T Systems

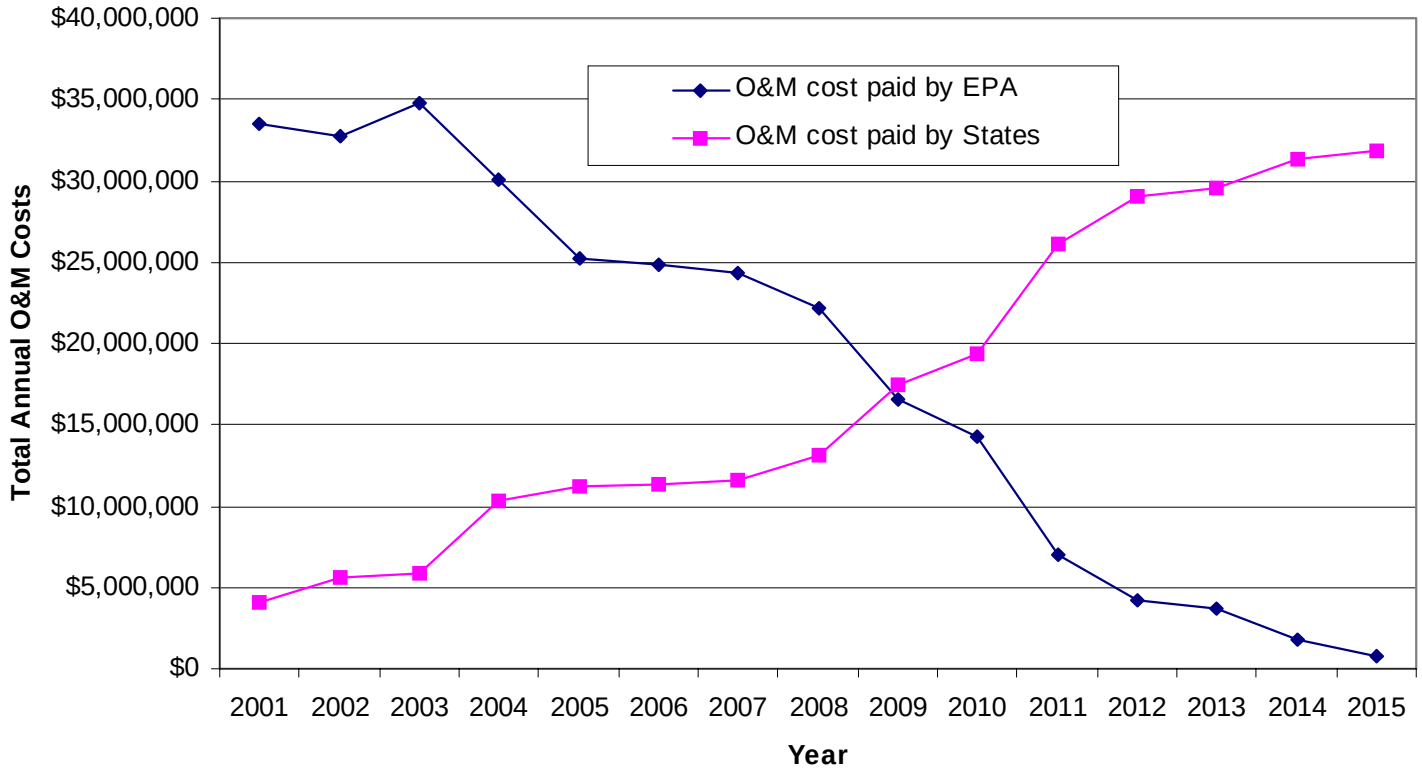


Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. This chart only shows the trends between 2001 and 2015. Existing systems and new systems are expected to operate beyond 2015.

Figure 4-2: Trend of Estimated Annual O&M Costs of Fund-lead P&T Systems

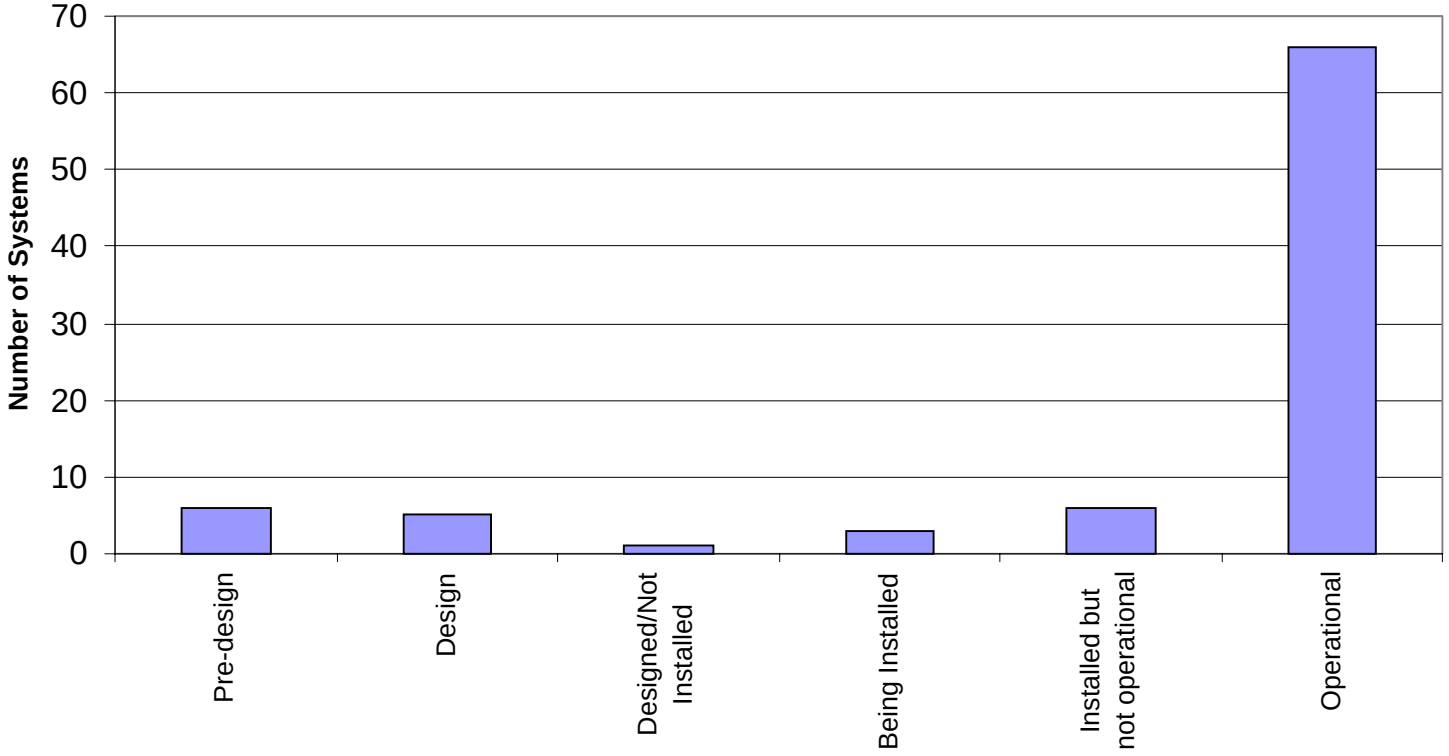


Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
3. This chart only shows the trends between 2001 and 2015. Existing systems and new systems are expected to operate beyond 2015.

Figure 4-3: Status of Fund-lead P&T Systems

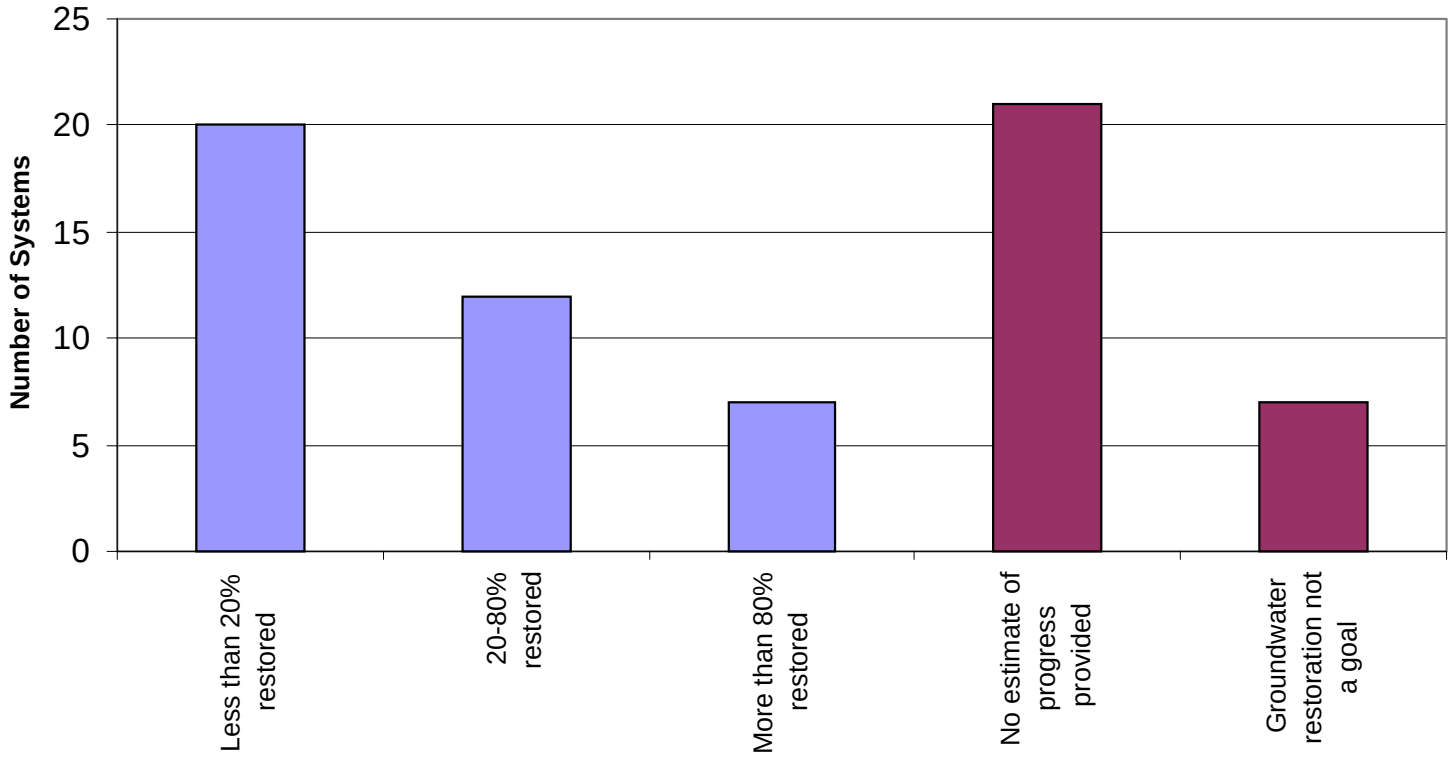


Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Pre-designed Fund-lead P&T systems refer to those systems that have P&T specified in the Record of Decision but are not yet in the design stage.

Figure 4-4: Progress of the 67 Operational Fund-lead P&T Systems

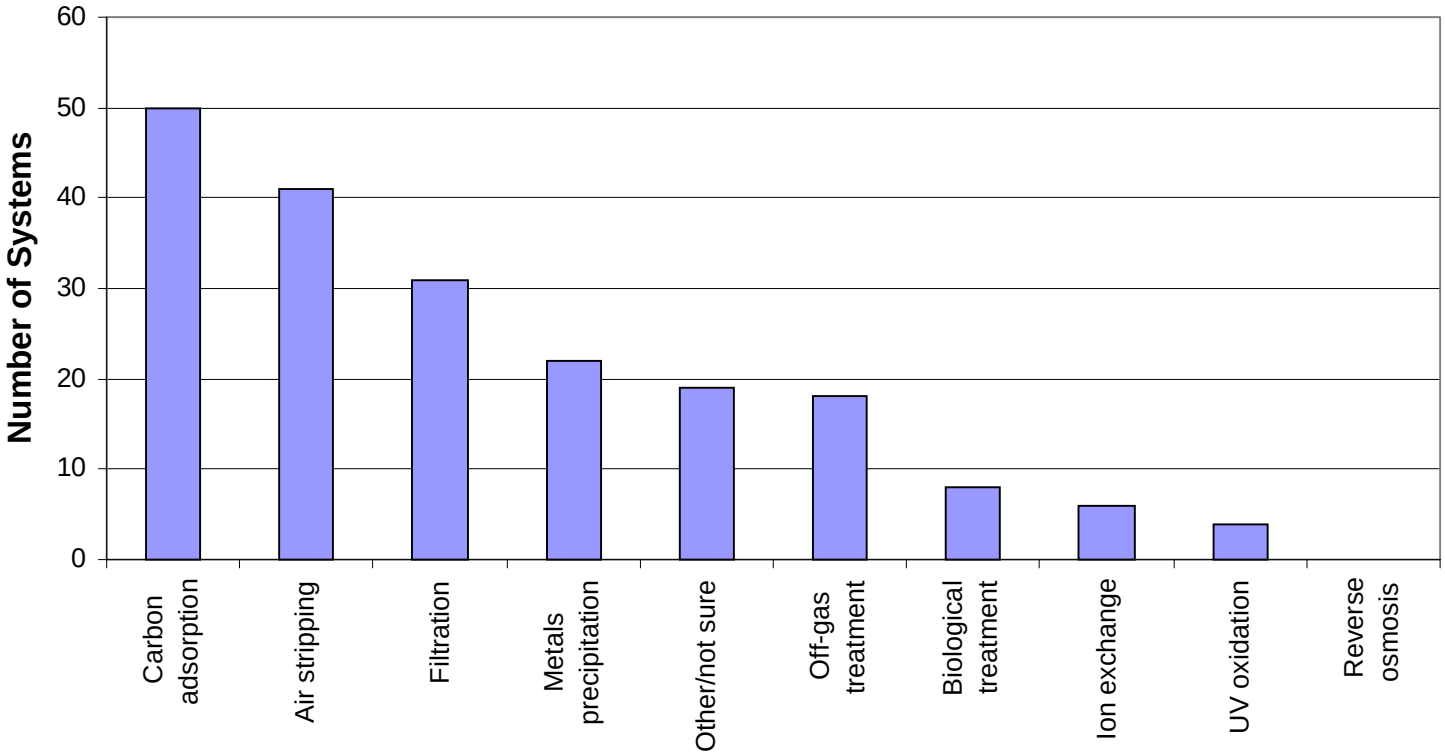


Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.

Figure 4-5: Distribution of Treatment Processes at Fund-lead P&T Systems



Data reflect information provided by site Remedial Project Managers between February and May 2001. This information—including the number of systems, system status, and types of treatment processes—may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Individual systems may have multiple treatment processes.
3. The treatment processes listed correspond to those shown in item 24 of Section 3.0.

Table 4-1: Region 1 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
Baird and McGuire	Sufficient	2.25	21.3	$3,500K	$7.6M	$47.5M
Charles George Landfill	Not Evaluated	7.7	26.7	$450K	$3.0M	$6.9M
Groveland Wells	Sufficient	9.3	29.3	$500K	$3.8M	$8.0M
Kearsarge Metallurgical	Sufficient	1.7	3.7	$250K	$0.4M	$0.9M
Keefe	Sufficient	1.7	1.7	$200K	$0.3M	$0.3M
Savage Well	Not Evaluated	7.2	7.2	$500K	$3.1M	$3.1M
Silresim Chemical	Not Sufficient	5.7	15.9	$1,400K	$7.1M	$15.9M
Pre-operational Systems						
Eastern Surplus	Not Evaluated	9.7	5.7	$200K	$1.0M	$1.0M
			Total	$7.0M	$26.3M	$83.6M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Eastern Surplus, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.

Table 4-2: Region 2 Fund-lead P&T System Performance and Cost Information (Page 1 of 3)

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
American Thermostat	Sufficient	6.8	26.7	$1,175K	$6.9M	$18.0M
Bog Creek	Sufficient	2.7	22.9	$460K	$1.2M	$6.5M
Brewster Well Field	Not Evaluated	5.8	5.8	$400K	$2.1M	$2.1M
Circuitron	Sufficient	8.4	1.4	$480K	$0.7M	$0.7M
Claremont Polychemical	Not Evaluated	8.1	18.1	$740K	$5.1M	$9.1M
Combe Fill South	Not Sufficient	6.7	26.7	$920K	$5.4M	$14.1M
Garden State Cleaners	Not Evaluated	7.8	27.8	$500K	$3.3M	$7.8M
Higgins Farm	Not Evaluated	7.0	26.7	$1,000K	$6.1M	$15.3M
Islip Municipal Landfill	Sufficient	4.7	1.0	$225K	$0.2M	$0.2M
Lang Property	Sufficient	3.75	2.75	$700K	$1.9M	$1.9M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Circuitron, Islip Municipal Landfill, Lang Property, and SMS Instruments, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The Army Corps of Engineers conducted an RSE of Lipari Landfill prior to this project.
10. The "Estimated Time Remaining in LTRA" exceeds 10 years for Lipari Landfill because this remedy is part of a source control action.

Table 4-2: Region 2 Fund-lead P&T System Performance and Cost Information (Page 2 of 3)

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems (continued)						
Lipari Landfill	Sufficient	17.8	2.9	$2,500K	$7.0M	$7.0M
Mattiace Petrochemical	Sufficient	7.2	27.6	$700K	$4.3M	$10.9M
Mohonk Road	Not Evaluated	9.5	29.5	Unknown	Unknown	Unknown
SMS Instruments	Sufficient	3.4	2.2	$400K	$1.3M	$0.8M
Syncon Resins	Not Sufficient	0.0	26.7	$350K	$0.0M	$5.4M
Vestal Water Supply	Sufficient	3.2	13.2	$180K	$0.5M	$1.8M
Vineland Chemical	Not Evaluated	9.4	29.4	$4,000K	$30.9M	$64.0M
Williams Property	Sufficient	0.0	0.0	$350K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Circuitron, Islip Municipal Landfill, Lang Property, and SMS Instruments, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The Army Corps of Engineers conducted an RSE of Lipari Landfill prior to this project.
10. The "Estimated Time Remaining in LTRA" exceeds 10 years for Lipari Landfill because this remedy is part of a source control action.

Table 4-2: Region 2 Fund-lead P&T System Performance and Cost Information (Page 3 of 3)

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Pre-operational Systems						
Dover Municipal Well 4	Not Evaluated	10.0	Unknown	Unknown	Unknown	Unknown
Metal TEC/Aerosystems	Not Evaluated	Unknown	Unknown	Unknown	Unknown	Unknown
Montgomery Township/Rocky Hill	Not Evaluated	10.0	30.0	$400K	$2.6M	$5.8M
Stanton Cleaners	Not Evaluated	9.7	19.7	$270K	$2.1M	$3.5M
			Total	>$17.5M	>$81.1M	>$174.9M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Circuitron, Islip Municipal Landfill, Lang Property, and SMS Instruments, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The Army Corps of Engineers conducted an RSE of Lipari Landfill prior to this project.
10. The "Estimated Time Remaining in LTRA" exceeds 10 years for Lipari Landfill because this remedy is part of a source control action.

Table 4-3: Region 3 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
AIW Frank	Sufficient	9.7	29.7	$180K	$1.4M	$2.9M
Berks Sand Pit	Sufficient	3.1	1.1	$150K	$0.2M	$0.2M
Butz Landfill	Not Evaluated	9.3	29.3	$250K	$1.9M	$4.0M
Croydon TCE	Sufficient	3.2	23.2	$200K	$0.6M	$2.8M
CryoChem	Sufficient	6.4	8.4	$125K	$0.7M	$0.9M
Greenwood Chemical	Not Evaluated	9.8	18.9	$400K	$3.2M	$5.1M
Hellertown Manufacturing	Not Sufficient	4.7	24.7	$350K	$1.5M	$5.1M
North Penn Area 1	Not Evaluated	6.7	16.7	$100K	$0.6M	$1.2M
Raymark	Not Evaluated	2.0	12.0	$156K	$0.3M	$1.4M
Saunders Supply	Not Evaluated	7.3	6.3	$80K	$0.4M	$0.4M
Pre-operational Systems						
Havertown PCP	Not Evaluated	10.0	31.0	$1,000K	$7.9M	$16.1M
North Penn Area 6	Not Evaluated	10.0	30.0	$592K	$4.0M	$8.7M
			Total	$3.6M	$22.7M	$48.8M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Berks Sand Pit and Saunders Supply, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.

Table 4-4: Region 4 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
ABC Cleaners	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
American Creosote Works (DNAPL)	Not Evaluated	1.3	1.3	$300K	$0.4M	$0.4M
Benfield Industries	Not Evaluated	9.3	19.3	$30K	$0.2M	$0.4M
Elmore Waste Disposal	Sufficient	6.7	16.7	$180K	$1.1M	$2.1M
FCX Statesville	Sufficient	6.3	6.3	$150K	$0.8M	$0.8M
Miami Drum	Unknown	0.7	Unknown	$1,000K	$0.7M	Unknown
Palmetto Wood	Sufficient	6.3	6.3	$300K	$1.7M	$1.7M
Pre-operational Systems						
American Creosote Works (solute)	Not Evaluated	10.0	5.0	$452K	$0.9M	$0.9M
Cape Fear Wood Preserving	Not Evaluated	9.8	7.3	$40K	$0.2M	$0.2M
Coleman Evans Wood Preserving	Not Evaluated	Unknown	Unknown	Unknown	Unknown	Unknown
			Total	>$2.5M	>$6.0M	$7.2M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For American Creosote Works (solute) and Cape Fear Wood Preserving, collected data indicate that remedy completion is expected by the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The sum of the "Total Expected Remaining Costs" includes the LTRA cost for Miami Drum as it is expected that O&M will continue beyond LTRA.

Table 4-5: Region 5 Fund-lead P&T System Performance and Cost Information (Page 1 of 2)

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
Arrowhead Refinery	Sufficient	1.5	2.2	$70K	$0.1M	$0.2M
Better Brite	Sufficient	4.4	28.3	$36K	$0.1M	$0.6M
Eau Claire	Sufficient	Unknown	Unknown	$175K	Unknown	Unknown
La Salle	Sufficient	2.2	3.2	$230K	$0.5M	$0.7M
Long Prairie	Not Evaluated	5.8	13.8	$300K	$1.5M	$3.1M
MacGillis & Gibbs	Not Evaluated	7.8	27.8	$300K	$2.0M	$4.7M
Oconomowoc	Sufficient	4.7	24.7	$471K	$2.0M	$6.9M
Onalaska	Sufficient	2.4	0.5	$200K	$0.1M	$0.1M
Ott/Story	Not Evaluated	8.6	28.6	$2,400K	$17.2M	$37.9M
U.S. Aviex	Sufficient	1.7	1.7	$300K	$0.5M	$0.5M
Verona Well Field	Not Evaluated	4.4	Indefinite	$225K	$0.9M	Indefinite
Wash King	Not Evaluated	9.3	19.3	$75K	$0.6M	$1.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual value. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Onalaska, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The sum of "Total Expected Remaining Cost" includes the LTRA cost for Verona Well Field as it is expected that O&M will continue at this system beyond LTRA.

Table 4-5: Region 5 Fund-lead P&T System Performance and Cost Information (Page 2 of 2)

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Pre-operational Systems						
Douglass Road	Not Evaluated	8.7	28.3	$120K	$0.9M	$1.9M
Duell and Gardner	Not Evaluated	9.5	5.5	Unknow	Unknown	Unknown
Peerless Plating	Sufficient	Unknown	Unknown	$400K	Unknown	Unknown
			Total	>$5.3M	>$26.4M	>$58.5M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where pump and treat (groundwater extraction and treatment) is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results of previous evaluations such as the 5-year reviews and not from RSEs conducted as part of this project.
4. Long-term Remedial Action (LTRA): the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Reported annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are shown in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. For Onalaska, collected data indicate that remedy completion is expected prior to the end of LTRA. Expected remaining costs for Superfund do not exceed the expected total remaining costs.
9. The sum of "Total Expected Remaining Cost" includes the LTRA cost for Verona Well Field as it is expected that O&M will continue at this system beyond LTRA.

Table 4-6: Region 6 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
American Creosote Works	Sufficient	25.1	25.1	$360K	$5.3M	$5.3M
Bayou Bonfouca	Sufficient	1.5	19.5	$402K	$0.6M	$5.1M
Cimarron Mining	Not Sufficient	2.8	Indefinite	$1,000K	$2.6M	Indefinite
Geneva Industries	Sufficient	2.0	2.0	$240K	$0.5M	$0.5M
Midland Products	Sufficient	2.0	32.0	$180K	$0.4M	$3.0M
Odessa Chromium #1	Sufficient	0.0	0.0	$500K	$0M	$0M
Pre-operational Systems						
City of Perryton Well #2	Not Evaluated	10.0	20.0	$37K	$0.2M	$0.4M
North Cavalcade	Not Evaluated	0.0	5.0	Unknown	Unknown	Unknown
Sprague Road	Not Evaluated	10.0	25.2	$1,200K	$7.8M	$15.8M
			Total	>$3.9M	>$17.4M	>$32.7M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results from previous evaluations such as 5-year reviews and not from RSEs conducted as part of this project.
4. LTRA refers to Long-term Remedial Action, the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are presented in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. The sum of "Total Expected Remaining Cost" includes the LTRA cost for Cimarron Mining as it is expected that O&M will continue at this system beyond LTRA.
9. The "Estimated Time Remaining in LTRA" exceeds 10 years for American Creosote Works because this remedy is part of a source control action.

Table 4-7: Region 7 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
Cleburn Street Well Site/OU2	Not Evaluated	7.9	17.9	$100K	$0.7M	$1.2M
Pre-operational Systems						
Ace Services	Not Evaluated	10.0	12.1	$500K	$3.2M	$3.8M
Valley Park TCE/OU2	Not Evaluated	0.0	10.0	Unknown	Unknown	Unknown
			Total	>$0.6M	>$3.9M	>$5.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results from previous evaluations such as 5-year reviews and not from RSEs conducted as part of this project.
4. LTRA refers to Long-term Remedial Action, the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are presented in net present value, calculated with a 5% discount rate with no discounting in the first year.

Table 4-8: Region 9 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
Newmark	Not Evaluated	6.8	26.8	$900K	$5.3M	$13.8M
Selma Treating Co.	Sufficient	6.8	6.8	$300K	$1.8M	$1.8M
Pre-operational Systems						
Modesto	Not Evaluated	10.0	20.0	$300K	$2.3M	$3.8M
Muscoy	Not Evaluated	10.0	20.0	$1,100K	$6.0M	$11.5M
			Total	$2.6M	$15.4M	$30.9M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results from previous evaluations such as 5-year reviews and not from RSEs conducted as part of this project.
4. LTRA refers to Long-term Remedial Action, the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are presented in net present value, calculated with a 5% discount rate with no discounting in the first year.

Table 4-9: Region 10 Fund-lead P&T System Performance and Cost Information

Site	Performance & Effectiveness	Estimated Remaining Time in LTRA (yrs)	Estimated Duration (yrs)	Annual O&M ($/yr)	Expected Remaining Cost for LTRA O&M	Expected Total Remaining O&M Cost
Operational Systems						
Boomsnub/Airco	Sufficient	9.9	28.8	$1,000K	$8.1M	$15.8M
Commencement Bay/ South Tacoma Channel, Well 12A	Not Sufficient	2.0	9.0	$300K	$0.6M	$2.2M
McCormick & Baxter	Sufficient	4.2	Indefinite	$250K	$1.0M	Indefinite
Wyckoff/Eagle Harbor	Not Sufficient	22.0	Indefinite	$500K	$6.9M	Indefinite
Pre-operational Systems						
Bunker Hill	Not Evaluated	10.0	30.0	Unknown	Unknown	Unknown
			Total	>$2.1M	>$16.6M	>$25.9M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems: systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Descriptions of "Performance and Effectiveness" refer to results from previous evaluations such as 5-year reviews and not from RSEs conducted as part of this project.
4. LTRA refers to Long-term Remedial Action, the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. "Estimated Time Remaining in LTRA" and "Expected Duration" are calculated by determining the number of years between January 1, 2002 and time frame estimates provided by the site Remedial Project Managers. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.
6. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
7. Expected costs are presented in net present value, calculated with a 5% discount rate with no discounting in the first year.
8. The sum of "Total Expected Remaining Cost" includes the LTRA costs for McCormick & Baxter and Wyckoff/Eagle Harbor as it is expected that O&M will continue at this system beyond LTRA.
9. The "Estimated Time Remaining in LTRA" exceeds 10 years for Wyckoff/Eagle Harbor because this remedy is part of a source control action.

Table 4-10: Future O&M Costs of Fund-lead P&T Systems Expected to be Incurred by each State after LTRA

State	Number of Systems	Total O&M Cost Expected to be Incurred by State after LTRA	
		NPV (Discount Rate of 5%)	No Discounting
Arkansas	1	$2.6M	$5.4M
California	4	$15.5M	$32.0M
Florida	4	Unknown	Unknown
Idaho	1	Unknown	Unknown
Illinois	1	$0.2M	$0.2M
Indiana	1	$1.0M	$2.4M
Kansas	1	$0.6M	$1.0M
Louisiana	2	$4.5M	$7.2M
Maine	1	$0.0M	$0.0M
Massachusetts	4	$56.8M	$99.6M
Michigan	6	> $21.1M	> $48.8M
Minnesota	3	$4.4M	$8.4M
Missouri	1	Unknown	Unknown
Nebraska	1	$0.5M	$1.0M
New Hampshire	3	$0.5M	$0.5M
New Jersey	12	$69.4M	$154.7M
New Mexico	1	Unknown	Unknown
New York	10	$24.4M	$49.6M
North Carolina	4	>$0.2M	>$0.3M
Oregon	1	Unknown	Unknown
Pennsylvania	10	$24.2M	$56.5M
South Carolina	2	$1.0M	$1.8M
Texas	5	> $8.2M	> $18.4M
Virginia	2	$1.9M	$3.6M
Washington	3	> $9.3M	> $21.0M
Wisconsin	4	> $5.4M	> $10.3M
Total	88	> $251.7M	> $522.7M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
3. "Total O&M Cost Expected to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL.

Table 4-11: Region 1 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Maine				
Eastern Surplus	9/2011	$200K	$0.0M	$0.0M
Massachusetts				
Baird and McGuire	4/2004	$3,500K	$39.9M	$66.5M
Charles George Landfill	9/2009	$450K	$3.9M	$8.6M
Groveland Wells	4/2011	$500K	$4.2M	$10.0M
Silresim Chemical	9/2007	$1,400K	$8.8M	$14.4M
New Hampshire				
Kearsarge Metallurgical	9/2003	$250K	$0.5M	$0.5M
Keefe	9/2003	$200K	$0.0M	$0.0M
Savage Well	3/2009	$500K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-12: Region 2 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
New Jersey				
Bog Creek	9/2004	$460K	$5.3M	$9.3M
Combe Fill South	9/2008	$920K	$8.7M	$18.4M
Dover Municipal Well 4	Unknown	Unknown	$0.0M	$0.0M
Garden State Cleaners	10/2009	$500K	$4.5M	$10.0M
Higgins Farm	1/2009	$1,000K	$9.2M	$19.7M
Lang Property	10/2005	$700K	$0.0M	$0.0M
Lipari Landfill	10/2019	$2,500K	$0.0M	$0.0M
Metal TEC/Aerosystems	Unknown	Unknown	$0.0M	$0.0M
Montgomery Township/Rocky Hill	9/2013	$400K	$3.2M	$8.0M
Syncon Resins	4/2001	$350K	$5.4M	$9.3M
Vineland Chemical	6/2011	$4,000K	$33.1M	$80.0M
Williams Property	6/2001	$350K	$0.0M	$0.0M
New York				
American Thermostat	10/2008	$1,175K	$11.1M	$23.4M
Brewster Well Field	10/2007	$400K	$0.0M	$0.0M
Circuitron	6/2010	$480K	$0.0M	$0.0M
Claremont Polychemical	2/2010	$740K	$4.0M	$7.4M
Islip Municipal Landfill	9/2006	$225K	$0.0M	$0.0M
Mattiace Petrochemical	3/2009	$700K	$6.6M	$14.3M
Mohonk Road	7/2011	Unknown	$0.0M	$0.0M
SMS Instruments	6/2005	$400K	$0.0M	$0.0M
Stanton Cleaners	9/2011	$270K	$1.4M	$2.7M
Vestal Water Supply	3/2005	$180K	$1.3M	$1.8M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-13: Region 3 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Pennsylvania				
AIW Frank	9/2011	$180K	$1.5M	$3.6M
Berks Sand Pit	2/2005	$150K	$0.0M	$0.0M
Butz Landfill	4/2011	$250K	$2.1M	$5.0M
Croydon TCE	3/2005	$200K	$2.2M	$4.0M
CryoChem	6/2008	$125K	$0.2M	$0.3M
Hellertown Manufacturing	9/2006	$350K	$3.6M	$7.0M
North Penn Area 1	9/2008	$100K	$0.6M	$1.0M
Raymark	1/2004	$156K	$1.1M	$1.6M
Havertown PCP	4/2012	$1,000K	$8.2M	$21.0M
North Penn Area 6	6/2013	$592K	$4.7M	$11.9M
Virginia				
Greenwood Chemical	11/2011	$400K	$1.9M	$3.6M
Saunders Supply	5/2009	$80K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-14: Region 4 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Florida				
American Creosote Works (DNAPL)	5/2003	$300K	$0.0M	$0.0M
American Creosote Works (solute)	9/2014	$452K	$0.0M	$0.0M
Coleman Evans Wood Preserving	Unknown	Unknown	Unknown	Unknown
Miami Drum	9/2002	$1,000K	Unknown	Unknown
North Carolina				
ABC Cleaners	Unknown	Unknown	Unknown	Unknown
Benfield Industries	5/2011	$30K	$0.2M	$0.3M
Cape Fear Wood Preserving	10/2011	$40K	$0.0M	$0.0M
FCX Statesville	5/2008	$150K	$0.0M	$0.0M
South Carolina				
Elmore Waste Disposal	9/2008	$180K	$1.0M	$1.8M
Palmetto Wood	5/2008	$300K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-15: Region 5 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Illinois				
La Salle	3/2004	$230K	$0.2M	$0.2M
Indiana				
Douglass Road	9/2010	$120K	$1.0M	$2.4M
Michigan				
Duell and Gardner	7/2011	Unknown	Unknown	$0.0M
Ott/Story	8/2010	$2,400K	$20.7M	$48.0M
Peerless Plating	Unknown	$400K	Unknown	$0.0M
U.S. Aviex	9/2003	$300K	$0.0M	$0.0M
Verona	6/2006	$225K	Unknown	Unknown
Wash King	4/2011	$75K	$0.4M	$0.8M
Minnesota				
Arrowhead Refinery	7/2003	$70K	$0.1M	$0.1M
Long Prairie	10/2007	$300K	$1.6M	$2.4M
MacGillis & Gibbs	10/2009	$300K	$2.7M	$6.0M
Wisconsin				
Better Brite	6/2006	$36K	$0.5M	$0.9M
Eau Claire	Unknown	$175K	Unknown	Unknown
Oconomowoc	9/2006	$471K	$4.9M	$9.4M
Onalaska	6/2004	$200K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-16: Region 6 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Arkansas				
Midland Products	1/2004	$180K	$2.6M	$5.4M
Louisiana				
American Creosote Works	2/2027	$360K	$0.0M	$0.0M
Bayou Bonfouca	7/2003	$402K	$4.5M	$7.2M
New Mexico				
Cimarron Mining	10/2004	$1,000K	Unknown	Unknown
Texas				
City of Perryton Well #2	8/2013	$37K	$0.2M	$0.4M
Geneva Industries	1/2004	$240K	$0.0M	$0.0M
North Cavalcade	12/2005	Unknown	Unknown	Unknown
Odessa Chromium #1	12/2001	$500K	$0.0M	$0.0M
Sprague Road	9/2013	$1,200K	$8.0M	$18.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-17: Region 7 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Kansas				
Ace Services	9/2013	$500K	$0.6M	$1.0M
Missouri				
Valley Park TCE/OU2	1/2006	Unknown	Unknown	Unknown
Nebraska				
Cleburn Street Well Site/OU2	12/2009	$100K	$0.5M	$1.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-18: Region 9 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
California				
Modesto	5/2012	$300K	$1.5M	$3.0M
Muscoy	10/2014	$1,100K	$5.5M	$11.0M
Newmark	10/2008	$900K	$8.5M	$18.0M
Selma Treating Co.	10/2008	$300K	$0.0M	$0.0M

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-19: Region 10 Fund-lead P&T System O&M Costs According to State

Site	Expected date of Transition	Annual O&M Cost ($/yr)	Expected Cost to be Incurred by State after LTRA	
			NPV (Discount Rate of 5%)	No Discounting
Idaho				
Bunker Hill	12/2030	Unknown	Unknown	Unknown
Oregon				
McCormick & Baxter	3/2006	$250K	Unknown	Unknown
Washington				
Boomsnub/Airco	12/2011	$1,000K	$7.7M	$18.9M
Commencement Bay/South Tacoma Channel, Well 12A	1/2004	$300K	$1.6M	$2.1M
Wyckoff/Eagle Harbor	1/2024	$500K	Unknown	Unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Systems that appear in bold were selected for Remediation System Evaluations (RSEs).
3. Annual O&M costs are estimates and include such components as labor, utilities, materials, analytical costs, etc.
4. "Expected Cost to be Incurred by State" refers to those costs incurred by the State after the Long-term Remedial Action (LTRA). LTRA is the first 10 years of operation and function of a Superfund restoration action for surface or groundwater. Operation and maintenance costs of the remedy are 90% funded by Superfund and 10% funded by the associated State during this time period. Thereafter, 100% of the costs are assumed by the States.
5. For systems where site Remedial Project Managers estimated remedy completion earlier than the end of LTRA, expected costs after LTRA appear as $0.0M.
6. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, total future cost estimates for some sites could be underestimated.

Table 4-20: Categories of Contaminants Prevalent at Sites with Fund-lead P&T Systems

Contaminant Category	Number of Systems that Address that Contaminant Category
Chlorinated solvents and degradation products: • tetrachloroethylene (PCE) • trichloroethylene (TCE) • dichloroethlyene (DCE) • trichloroethane (TCA) • dichloroethane (DCA) • methylene chloride • vinyl chloride	56 of 88 systems
BTEX (one or more of the following): • benzene • toluene • ethylbenze • xylene	19 of 88 systems
Metals • Arsenic • Cadmium • Chromium • other metals	22 of 88 systems
Polyaromatic hydrocarbons (PAHs): • anthracene • benzo(a)pyrene • benzo(k)fluoranthene • fluoranthene • napthalene • other PAHs	17 of 88 systems

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actuality. Data, including the number and status of systems and contaminants of concern, may change over time.

Notes:

1. Fund-lead P&T systems are those systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Individual systems may address more than one contaminant.
3. Presented data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates, including the number and status of systems and contaminants of concern, may change over time.

5.0 SYSTEM SCREENING AND PRIORITIZATION WITH RESPECT TO OPTIMIZATION POTENTIAL

A simple spreadsheet screening process was developed and implemented by the project team for assessing the optimization potential of each Fund-lead P&T system. The screening process consists of the following steps:

- calculate the "Baseline Present Value ($)" of the system by multiplying the annual cost by the estimated system duration, and including a discount rate (5%) to account for the future value of money;

- assume that a typical RSE will save 20% of the annual cost of the system;

- determine site-specific "Estimated Potential Reduction in Life-cycle Costs (%)" from an RSE by adjusting the assumed 20% savings according to site-specific factors that increase or decrease the likelihood that savings will be identified by the RSE process; and

- determine "Estimated Potential Life-cycle Savings ($)" from an RSE by multiplying the "Baseline Present Value ($)" by the "Estimated Potential Reduction in Life Cycle Costs (%)", and subtracting the approximate cost of a RSE evaluation ($25,000).

The factors that were used to calculate the site-specific "Estimated Potential Reduction in Life-cycle Costs (%)" (starting from the assumed 20% value) are listed in Table 5-1. The base savings value of 20%, and the subsequent adjustment factors, were determined by consensus of the project team based on the assumption that, on average, all systems can benefit from optimization and more complex systems would have greater opportunity for improvement. For each item, a "blank" response was allowed, and did not impact the calculations. A positive adjustment was made to "Estimated Potential Reduction in Life-cycle Costs (%)" for items that would increase the optimization potential (e.g., many wells, high pumping rate, many above-ground treatment processes), and a negative adjustment was made to "Estimated Potential Reduction in Life-cycle Costs (%)" for items that would decrease the optimization potential (e.g., few pumping wells, short system duration). The "Estimated Potential Reduction in Life-cycle Costs (%)" was not allowed to be less than 5%, and not allowed to be greater than 45%. The purpose of this step was to identify systems with the highest potential for cost reduction and those most likely to benefit from optimization. All potential cost savings are estimates and are intended to be used primarily for prioritizing systems.

Summaries of the screening calculations are included in the screening summary reports for each Region, which are provided as Appendix B. The actual screening calculations for each system are presented in Appendix C. Note that these calculation are all based on estimates provided by the RPMs, and in some cases the "Estimated Potential Savings ($)" is negative, indicating that the estimated potential savings from an RSE are not anticipated to offset the cost of the RSE itself.

Table 5-1: Site-Specific Criteria Used to Calculate the "Estimated Potential Life-cycle Savings (%)" from Optimization of each of the Identified Fund-lead P&T Systems (Page 1 of 2)

Result of performance and effectiveness evaluation (item 29, Section 3.0)

+0.0%	default for blank value
+2.5%	performance & effectiveness not evaluated
+5.0%	performance & effectiveness evaluated and found not sufficient
-2.5%	performance & effectiveness evaluated and found sufficient

Number of pumping wells (item 18, Section 3.0)

+0.0%	default for blank value
+0.0%	no wells (e.g., drains, etc.)
-5.0%	1 to 2 wells
-2.5%	3 to 4 wells
+0.0%	5 to 9 wells
+2.5%	10 or more wells

Pumping rate (item 17, Section 3.0)

+0.0%	default for blank value
-5.0%	<10 gpm
-2.5%	10 to 99.99 gpm
+0.0%	100 to 500 gpm
+2.5%	>500 gpm

Down time per year (item 23, Section 3.0)

+0.0%	default for blank value
+0.0%	<2 wks
+2.5%	2.00 - 3.99 wks
+5.0%	4 wks or more

Number of above-ground treatment processes (item 24, Section 3.0)

+0.0%	default for blank value
-2.5%	0 or 1 processes
+0.0%	2 processes
+2.5%	3 processes
+5.0%	4 processes

Groundwater monitoring (number wells × events per year)
(items 25-26, Section 3.0)

+0.0%	default for blank value
-2.5%	<25
+0.0%	25 to 49
+2.5%	50 to 74
+5.0%	>75

Expected duration (item 22, Section 3.0)

+0.0%	default for blank value
-20.0%	<2 yrs
-15.0%	2.00 - 4.99yrs
-5.0%	5.00 - 9.99 yrs
-2.5%	10.00 - 19.99 yrs
+0.0%	20 yrs or more

Table 5-1: Site-Specific Criteria Used to Calculate the "Estimated Potential Life-cycle Savings (%)" from Optimization of each of the Identified Fund-lead P&T Systems (Page 1 of 2)

Difficulty in making minor changes to system due to political/social factors (item 30, Section 3.0)

-5.0%	default for blank value
-10.0%	severe difficulty expected
-5.0%	moderate difficulty expected
+0.0%	little difficulty expected

6.0 SYSTEM SELECTION

The intent of the project was to select two operational Fund-lead P&T systems in each Region to receive RSEs. However, the site-identification process demonstrated that Region 7 had only one operational Fund-lead P&T system and Region 8 had none. As a result, these extra three RSEs were allocated to other Regions.

The selection of systems was based on satisfying most of the following factors:

- system is operating (required)
- Region agreed system is suitable for optimization (required)
- system effectiveness is questioned or found not sufficient
- system has high potential for life-cycle cost-savings ($), based on the screening calculations, relative to other systems
- no major problems identified for potentially implementing RSE recommendations
- RPM request for involvement

For a variety of reasons, including recent optimization or litigation, some of the systems with the highest potential for life-cycle savings in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B. Table 6-1 lists for each Region the systems selected to receive RSEs and the "Estimated Potential Savings ($)" from system optimization.

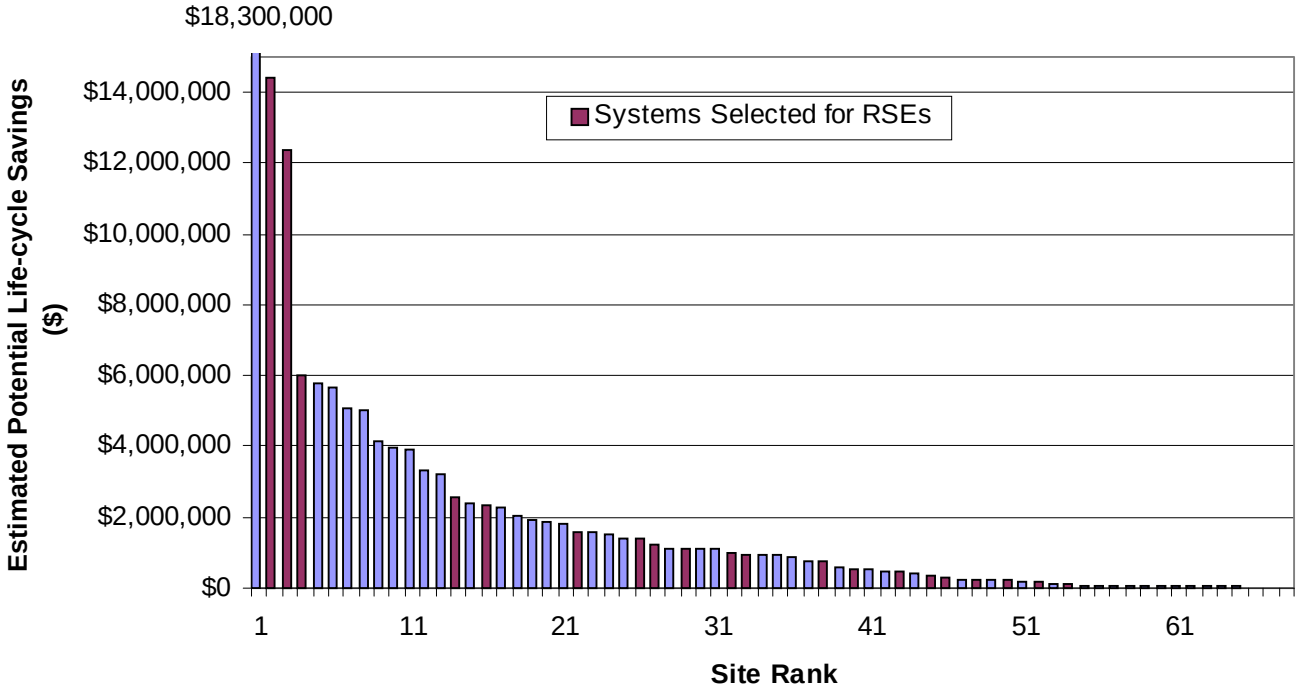
Table 6-2 ranks each Fund-lead P&T system according to "Estimated Potential Life-cycle Savings ($)" as calculated by the screening methodology. In addition, the systems that were selected for RSEs appear in **bold**. A graphical representation of this table is presented in Figure 6-1. Three of the top four ranked systems were selected for RSEs. Out of 20 total RSEs, 14 of them were allocated to a system that is ranked in the top 44 systems (top 50%). Summing the "Estimated Potential Life-cycle Savings ($)" of the systems selected for RSEs, the screening methodology suggests a total potential savings of approximately $48 million. The methodology also suggests approximately $134 million could be saved if RSEs are conducted at all 68 of the systems that indicate a positive "Estimated Potential Life-cycle Savings ($)".

Because the screening methodology is sensitive to the estimated duration of the P&T systems and this estimated duration could vary significantly from actuality, it is of significant interest to rank the systems according to estimated annual O&M costs. This ranking is provided in Table 6-3 and shown graphically in Figure 6-2. Figure 6-2 also shows the cumulative contribution of the systems to the total annual cost. It appears that 13 of the systems account for over 50% of the annual O&M costs of all systems combined. Regarding these thirteen systems, the following issues should be noted:

- three are selected to receive RSEs;
- one has previously received an RSE (by USACE);

- one has recently received an outside optimization evaluation;
- three are pre-operational and were therefore not selected to receive RSEs; and
- the remaining five were deemed inappropriate by the Regions for outside evaluations.

Figure 6-1: Fund-lead P&T Systems Ranked by "Estimated Potential Life-cycle Savings ($)"

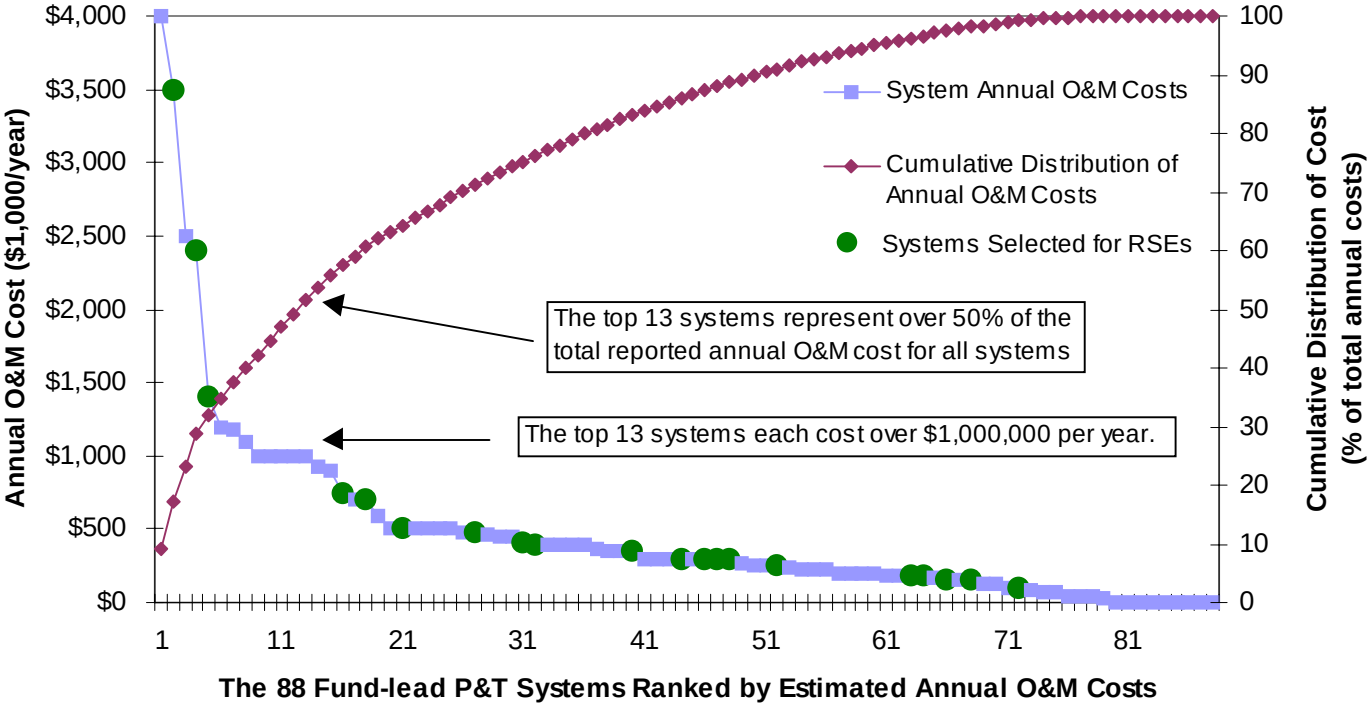


Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. Values are shown for the 68 systems with positive "Estimated Potential Life-cycle Savings ($)" . This parameter was less than zero for 12 systems and could not be calculated for 8 systems because of incomplete cost data.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, life-cycle costs and life-cycle cost savings could be underestimated for some sites.
5. Cost information was reported for 79 of the 88 Fund-lead P&T systems. Costs for the remaining 9 systems are shown as $0 in this figure.

Figure 6-2: Fund-lead P&T Systems Ranked by Annual O&M Cost and the Cumulative Distribution of System Annual O&M Costs



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual operation and maintenance (O&M) costs are estimates and include such items as labor, utilities, materials, analytical work, etc.
3. Cost information was reported for 79 of the 88 Fund-lead P&T systems. Costs for the remaining 9 systems are shown as $0 in this figure.

Table 6-1: For each Region Systems Selected for RSEs and the "Estimated Potential Life-cycle Savings ($)" Suggested by Screening Analysis

Region	Number of Systems Selected	Estimated Potential Life-cycle Savings ($)**
Region 1	Baird and McGuire	$12,402,549
	Savage Municipal Water Supply Well	$934,042
	Silresim Chemical Corp.	$6,025,600
Region 2	Claremont Polychemical	$2,578,700
	Mattiace Petrochemical	$2,357,411
	Brewster Well Field	$317,513
Region 3	Hellertown Manufacturing	$979,619
	Raymark	$216,640
Region 4	Elmore Waste Disposal (RSE demonstration project)	$375,872
	FCX Statesville (RSE demonstration project)	$134,513
Region 5	MacGillis and Gibbs (RSE demonstration project)	$1,399,624
	Oconomowoc Electroplating (RSE demonstration project)	$1,590,721
	Ott/Story	$14,418,502
Region 6	Bayou Bonfouca	$1,233,790
	Midland Products	$528,408
Region 7	Cleburn St. Well	$179,042
Region 8	—	—
Region 9	Modesto	$730,227
	Selma Pressure Treating	$261,332
Region 10	Commencement Bay/South Tacoma Channel, Well 12A	$465,677
	McCormick and Baxter	$1,127,934

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. Modesto is classified as a pre-operational system; however, it will have changed status and have operated for two months prior to the RSE visit.

Table 6-2: Fund-lead P&T Systems Ranked in Terms of "Estimated Potential Life-cycle Savings ($)" as Calculated by the Screening Methodology (Page 1 of 4)

Rank	Site name	Region	Estimated Potential Reduction in Life-cycle Costs	Estimated Potential Life-cycle Savings ($)
1	Vineland Chemical Co.	2	30.0%	$18,266,000
2	**Ott/Story/Cordova Chem Co.**	**5**	**40.0%**	**$14,419,000**
3	**Baird & McGuire Superfund Site**	**1**	**27.5%**	**$12,403,000**
4	**Silresim Chemical Corp.**	**1**	**40.0%**	**$6,026,000**
5	Higgins Farm	2	40.0%	$5,799,000
6	Sprague Road Ground Water Plume	6	32.5%	$5,653,000
7	Combe Fill South Landfill	2	38.0%	$5,065,000
8	American Thermostat	2	29.5%	$5,022,000
9	Boomsnub/Airco / Site-Wide Ground Water OU	10	27.5%	$4,124,000
10	Muscoy	9	27.0%	$3,959,000
11	Havertown PCP OU2	3	25.5%	$3,895,000
12	Newmark	9	25.5%	$3,322,000
13	North Penn Area 6	3	35.5%	$3,211,000
14	**Claremont Polychemical**	**2**	**30.0%**	**$2,579,000**
15	Garden State Cleaners/South Jersey Clothing Company	2	32.5%	$2,383,000
16	**Mattiace Petrochemical**	**2**	**23.0%**	**$2,357,000**
17	Cimarron Mining	6	15.0%	$2,281,000
18	Groveland Wells Superfund Site	1	27.5%	$2,066,000
19	Wyckoff/Eagle Harbor Superfund Site	10	25.5%	$1,935,000
20	Montgomery Township/Rocky Hill	2	30.5%	$1,850,000
21	Bog Creek Farm LTRA	2	30.0%	$1,833,000
22	**Oconomowoc Electroplating**	**5**	**24.5%**	**$1,591,000**
23	Ace Services	7	32.5%	$1,557,000

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Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest potential for life-cycle savings in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, life-cycle costs and life-cycle cost savings could be underestimated for some sites.

Table 6-2: Fund-lead P&T Systems Ranked in Terms of "Estimated Potential Life-cycle Savings ($)" as Calculated by the Screening Methodology (Page 2 of 4)

Rank	Site name	Region	Estimated Potential Reduction in Life-cycle Costs	Estimated Potential Life-cycle Savings ($)
24	Greenwood Chemical Site	3	32.5%	$1,538,000
25	Syncon Resins	2	28.0%	$1,402,000
26	**MacGillis and Gibbs/Bell Lumber & Pole**	**5**	**32.0%**	**$1,400,000**
27	**Bayou Bonfouca**	**6**	**25.5%**	**$1,234,000**
28	Lipari Landfill site	2	17.5%	$1,136,000
29	**McCormick & Baxter Creosoting Co.**	**10**	**30.0%**	**$1,128,000**
30	Charles George Landfill Superfund Site	1	17.5%	$1,122,000
31	American Creosote Works	6	22.0%	$1,094,000
32	**Hellertown Manufacturing**	**3**	**20.5%**	**$980,000**
33	**Savage Well Municipal Water System**	**1**	**32.5%**	**$934,000**
34	Butz Landfill	3	25.0%	$925,000
35	Stanton Cleaners Area Groundwater Contamination Site	2	28.0%	$908,000
36	Verona Well Field	5	25.5%	$857,000
37	AIW Frank/Mid-County Mustang Site, OU#1	3	28.0%	$746,000
38	**Modesto Superfund Site**	**9**	**20.0%**	**$730,000**
39	Douglass Road	5	32.5%	$563,000
40	**Midland Products**	**6**	**20.0%**	**$528,000**
41	Croydon TCE	3	20.0%	$517,000
42	American Creosote Works (solute)	4	17.5%	$469,000
43	**Commencement Bay, South Tacoma Channel, Well**	**10**	**23.0%**	**$466,000**
44	Long Prairie	5	15.5%	$430,000
45	**Elmore Waste Disposal**	**4**	**20.0%**	**$376,000**
46	**Brewster Wellfield**	**2**	**17.5%**	**$318,000**

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest potential for life-cycle savings in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, life-cycle costs and life-cycle cost savings could be underestimated for some sites.

Table 6-2: Fund-lead P&T Systems Ranked in Terms of "Estimated Potential Life-cycle Savings ($)" as Calculated by the Screening Methodology (Page 3 of 4)

Rank	Site name	Region	Estimated Potential Reduction in Life-cycle Costs	Estimated Potential Life-cycle Savings ($)
47	Palmetto Wood	4	18.0%	$262,000
48	**Selma Treating Co.**	**9**	**17.0%**	**$261,000**
49	Eastern Surplus Company Superfund Site	1	28.0%	$246,000
50	**Raymark**	**3**	**17.5%**	**$217,000**
51	Wash King Laundry	5	23.0%	$185,000
52	**Cleburn Street Well Site/OU2**	**7**	**17.5%**	**$179,000**
53	Vestal Water Supply Well 1-1	2	10.0%	$146,000
54	**FCX Statesville**	**4**	**20.0%**	**$135,000**
55	North Penn Area 1	3	10.0%	$86,000
56	Lang Property	2	5.0%	$63,000
57	City of Perryton Well #2	6	17.5%	$59,000
58	La Salle Electrical Utilities	5	12.5%	$57,000
59	Kearsarge Metallurgical Corp.	1	10.0%	$57,000
60	Saunders Supply Company	3	17.0%	$47,000
61	CryoChem	3	8.0%	$42,000
62	Better Brite Plating Co. Chrome and Zinc Shops	5	12.0%	$40,000
63	SMS Instruments	2	7.5%	$35,000
64	Cape Fear Wood Preserving	4	22.5%	$33,000
65	Benfield Industries	4	15.0%	$30,000
66	Circuitron	2	8.0%	$26,000
67	Geneva Industries	6	8.0%	$11,000
68	American Creosote Works (DNAPL)	4	7.5%	$3,000
69	Keefe Environmental Systems	1	7.5%	-$2,000

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Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest potential for life-cycle savings in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, life-cycle costs and life-cycle cost savings could be underestimated for some sites.

Table 6-2: Fund-lead P&T Systems Ranked in Terms of "Estimated Potential Life-cycle Savings ($)" as Calculated by the Screening Methodology (Page 4 of 4)

Rank	Site name	Region	Estimated Potential Reduction in Life-cycle Costs	Estimated Potential Life-cycle Savings ($)
70	U.S. Aviex	5	5.0%	-$2,000
71	Islip Municipal Landfill	2	7.5%	-$9,000
72	Berks Sand Pit	3	5.0%	-$17,000
73	Arrowhead Refinery	5	5.0%	-$18,000
74	Onalaska Municipal Landfill	5	5.0%	-$20,000
75	Williams Property	2	5.0%	-$25,000
76	Odessa Chromium #1	6	5.0%	-$25,000
77	North Cavalcade Superfund Site	6	27.5%	-$25,000
78	Mohonk Road Industrial Plant Site	2	unknown	unknown
79	Dover Municipal Well 4	2	unknown	unknown
80	Metal TEC/Aerosystems	2	unknown	unknown
81	ABC Cleaners	4	unknown	unknown
82	Miami Drum	4	unknown	unknown
83	Coleman Evans Wood Preserving	4	unknown	unknown
84	Eau Claire Municipal Well Field	5	unknown	unknown
85	Duell and Gardner	5	unknown	unknown
86	Peerless Plating	5	unknown	unknown
87	Valley Park TCE Site - OU2	7	unknown	unknown
88	Bunker Hill Superfund Site	10	unknown	unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. "Estimated Potential Life-cycle Savings ($)" is calculated based on the screening methodology summarized in Section 5.0 and Table 5-1. The screening calculations for each system are presented in Appendix C and summarized in Appendix B.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest potential for life-cycle savings in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.
4. For some systems where the expected system duration is unknown, a value of 30 years may have been used as a default and may underestimate the expected duration of systems, especially those located at sites with continuing sources of groundwater contamination such as LNAPL and DNAPL. Therefore, life-cycle costs and life-cycle cost savings could be underestimated for some sites.

Table 6-3: Fund-lead P&T Systems Ranked According to Annual O&M Cost (Page 1 of 4)

Rank	Site name	Region	Annual O&M Cost
1	Vineland Chemical Co.	2	$4,000,000
2	**Baird & McGuire Superfund Site**	**1**	**$3,500,000**
3	Lipari Landfill site	2	$2,500,000
4	**Ott/Story/Cordova Chem Co.**	**5**	**$2,400,000**
5	**Silresim Chemical Corp.**	**1**	**$1,400,000**
6	Sprague Road Ground Water Plume	6	$1,200,000
7	American Thermostat	2	$1,175,000
8	Muscoy	9	$1,100,000
9	Higgins Farm	2	$1,000,000
10	Havertown PCP OU2	3	$1,000,000
11	Miami Drum	4	$1,000,000
12	Cimarron Mining	6	$1,000,000
13	Boomsnub/Airco	10	$1,000,000
14	Combe Fill South Landfill	2	$920,000
15	Newmark	9	$900,000
16	**Claremont Polychemical Corp.**	**2**	**$740,000**
17	Lang Property Superfund Site	2	$700,000
18	**Mattiace Petrochemical**	**2**	**$700,000**
19	North Penn Area 6	3	$592,900
20	Groveland Wells Superfund Site	1	$500,000
21	**Savage Well Municipal Water System**	**1**	**$500,000**
22	Garden State Cleaners/South Jersey Clothing Company	2	$500,000
23	Odessa Chromium #1	6	$500,000
24	Ace Services	7	$500,000
25	Wyckoff/Eagle Harbor Superfund Site	10	$500,000
26	Circuitron	2	$480,000
27	**Oconomowoc Electroplating**	**5**	**$471,000**

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Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual operation and maintenance (O&M) costs are estimates and include such items as labor, utilities, materials, analytical work, etc.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest annual O&M costs in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.

Table 6-3: Fund-lead P&T Systems Ranked According to Annual O&M Cost (Page 2 of 4)

Rank	Site name	Region	Annual O&M Cost
28	Bog Creek Farm LTRA	2	$460,000
29	American Creosote Works (solute)	4	$452,000
30	Charles George Landfill Superfund Site	1	$450,000
31	**Bayou Bonfouca**	**6**	**$402,000**
32	**Brewster Wellfield**	**2**	**$400,000**
33	SMS Instruments	2	$400,000
34	Montgomery Township/Rocky Hill	2	$400,000
35	Greenwood Chemical Site	3	$400,000
36	Peerless Plating	5	$400,000
37	American Creosote Works	6	$360,000
38	Syncon Resins	2	$350,000
39	Williams Property	2	$350,000
40	**Hellertown Manufacturing**	**3**	**$350,000**
41	American Creosote Works (DNAPL)	4	$300,000
42	Palmetto Wood	4	$300,000
43	Long Prairie Groundwater Contamination	5	$300,000
44	**MacGillis and Gibbs/Bell Lumber & Pole**	**5**	**$300,000**
45	U.S. Aviex	5	$300,000
46	**Modesto Superfund Site**	**9**	**$300,000**
47	**Selma Treating Co.**	**9**	**$300,000**
48	**Commencement Bay, South Tacoma Channel, Well**	**10**	**$300,000**
49	Stanton Cleaners Area Groundwater Contamination Site	2	$270,000
50	Kearsarge Metallurgical Corp.	1	$250,000
51	Butz Landfill	3	$250,000
52	**McCormick & Baxter Creosoting Co.**	**10**	**$250,000**
53	Geneva Industries	6	$240,000
54	La Salle Electrical Utilities	5	$230,000

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Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual operation and maintenance (O&M) costs are estimates and include such items as labor, utilities, materials, analytical work, etc.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest O&M costs in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.

Table 6-3: Fund-lead P&T Systems Ranked According to Annual O&M Cost (Page 3 of 4)

Rank	Site name	Region	Annual O&M Cost
55	Islip Municipal Landfill	2	$225,000
56	Verona Well Field	5	$225,000
57	Eastern Surplus Company Superfund Site	1	$200,000
58	Keefe Environmental Systems	1	$200,000
59	Croydon TCE	3	$200,000
60	Onalaska Municipal Landfill	5	$200,000
61	Vestal Water Supply Well 1-1	2	$180,000
62	AIW Frank/Mid-County Mustang Site, OU#1	3	$180,000
63	**Elmore Waste Disposal**	**4**	**$180,000**
64	**Midland Products**	**6**	**$180,000**
65	Eau Claire Municipal Wel Field	5	$175,000
66	**Raymark**	**3**	**$155,711**
67	Berks Sand Pit	3	$150,000
68	**FCX Statesville**	**4**	**$150,000**
69	CryoChem	3	$125,000
70	Douglass Road	5	$120,000
71	North Penn Area 1	3	$100,000
72	**Cleburn Street Well Site/OU2**	**7**	**$100,000**
73	Saunders Supply Company	3	$80,000
74	Wash King Laundry	5	$75,000
75	Arrowhead Refinery	5	$70,000
76	Cape Fear Wood Preserving	4	$40,000
77	City of Perryton Well #2	6	$37,000
78	Better Brite Plating Co. Chrome and Zinc Shops	5	$36,000
79	Benfield Industries	4	$30,000
80	Mohonk Road Industrial Plant Site	2	unknown
81	Dover Municipal Well 4	2	unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual operation and maintenance (O&M) costs are estimates and include such items as labor, utilities, materials, analytical work, etc.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest O&M costs in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.

Table 6-3: Fund-lead P&T Systems Ranked According to Annual O&M Cost (Page 4 of 4)

Rank	Site name	Region	Annual O&M Cost
82	Metal TEC	2	unknown
83	ABC Cleaners	4	unknown
84	Coleman Evans Wood Preserving	4	unknown
85	Duell and Gardner	5	unknown
86	North Cavalcade Superfund Site	6	unknown
87	Valley Park TCE Site - OU2	7	unknown
88	Bunker Hill Superfund Site	10	unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may vary from actual values. Data, including the number and status of systems, may change over time.

Notes:

1. Fund-lead P&T systems refers to systems where groundwater extraction and treatment is specified in the Record of Decision and oversight is provided by the EPA or by a State with financial support from Superfund.
2. Annual operation and maintenance (O&M) costs are estimates and include such items as labor, utilities, materials, analytical work, etc.
3. For a variety of reasons, including recent optimization or litigation, some of the systems with the highest O&M costs in a Region were not selected for RSEs. Narratives describing the system selection for each Region are included the Regional summary screening reports included in Appendix B.

7.0 CONCLUSIONS AND LESSONS LEARNED

This nationwide effort to identify and gather information on Fund-lead P&T systems resulted in an improved understanding of the number of Fund-lead P&T systems, the specifications and performance of these systems, and the estimated costs required to operate and maintain these systems. In total, 88 operational and pre-operational Fund-lead P&T systems were identified, with pre-operational referring to systems that are identified in a ROD and are in a stage of pre-design, design, or installed but not yet operating. Of these 88 systems, 67 are operational and 21 are pre-operational. Annual costs for each system ranged from less than $100,000 per year to approximately $4,000,000 per year. The following findings result from the cost information for Fund-lead P&T systems:

- The estimated average annual operation and maintenance (O&M) cost for a Fund-lead P&T system (based on those 79 systems providing cost data) is approximately $570,000 and the median cost is $350,000. The discrepancy between these two statistics is due to a small number of systems with relatively high O&M costs.

- Based on the 79 systems that provided cost information, the estimated total annual O&M cost for operating the Fund-lead P&T systems in 2002 is approximately $38 million, with EPA incurring approximately $32.5 million of the total annual cost and the associated States incurring the remaining $5.5 million.

- Based on the 79 systems that provided cost information, the estimated future cost for Long-term Remedial Action (LTRA) O&M for all of these systems exceeds $210 million with discounting (i.e., net present value) and exceeds $270 million without discounting. LTRA refers to the first 10 years of operation of a groundwater or surface water restoration action. During this period, EPA typically funds 90% of the cost and the associated State funds 10% of the costs. These percentages translate directly to the presented costs; therefore, the Superfund is expected to pay approximately $189 million ($243 million without discounting) and the States are expected to pay approximately $21 million ($27 million without discounting).

- Based on the 79 systems that provided cost information, the estimated future cost for O&M of Fund-lead P&T systems until remediation completion is achieved is approximately $470 million with discounting (net-present value) and $790 million without discounting. (These estimates of future O&M costs are based on the annual costs of systems and expected durations of systems as specified by the site managers. For some systems where expected system duration is unknown, a value of 30 years may have been used as a default value for this parameter. While the practice of using 30 years as a default was prevalent in the past, more recent EPA guidance on feasibility study preparation recommends that 30 years not be used as a default.)

- 13 of the 79 systems that provided costs account for approximately 50% of the total reported annual O&M costs.

A total of 26 States reportedly have Fund-lead P&T systems. Upon completion of the 10-year LTRA period each system will be transferred to its associated State and that State will assume 100% of the remaining O&M costs. For systems where restoration is not a goal (i.e., containment and water supply

systems) the systems are typically transferred to the States after one year. The collected data suggest that the States will incur between approximately $250 million with discounting or $520 million without discounting in post-LTRA O&M costs for Fund-lead P&T systems that reported annual O&M costs. Furthermore, the data suggest that the following five States will likely incur 78% of these post-LTRA O&M costs:

- New Jersey (27.6%)
- Massachusetts (22.6%)
- New York (9.7%)
- Pennsylvania (9.6%)
- Michigan (8.4%)

In addition to cost information, the following statistics about the Fund-lead P&T systems were also gleaned from the information reported by the system RPMs:

- 40 of 67 operating systems are reported to be controlling plume migration.
- 60 of the 67 operating systems have groundwater restoration as a goal but 21 of that 60 do not have estimates of the progress toward that restoration. Of the 39 systems that have both groundwater restoration as a goal and an estimate of progress toward restoration, 7 are estimated to have made more than 80% progress toward restoration.
- 52 of the 88 systems have three or more primary contaminants of concern, and chlorinated solvents are the most prevalent contaminants as they are addressed by 56 of the 88 systems.
- 35 of the 88 Fund-lead P&T systems are associated with sites where non-aqueous phase liquid (NAPL) has either been observed or suspected.
- Carbon adsorption and air stripping are the most prevalent treatment processes (carbon adsorption is used at 50 of the 88 systems and air stripping is used at 41).
- Based on 64 of 88 systems where RPMs were able to determine costs specifically used for groundwater monitoring, Fund-lead P&T systems have, on average, 23 monitoring wells for groundwater sampling that are sampled three to four times per year for an average cost of $112,000 per year.
- 36 of the 67 operating systems have previously had performance and effectiveness evaluated and found “sufficient” while 7 had performance and effectiveness found “not sufficient” (the remaining systems are either being evaluated, have not been evaluated, or have not provided information regarding previous effectiveness evaluations).

The following items detail lessons learned from this data-collection phase of the Nationwide Remediation System Evaluation (RSE) Optimization Project.

Additional RSEs should be commissioned

Although the screening methodology targeted systems in each Region that had effectiveness problems or relatively high operating costs, a number of systems with similar issues were not selected for RSEs. Some of these unselected systems are receiving third-party optimization evaluations not associated with this project. Many of the other unselected systems, however, would benefit from third-party optimizaton evaluations such as an RSE. Therefore, additional RSEs should be commissioned to optimize some of the remaining Fund-lead systems.

A central database or other information system for Fund-lead systems (not limited to P&T) should be developed and maintained through annual or semi-annual updates by Remedial Project Managers. Consideration should also be given to extend such a database to include non-Fund-lead systems as well.

- Identifying all of the Fund-lead P&T systems in each Region was greatly facilitated by the project liaisons in each Region. However, to identify these systems, liaisons were required to interview branch chiefs and individual Remedial Project Managers. A central, up-to-date database would eliminate the need for repeating this interview process in the future. Managers for each site, including sites new to Superfund, should be required to update site information in a central information system (e.g., a database). The database created for this project offers a solid beginning. The data in the current database could be made available to site managers so that they may update it when required rather than reentering all of the information.

- Questions as to the definition of "pump-and-treat" arose repeatedly. In Region 9 well-head treatment systems were not included, and in Region 8, a NAPL-recovery system was not included. Furthermore, soil-vapor-extraction (SVE) systems were also not included. By not including these systems in the study, the total amount of Fund-lead expenditures could not be estimated and these systems were not considered for optimization.

- Within each Region, "fact sheets" are prepared for each system by the system's Remedial Project Manager (RPMs). As these "fact sheets" are already updated on a regular basis, broadening the required information on each "fact sheet" would make them the primary information source on each system. Because they are written documents, these "fact sheets" are more flexible than databases. First, they are not constrained to single preformatted answers (e.g., a selection from a list or single number) as is typically required for database questionnaires. Second, they can be used for any type of system or site whereas database questionnaires are typically tailored for a specific type of system or site. Future databases for specific projects could be easily generated from these "fact sheets".

- The CERCLIS database and many resources or databases within each Region are available. Consideration should be given to linking the proposed central database to CERCLIS and these Regional resources.

- Some of the data collected as part of this project may also be relevant for tracking the progress of non-Fund-lead systems. Consideration should be given to collecting information on these systems as well.

Future web-based questionnaires may need to be more lenient in accepting data.

A number of RPMs did not complete questionnaires because information required by the web-based survey (i.e., "required fields") was not available for the specific system. This repeatedly occurred for planned P&T systems for which RPMs did not yet have cost estimates or system specifications. Because these fields were required in order to save the input, information on many systems had to be gathered through phone interviews.

APPENDICES

APPENDIX A

REGION 1 INFORMATION SHEETS

Baird & McGuire Superfund Site

Holbrook, MA (Region 1)
CERCLIS ID MAD001041987

Contact Information

RPM	State Regulator	Contractor
Melissa Taylor	Dorothy Allen	Don Dwight
One Congress Street 11th floor	MADEP	Metcalf & Eddy
Boston, MA 02114	One Winter Street	30 Harvard Mill Sq.
617-918-1310 (phone)	Boston, MA 02108	Wakefield, MA 01880
617-918-1291 (fax)	617-292-5795 (phone)	781-224-6286 (phone)
Taylor.MelissaG@epa.gov	617-292-5530 (fax)	781-224-6880 (fax)
	Dorothy.Allen@state.ma.us	Don_Dwight@metcalfeddy.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	7
Date original ROD was signed:	9/30/86	Date of construction completion:	4/1993
Date of last modification to ROD:		Date of operational and functional:	4/1994
Type of ROD:	Final	Expected date of turnover to state:	4/2004
Status of P&T system:	Operational	Expected date of completion:	4/2023
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	80
Approximate annual O&M costs:	$3,500,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$200,000	Is plume migration controlled?	Yes
Approximate pumping rate:	150 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/severe

Contaminants of Concern:

Heavy metals
LNAPL
Pesticides
Semi-volatile organic compounds (SVOC)
Volatile organic compounds (VOCs)
Arsenic, BTEX, PAHs

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

An LNAPL collection system is currently in place at the site that collects approximately 8 gal/day of pure product. The LNAPL is then shipped off site for incineration.

A full evaluation of the groundwater pump and treat system was just completed in January 2001 and is expected to be implemented within the next calendar year. The major recommendations of this evaluation are to move an extraction well from an area of limited plume contaminantion to the center of the contaminant plume; and the installation of an additional extraction well to address low concentrations of VOCs and aresenic found to the north of the main plume body.

Charles George Landfill Superfund Site

Tyngsboro, MA (Region 1)
CERCLIS ID MAD003809266

Contact Information

RPM	State Regulator	Contractor
Elaine Stanley One Congress Street, Suite 1100 (HBO) Boston, MA 02114-2023 617-918-1332 (phone) 617-918-1291 (fax) stanley.elainet@epa.gov	David Buckley MADEP One Winter Street Boston, MA 02108 617-556-1184 (phone) 617-292-5530 (fax) buckley.david@state.ma.us	David O'Connor USACE North Central Residnet Office 50 McArthur Avenue, Box 689 Devens, MA 01432-4400 978-772-0148 (phone) 978-772-3104 (fax) david.o'connor@nae02.usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	9
Date original ROD was signed:	3/23/88	Date of construction completion:	9/1998
Date of last modification to ROD:	9/26/98	Date of operational and functional:	9/1999
Type of ROD:	Final	Expected date of turnover to state:	9/2009
Status of P&T system:	Operational	Expected date of completion:	9/2028
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Don't know	Number of monitoring wells used:	20
Approximate annual O&M costs:	$450,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$200,000	Is plume migration controlled?	Yes
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/severe

Contaminants of Concern:

Arsenic
BTEX
Chlorobenzene
Mercury
Tetrahydrofuran
1,4-Dioxane

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

This system pumps the effluent off-site to a POTW, via the municipal sewer system under a discharge permit. Ground water and leachate are "treated" or let's say, managed by adding an iron sequestering agent (citric acid) to keep iron from precipitating out and clogging the system and weekly biocide shocking to aid in minimizing bacterial growth in the system.

Eastern Surplus Company Superfund Site

Meddybemps, ME (Region 1)
CERCLIS ID MED981073711

Contact Information

RPM	State Regulator	Contractor
Edward Hathaway 1 Congress Street, Suite 1100, mailcode: HBT Boston, MA 02114 617-918-1372 (phone) 617-918-1291 (fax) hathaway.ed@epa.gov	Rebecca Hewett Maine DEP 17 State House Station Augusta, ME 04333-0017 207-287-8554 (phone) 207-287-7826 (fax) rebecca.l.hewett@state.me.us	Gordon Bullard TTNUS 55 Jonspin Road Wilmington, MA 01887 978-658-7899 (phone) 978-658-7870 (fax) bullardg@ttnus.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	12
Date original ROD was signed:	9/28/00	Date of construction completion:	8/2001
Date of last modification to ROD:		Date of operational and functional:	10/2001
Type of ROD:	Final	Expected date of turnover to state:	9/2011
Status of P&T system:	Being Installed	Expected date of completion:	9/2007
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	30
Approximate annual O&M costs:	$200,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$0	Is plume migration controlled?	
Approximate pumping rate:	20 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Methylene Chloride
PCE

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

There is a limited system in place as part of a NTCRA to control plume migration. The ROD requires that the system be upgraded for groundwater restoration. The design will complete in May and final construction could occur this summer.

Groveland Wells Superfund Site

Groveland, MA (Region 1)
CERCLIS ID MAD980732317

Contact Information

RPM	State Regulator	Contractor
Derrick Golden One Congress Street - Suite 1100 (HBO) Boston, MA 02114 617-918-1448 (phone) 617-918-1291 (fax) golden.derrick@epa.gov	Janet Waldron MADEP One Winter Street Boston, MA 02108 617-556-1156 (phone) 617-556-1118 (fax) janet.waldron@state.ma.us	Cinthia Mclane Metcalf & Eddy 30 Harvard Mill Square Wakefield, MA 01880 781-224-6377 (phone) 781-245-6293 (fax) cindy_mclane@metcalfeddy.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	10
Date original ROD was signed:	9/9/91	Date of construction completion:	4/2000
Date of last modification to ROD:	11/15/96	Date of operational and functional:	5/2001
Type of ROD:	Final	Expected date of turnover to state:	4/2011
Status of P&T system:	Operational	Expected date of completion:	4/2031
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Don't know	Number of monitoring wells used:	21
Approximate annual O&M costs:	$500,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$50,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	140 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	yes
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Kearsarge Metallurgical Corp.

Conway, NH (Region 1)
CERCLIS ID NHD062002001

Contact Information

RPM	State Regulator	Contractor
Dick Goehlert One Congress Street Boston, MA 02114-2023 617-918-1335 (phone) 617-918-1291 (fax) goehlert.dick@epa.gov	Paul Lincoln NHDES 6 Hazen Drive Concord, NH 03301 603-271-2911 (phone) 603-271-2456 (fax) p_andrews@des.state.nh.us	Bette Nowack Weston 1 Wall St. Manchester, NH 03101 603-656-5400 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	14
Date original ROD was signed:	9/28/90	Date of construction completion:	9/1993
Date of last modification to ROD:		Date of operational and functional:	9/1993
Type of ROD:	Final	Expected date of turnover to state:	9/2003
Status of P&T system:	Operational	Expected date of completion:	9/2005
Primary goal of system:	Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	30
Approximate annual O&M costs:	$250,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$30,000	Is plume migration controlled?	Yes
Approximate pumping rate:	42 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/moderate

Contaminants of Concern:

1,1,1-Trichloroethane
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Doug Sutton filled out this form based on a phone interview with Dick Goehlert.

The 2005 completion date is an estimate for 90% of the system. A few wells, pumping at a much lower rate will likely continue for longer

Keefe Environmental Systems

Epping, NH (Region 1)
CERCLIS ID NHD092059112

Contact Information

RPM	State Regulator	Contractor
Cheryl Sprague One Congress Street, Suite 1100 Boston, MA 02114-2023 617 918-1244 (phone) 617 918-1291 (fax) Sprague.cheryl@epa.gov	Thomas Andrews New Hampshire Department of Environmental 6 Hazen Drive Concord, NH 03301-6527 603 271-2910 (phone) 601 271-2456 (fax) Tandrews@des.state.nh.us	King Harvey Woodard and Curran 41 Hutchins Drive Portland, ME 04102 207 774-2112 (phone) 207 774-6635 (fax) hking@woodardcurren.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	4
Date original ROD was signed:	3/21/88	Date of construction completion:	9/1993
Date of last modification to ROD:	6/8/90	Date of operational and functional:	9/1994
Type of ROD:	Final	Expected date of turnover to state:	9/2003
Status of P&T system:	Operational	Expected date of completion:	9/2003
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	41
Approximate annual O&M costs:	$200,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$5,000	Is plume migration controlled?	Yes
Approximate pumping rate:	20 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,2,3,4-Tetrachlorodibenzodioxin (TCDD)
1,2-Dichloroethene
Benzo(a)pyrene
Trans 1,2-Dichloroethylene

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

In 1998 a vacuum enhanced extraction system (3 wells) was installed to faciliate voc removal in the hot zone.

State lead - with PRP settlement money.

Savage Well Municipal Water System

Milford, NH (Region 1)
CERCLIS ID NHD980671002

Contact Information

RPM	State Regulator	Contractor
RICHARD GOEHLERT ONE CONGRESS STREET BOSTON, MA 02114-2023 617-918-1335 (phone) 617-918-1291 (fax) GOEHLERT.DICK@EPA.GOV	THOMAS ANDREWS NHDES 6 HAZEN DRIVE CONCORD, NH 03301 603-271-2910 (phone) 603-271-2456 (fax) t_andrews@des.state.nh.us	Joe Newton CDM Elm St Milford, NH 03055 603-249-9840 (phone) 603-249-9851 (fax) jnewton@cdm.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	4
Date original ROD was signed:	9/27/91	Date of construction completion:	3/1998
Date of last modification to ROD:	12/19/96	Date of operational and functional:	4/1999
Type of ROD:	Final	Expected date of turnover to state:	3/2009
Status of P&T system:	Operational	Expected date of completion:	3/2009
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	38
Approximate annual O&M costs:	$500,000	Frequency of sampling:	3 times per year
Costs related to monitoring:	$30,000	Is plume migration controlled?	No
Approximate pumping rate:	100 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
Chlorinated Solvents
Cis-1,2-dichloroethene
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

The system consists of a slurry wall with extraction and injection wells inside and outside sluury wall witha recharge gallery. there is an SVE syatem with air sparaging and carbon regeneration by steam. I also have 17 plus wells in the hot spot which i intend to use submesible pumps to effect a better remedy . advice on this new extraction system would be very beneficial.

i will not fill this out a third time

Silresim Chemical Corp.

Lowell, MA (Region 1)
CERCLIS ID MAD000192393

Contact Information

RPM	State Regulator	Contractor
Chester Janowski 1 Congress Street, Suite 1100, HBO Boston, MA 02114-2023 617-918-1324 (phone) 617-918-1291 (fax) janowski.chet@epa.gov	Janet Waldron MADEP One Winter Street, 7th Floor Boston, MA 02108 617-556-1156 (phone) 617-292-5530 (fax) janet.waldron@state.ma.us	John Haley Foster Wheeler Env. Corp. 133 Federal Street, 6th Floor Boston, MA 02110 617-457-8200 (phone) 617-457-8498 (fax) jhaley@fwec.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	31
Date original ROD was signed:	9/19/91	Date of construction completion:	11/1995
Date of last modification to ROD:		Date of operational and functional:	9/1997
Type of ROD:	Final	Expected date of turnover to state:	9/2007
Status of P&T system:	Operational	Expected date of completion:	12/2017
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	47
Approximate annual O&M costs:	$1,400,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$160,000	Is plume migration controlled?	No
Approximate pumping rate:	25 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,2,2-Tetrachloroethane
1,1-Dichloroethylene (DCE)
Acids
Benzo(b)fluoranthene
Methylphenol
Solid Propellants
Trans 1,2-Dichloroethylene
Volatile chlorinated organics

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Operations Contractor provides semi-annual status reports of the P&T system including recommendations for P&T improvements. Improvements to the source control approach are currently being evaluated and a ROD Amendment is anticipated.

REGION 2 INFORMATION SHEETS

American Thermostat

South Cairo, NY (Region 2)
CERCLIS ID NYD002066330

Contact Information

RPM	State Regulator	Contractor
Christos Tsiamis 290 Broadway New York, NY 12233 212-637-4257 (phone) 212-637-3966 (fax) tsiamis.christos@epa.gov	Joseph Yavonditte NYSDEC 50 Wolf Road Albany, NY 12233 518-457-9285 (phone) 518-457-7743 (fax) jayavond@gw.dec.state.ny.us	Feeney Richard Foster Wheeler Env. Corporation 1000 The American Road Morris Plains, NJ 07950 973-630-8092 (phone) 973-630-8111 (fax) RFeeney@fwenc.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	14
Date original ROD was signed:	6/29/90	Date of construction completion:	9/1998
Date of last modification to ROD:		Date of operational and functional:	9/1998
Type of ROD:	Final	Expected date of turnover to state:	10/2008
Status of P&T system:	Operational	Expected date of completion:	9/2028
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	19
Approximate annual O&M costs:	$1,175,000	Frequency of sampling:	12 times per year
Costs related to monitoring:		Is plume migration controlled?	Yes
Approximate pumping rate:	70 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

1,2-Dichloropropane
Trichlorobenzene
Tetrachloroethylene (PCE)

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Based on cumulative long-term monitoring data, the system has currently been modified in order to optimize performance.

Bog Creek Farm LTRA

Howell, NJ (Region 2)
CERCLIS ID NJD063157150

Contact Information

RPM	State Regulator	Contractor
Edward Finnerty 290 Broadway New York, NY 10007 212 637 4367 (phone) 212-637-4393 (fax) Finnerty.Ed@EPA.GOV	Craig Wallace NJDEP 401 E State St. Trenton, NJ 08625 609 984 2990 (phone) 609 633 2360 (fax) Cwallace@DEP.STATE.NJ.US	George Paprocki USACE Ft. Monmouth Eatontown, NJ 07703 732 389 3040 (phone) 732 389 1564 (fax) George.B.Paprocki@nan02.USACE.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	33
Date original ROD was signed:	6/28/89	Date of construction completion:	5/1994
Date of last modification to ROD:		Date of operational and functional:	8/1994
Type of ROD:	Final	Expected date of turnover to state:	9/2004
Status of P&T system:	Operational	Expected date of completion:	12/2024
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	9
Approximate annual O&M costs:	$460,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$100,000	Is plume migration controlled?	Yes
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
Trans 1,2-Dichloroethylene
Benzene and Toluene
2,4-Dimethylphenol
Phenol
copper, lead,zinc

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The EPA will not meet the cleanup goal of 5ppb for benzene in the first ten years. The State's new criteria for benzene is 1ppb. This cleanup target may not be achievable, hence a 30 year remediation time (to the year 2024) was used as a default. The costs in #16 ($100,000) include sampling 9 monitoring wells and 33 extractions wells.

Brewster Wellfield

Brewster, NY (Region 2)
CERCLIS ID 0202153

Contact Information

RPM	State Regulator	Contractor
Lisa Wong 290 Broadway New York, NY 10007 212-637-4267 (phone) 212-637-3966 (fax) wong.lisa@epa.gov	George Momberger NYSDEC 50 Wolf Road Albany, NY 12233 518-457-0927 (phone) 518-457-8989 (fax) gfmomber@gw.dec.state.ny.us	Dawn Cermak Sevenson Env.Services, Inc Box 71A Route 518, Franklin Twsp Princeton, NJ 08540 732-297-0432 (phone) 732-297-0441 (fax) hawksister@earthlink.net

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	4
Date original ROD was signed:	9/30/86	Date of construction completion:	4/1997
Date of last modification to ROD:	12/2/96	Date of operational and functional:	9/1997
Type of ROD:	Final	Expected date of turnover to state:	10/2007
Status of P&T system:	Operational	Expected date of completion:	10/2007
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Suspected	Number of monitoring wells used:	16
Approximate annual O&M costs:	$400,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$244,000	Is plume migration controlled?	Yes
Approximate pumping rate:	50 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,2-Dichloroethylene (DCE)
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Qs #15 & 16: Breakdown of approximate annual O&M cost for long-term groundwater monitoring is of ballpark rough estimate.
Qs #25 & 26: 8 monitoring wells are monitored quarterly and 8 other monitoring wells are monitored annually (concurrent w/ one of the quarterly monitoring).

Circuitron

East Farmingdale, NY (Region 2)
CERCLIS ID NYD981184229

Contact Information

RPM	State Regulator	Contractor
Sharon Trocher 290 Broadway New York, NY 10007-1866 212-637-3965 (phone) 212-637-3966 (fax) trocher.sharon@epa.gov	Jeffrey Trad NYSDEC 50 Wolf Road Albany, NY 12233-7010 518-457-9285 (phone) 518-457-7743 (fax) jetrad@gw.dec.state.ny.us	Shewen Bian USACE, New York District 1900 Hempstead Turnpike, Suite 16 East Meadow, NY 11554 516-794-2913 (phone) 516-794-2975 (fax)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	9/30/94	Date of construction completion:	6/2000
Date of last modification to ROD:		Date of operational and functional:	5/15/2001
Type of ROD:	Final	Expected date of turnover to state:	6/2010
Status of P&T system:	Operational	Expected date of completion:	6/2003
Primary goal of system:	Restoration	Approximate downtime per year:	6 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	19
Approximate annual O&M costs:	$480,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$45,000	Is plume migration controlled?	Yes
Approximate pumping rate:	80 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene (DCE)
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Doug Sutton completed this questionnaire based on a phone interview with Sharon Trocher.

1,1,1 TCA is primary contaminant of concern

The remedial action is expected to be complete before turnover to the state.

Monitoring frequency will soon decrease from quarterly to semi-annually or annually.

Claremont Polychemical Corp.

Town of Oyster Bay, NY (Region 2)
CERCLIS ID NYD002044584

Contact Information

RPM	State Regulator	Contractor
Maria Jon	Jeff Trad	Mark Kucera
290 Broadway, 20th Floor	NYSDEC	U.S. Army Corps of Engineers
New York, NY 10007	50 Wolf Road	501 Winding Road
212-637-3967 (phone)	Albany, NY 12218	Old Bethpage, NY 11804
212-637-4284 (fax)	518-457-9285 (phone)	516-249-8912 (phone)
Jon.Maria@epamail.epa.gov	518-457-7743 (fax)	516-249-8928 (fax)
	jetrad@gw.dec.state.ny.us	unknown@na.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	9/28/90	Date of construction completion:	12/1998
Date of last modification to ROD:		Date of operational and functional:	2/2000
Type of ROD:	Final	Expected date of turnover to state:	2/2010
Status of P&T system:	Operational	Expected date of completion:	2/2020
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Don't know	Number of monitoring wells used:	14
Approximate annual O&M costs:	$740,000	Frequency of sampling:	4 times per year
Costs related to monitoring:		Is plume migration controlled?	Yes
Approximate pumping rate:	420 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
Toluene
Xylene
PCE

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The date in #22 is an estimate.

Combe Fill South Landfill

Chester Township, NJ (Region 2)
CERCLIS ID NJD94966611

Contact Information

RPM	State Regulator	Contractor
Pamela J. Baxter 290 Broadway New York, NY 10007-1866 212-637-4416 (phone) 212-637-4393 (fax) baxter.pam@epamail.gov	Paula Walshe NJDEP 401 East State St. Trenton, NJ 08625 609-633-1119 (phone) 609-292-1975 (fax) pwalshe@dep.state.nj.us	James Nash Chapman, Inc. 25 West Highand Avenue Atlantic Highlands, NJ 07716 732-291-7773 (phone) 732-291-7776 (fax)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	19
Date original ROD was signed:	9/23/86	Date of construction completion:	6/1998
Date of last modification to ROD:		Date of operational and functional:	9/1998
Type of ROD:	Final	Expected date of turnover to state:	9/2008
Status of P&T system:	Operational	Expected date of completion:	9/2028
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	36
Approximate annual O&M costs:	$920,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$480,000	Is plume migration controlled?	No
Approximate pumping rate:	121 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,4-Dichlorobenzene
Benzene
Carbon tetrachloride
Chlorobenzene
Chloroform
Ethylbenzene
Methylene Chloride
Toluene

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Combe Fill South is currently the subject of litigation.

Dover Municipal Well 4

Dover, NJ (Region 2)
CERCLIS ID NJD980654131

Contact Information

RPM	State Regulator	Contractor
Diego Garcia 290 Broadway New York, NY 10007-1866 212-637-4947 (phone) garcia.diego@epa.gov	Mary Lou Parra NJDEP 401 East State Street Trenton, NJ 08625 609-633-3618 (phone)	Kamala Morgan USACE 601 East 12th Street Kansas City, MO 64106 818-983-3577 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:	
Date original ROD was signed:	9/30/92		Date of construction completion:	
Date of last modification to ROD:			Date of operational and functional:	
Type of ROD:	Final		Expected date of turnover to state:	
Status of P&T system:	Predesign		Expected date of completion:	
Primary goal of system:	Restoration		Approximate downtime per year:	
Presence of NAPLs	Not present		Number of monitoring wells used:	
Approximate annual O&M costs:			Frequency of sampling:	
Costs related to monitoring:			Is plume migration controlled?	
Approximate pumping rate:			Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:			Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure

Comments:

Do not know if pump and treat will be used. May decide against it and may use well head treatment.

Light industrial site with many sources; trying to find sources.

No NAPL observed, but some may be down gradient and not addressed by addressor or by the state.

Garden State Cleaners/South Jersey Clothing Company

Minotola, NJ (Region 2)
CERCLIS ID NJD053280160

Contact Information

RPM	State Regulator	Contractor
Brian Quinn	Akshay Parikh	Steven Gillespie
290 Broadway, 19th Floor	N.J.D.E.P.	Sevenson Env. Services, Inc.
New York, NY 10007	401 E. State Street, P.O. Box 413	2749 Lockport Road
212-637-4381 (phone)	Trenton, NJ 08625	Niagara Falls, NY 14305
212-637-4393 (fax)	609-777-0693 (phone)	856-905-0782 (phone)
quinn.brian@epa.gov	609-633-2360 (fax)	856-697-9187 (fax)
	APARIKH@dep.state.nj.us	sevenson@voicenet.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	15
Date original ROD was signed:	9/26/91	Date of construction completion:	3/1999
Date of last modification to ROD:		Date of operational and functional:	9/2000
Type of ROD:	Final	Expected date of turnover to state:	10/2009
Status of P&T system:	Operational	Expected date of completion:	9/2029
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	27
Approximate annual O&M costs:	$500,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$125,000	Is plume migration controlled?	No
Approximate pumping rate:	300 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Currently being evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Trans 1,2-Dichloroethylene
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

First this questionaire only allowed one Cerclis ID to be entered, even though these are two separate sites being remediated under one ROD. The South Jersey Clothing Company. The pump and treat system has been recovering and treating groundwater with lower concentrations of TCE and PCE than expected. In addition, both
TCE and PCE have been detected in the furthest downgradient sentinel wells, implying that a portion of the plume has migrated beyond the current network of extraction wells. The USACE has been tasked by the USEPA to determine if there are additional sources of contamination downgradient of the original source areas and to determine more optimal locations of groundwater extraction wells. Additionally, the Army Corp, through their contractor, will review the treatment system design in an effort to optimize the treatment process and hydraulic capacity of the system.
ID is NJD980766828.

Higgins Farm

Franklin Township, NJ (Region 2)
CERCLIS ID NJD981490261

Contact Information

RPM	State Regulator	Contractor
Pamela J. Baxter 290 Broadway New York, NY 10007-1866 212-637-4416 (phone) 212-637-4393 (fax) baxter.pam@epamail.gov	NJDEP 401 East State St. Trenton, NJ 08625	Dawn Cermail Sevenson Env. Service, Inc. 71A Route 518 Princeton, NJ 08540 732-297-0432 (phone) 732-297-0441 (fax) hawksiyseter@earthlink.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	20
Date original ROD was signed:	9/30/92	Date of construction completion:	5/1998
Date of last modification to ROD:		Date of operational and functional:	1/1999
Type of ROD:	Final	Expected date of turnover to state:	1/2009
Status of P&T system:	Operational	Expected date of completion:	9/2028
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	34
Approximate annual O&M costs:	$1,000,000	Frequency of sampling:	3 times per year
Costs related to monitoring:	$800,000	Is plume migration controlled?	Yes
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Acetone
Arsenic
Chloride
Chlorobenzene
Toluene
Xylene

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	yes
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Site is currently the subject of litigation.
17: Designed for 100 gpm actually getting 30gpm
20: Month of O&F is an estimate
26: This represents an average. Some wells are sampled semi-annually and some quarterly
From Region 2 Hydrogeologist Rob Alvey--
Fractured rock site.
Stringent discharge permit.

Islip Municipal Landfill

Islip, NY (Region 2)
CERCLIS ID NYD980506901

Contact Information

RPM	State Regulator	Contractor
Mark Dannenberg 290 Broadway New York, NY 10007 212-637-4251 (phone) 212-637-3966 (fax) dannenberg.mark@epa.gov	Carl Hoffman NYSDEC 50 Wolf Road Albany, NY 12233 518-457-9538 (phone) 518-457-4198 (fax) crhoffma@gw.dec.state.ny.us	Paul DiMaria Islip Resource Recovery Agency 401 Main Street Islip, NY 11751 631-224-5644 (phone) 631-224-5645 (fax) wfgraner@hotmail.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	6
Date original ROD was signed:	9/19/92	Date of construction completion:	9/1996
Date of last modification to ROD:		Date of operational and functional:	9/1997
Type of ROD:	Final	Expected date of turnover to state:	9/2006
Status of P&T system:	Operational	Expected date of completion:	1/2003
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	24
Approximate annual O&M costs:	$225,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$95,000	Is plume migration controlled?	Yes
Approximate pumping rate:	300 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Volatile organic compounds (VOCs)

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Lang Property Superfund Site

Pemberton Township, NJ, NJ (Region 2)
CERCLIS ID NJD980505382

Contact Information

RPM	State Regulator	Contractor
Lawrence Granite 290 Broadway - 19th floor New York, New York, NY 10007-1866 212-637-4423 (phone) 212-637-4393 (fax) granite.larry@epamail.epa.gov	Thomas Ferrara NJDEP 401 East State Street Trenton, NJ 08625 609-292-4095 (phone) 609-633-2360 (fax)	Thomas Roche U.S. Army Corps of Engineers 192 City Line Road Browns Mills, NJ 08015 609-893-0983 (phone) 609-893-5415 (fax) thomas.p.roche@usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/29/86	Date of construction completion:	9/1995
Date of last modification to ROD:		Date of operational and functional:	10/1995
Type of ROD:	Final	Expected date of turnover to state:	10/2005
Status of P&T system:	Operational	Expected date of completion:	1/2005
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	8
Approximate annual O&M costs:	$700,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$60,000	Is plume migration controlled?	Yes
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1-dichloroethene
1,1-dichloroethane
trichloroethene
tetrachloroethene
chromium

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

--Question 17 asked for the approximate pumping rate. The treatment system was designed to pump and treat, and formerly operated at, 150 gpm. However, we have observed a significant reduction in ground water contaminant concentrations. As a result, we are now pumping at approximately 30 gpm.

--Question 18 asked for the number of ground water extraction wells. There are three extraction wells at the Site. Two of the three have been yielding clean water; therefore, they are presently shut down to allow for a period of monitoring under non-pumping conditions. Also, please note that to supplement the contaminant removal by the three extraction wells, three shallow ground water collection trenches were installed in summer 1996.
--Question 24 asked for the treatment processes which are used at the Site. We do have a metals precipitation unit and biological treatment units at the Site. However, we stopped using them due to a reduction in contaminant concentrations.
--The Lang Property Superfund site team has always emphasized quality. Our enhancement efforts to date have expedited the remediation and resulted in cost savings. If you have any questions on the above, please feel free to call me at 212-637-4423.

Lipari Landfill site

Mantua Township, NJ (Region 2)
CERCLIS ID NJD980505416

Contact Information

RPM	State Regulator	Contractor
Ferdinand Cataneo 290 Broadway New York City, NY 10007-1866 212-637-4428 (phone) 212-637-4393 (fax) cataneo.fred@epa.gov	Michael Burlingame NJDEP P.O. Box 413 Trenton, NJ 08625-0413 609-292-1424 (phone) 609-292-1975 (fax) mburling@dep.state.nj.us	Lee Anne Simmler URS/Radian International 743 Mullica Hill Road Glassboro, NJ 08028 856-582-6000 (phone) 856-582-6946 (fax) lee_anne_simmler@urscorp.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	25
Date original ROD was signed:	9/30/85	Date of construction completion:	12/1992
Date of last modification to ROD:		Date of operational and functional:	6/1993
Type of ROD:	Final	Expected date of turnover to state:	10/2019
Status of P&T system:	Operational	Expected date of completion:	12/2004
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	39
Approximate annual O&M costs:	$2,500,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$30,000	Is plume migration controlled?	Yes
Approximate pumping rate:	125 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Benzene and Toluene
Bis(2-chloroethyl) ether
Xylene
1,2-Dichloroethane
Methylene Chloride
Phenol
Chromium
Lead
Zinc

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	yes

Comments:

The system has been evaluated and improved on an annual basis since it began operating in 1993. The most significant improvement was designed in April 1999 and constructed last year. The improvement converted the system to dual phase operation, which has doubled the rate of contaminated ground water extraction while providing for soil vapor/air extraction that has increased the rate of BTEX/VOC removal from the site containment by an order of magnitude.

In June 1999, the USACE Hazardous, Toxic, and Radioactive Waste Center of Expertise conducted a workshop on Lipari Landfill site system operation, maintenance, monitoring and optimization.

Mattiace Petrochemical

Glen Cove, Nassau County, NY (Region 2)
CERCLIS ID NYD000512459

Contact Information

RPM	State Regulator	Contractor
Edward Als 290 Broadway NYC, NY 10007-1866 212-637-4272 (phone) 212-637-3966 (fax) als.ed@epa.gov	Michael Mason NY State Department of Environmental 50 Wolf Road Albany, NY 12233 518-457-9285 (phone) 518-457-7743 (fax) mamason@gw.dec.state.ny.us	Karuppenan Subburamu Foster Wheeler Env.Corp. 1000 the American Road Morris Plains, NJ 07950 973-630-8518 (phone) 973-630-8111 (fax) ksubburamu@fwenc.com

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:	9
Date original ROD was signed:	6/27/91		Date of construction completion:	8/1998
Date of last modification to ROD:			Date of operational and functional:	9/1999
Type of ROD:	Final		Expected date of turnover to state:	3/2009
Status of P&T system:	Operational		Expected date of completion:	8/2029
Primary goal of system:	Containment & Restoration		Approximate downtime per year:	2 weeks
Presence of NAPLs	Observed		Number of monitoring wells used:	15
Approximate annual O&M costs:	$700,000		Frequency of sampling:	1 times per year
Costs related to monitoring:	$50,000		Is plume migration controlled?	Yes
Approximate pumping rate:	10 gpm		Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Aromatic VOCs
Chlorinated Aliphatics
Chlorinated Solvents
Ethylbenzene

Tetrachloroethylene, Trichloroethylene, Ethylbenzene, Toluene, Xylenes, Methylene Chloride, Dichlorobenzene, Acetone

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Q#18. Of the 9 extraction wells, 3 extract almost 9 gallons/minute. The other 6 extract betw 1-2 gallons/minute.

Q#26. Wells were sampled twice in 1st year, will be sampled annually thereafter.

Metal TEC/Aerosystems

Franklin, NJ (Region 2)
CERCLIS ID NJD002517472

Contact Information

RPM	State Regulator	Contractor
Dan Weissman 290 Broadway New York, NY 10007-1866 212-637-4384 (phone) weissman.dan.epa.gov	Anton Navaragah NJDEP 401 East State Street Trenton, NJ 08625 609-777-0340 (phone)	

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:
Date original ROD was signed:	9/27/90		Date of construction completion:
Date of last modification to ROD:			Date of operational and functional:
Type of ROD:	Final		Expected date of turnover to state:
Status of P&T system:	Predesign		Expected date of completion:
Primary goal of system:			Approximate downtime per year:
Presence of NAPLs	Observed		Number of monitoring wells used:
Approximate annual O&M costs:			Frequency of sampling:
Costs related to monitoring:			Is plume migration controlled?
Approximate pumping rate:			Progress of aquifer restoration:
Result of previous evaluation of peformance/effectiveness:			Difficulty (due to social/political factors) of implementing minor/major changes:

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure

Comments:

Pump and treat is the selected remedy in the ROD. In RD contract to reconsider treatment approach at the site. If pump and treat is used at all, it would be adjunct to another remedy or would have a goal of containment.

Mohonk Road Industrial Plant Site

High Falls, NY (Region 2)
CERCLIS ID NYD986950012

Contact Information

RPM	State Regulator	Contractor
Patrick Hamblin 290 Broadway, 20th Floor New York, NY 10007-1866 212-637-3314 (phone) 212-637-3966 (fax) hamblin.patrick@epa.gov	Michael Komoroske NYSDEC 50 Wolf Road, Room 242 Albany, NY 12233-7010 518-457-3395 (phone) 518-457-4198 (fax) mjkomoro@gw.dec.state.ny.us	Eric Hamilton EarthTech 7870 Villa Park Drive, Suite 400 Richmond, VA 23228 804-515-8300 (phone) 804-515-8414 (fax) e_hamilton@earthtech.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	3/31/00	Date of construction completion:	5/2000
Date of last modification to ROD:		Date of operational and functional:	7/2001
Type of ROD:	Final	Expected date of turnover to state:	7/2011
Status of P&T system:	Operational	Expected date of completion:	7/2031
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	17
Approximate annual O&M costs:		Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	Don't know
Approximate pumping rate:	40 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Currently being evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene (DCE)
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This groundwater extraction and treatment system was constructed by the Region 2 Removal Program in May 2000 as a Non-Time Critical Removal Action to address the 'nearfield plume', and underwent shakedown until responsibility for the system was transferred to the remedial program in February 2001. For approximatey the next 5 months, the Remedial Program will be operate the system as a remedial action in order to complete shakedown activities. After this period, the system will be operated as a Long-Term Response Action (beginning July 2001). Additional groundwater extraction wells may be added to capture the 'farfield plume'.

Montgomery Township/Rocky Hill

Montgomery Township, NJ (Region 2)
CERCLIS ID NJD980654164

Contact Information

RPM	State Regulator	Contractor
Monica Mahar 290 Broadway New York, NY 10007-1866 212-637-3942 (phone) mahar.monica@epa.gov	Larry Quinn NJDEP 401 East State Street Trenton, NJ 08625 609-633-0766 (phone) lquinn@dep.state.nj.us	Geoffrey McKenzie CDM 107-F Corporate Blvd. South Plainfield, NJ 07080 908-757-9500 (phone) mckenziegm@cdm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	6/27/88	Date of construction completion:	9/2003
Date of last modification to ROD:		Date of operational and functional:	9/2003
Type of ROD:	Final	Expected date of turnover to state:	9/2013
Status of P&T system:	Design	Expected date of completion:	9/2033
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	40
Approximate annual O&M costs:	$400,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$80,000	Is plume migration controlled?	
Approximate pumping rate:	250 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This is actually two sites, Montgomery Township and Rocky Hill, that will share a single P&T system.
In litigation with PRP.

SMS Instruments

Deer Park, NY (Region 2)
CERCLIS ID NYD001533165

Contact Information

RPM	State Regulator	Contractor
Mark Dannenberg	Joseph Yavonditte	Paul Hagerman
290 Broadway	NYSDEC	CDM Federal
New York, NY 10007	50 Wolf Road	125 Maiden Lane
212-637-4251 (phone)	Albany, NY 12233	New York, NY 10038
212-637-3966 (fax)	518-457-9280 (phone)	212-785-9123 (phone)
dannenberg.mark@epa.gov	518-457-4198 (fax)	212-785-6114 (fax)
	jayovond@gw.dec.state.ny.us	hagermanpr@cdm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:	2
Date original ROD was signed:	9/29/89		Date of construction completion:	6/1994
Date of last modification to ROD:			Date of operational and functional:	6/1995
Type of ROD:	Final		Expected date of turnover to state:	6/2005
Status of P&T system:	Operational		Expected date of completion:	3/2004
Primary goal of system:	Containment & Restoration		Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present		Number of monitoring wells used:	18
Approximate annual O&M costs:	$400,000		Frequency of sampling:	4 times per year
Costs related to monitoring:	$130,000		Is plume migration controlled?	Yes
Approximate pumping rate:	100 gpm		Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Xylene

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Stanton Cleaners Area Groundwater Contamination Site

Great Neck, NY (Region 2)
CERCLIS ID NYD047650197

Contact Information

RPM	State Regulator	Contractor
Damian Duda	Thomas Gibbons	Thomas Williams
290 Broadway - 20th Floor	NYSDEC	Earth Tech
New York, NY 10007-1866	50 Wolf Road	7870 Villa Park Drive - Suite 400
212-637-4269 (phone)	Albany, NY 12233	Richmond, VA 23228
212-637-3966 (fax)	518-457-3960 (phone)	516-482-7162 (phone)
duda.damian@epa.gov	518-457-4158 (fax)	516-466-8396 (fax)
	tlgibbon@gw.dec.state.ny.us	twilliams@earthtech.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	3/31/99	Date of construction completion:	6/2001
Date of last modification to ROD:		Date of operational and functional:	9/2001
Type of ROD:	Final	Expected date of turnover to state:	9/2011
Status of P&T system:	Being Installed	Expected date of completion:	9/2021
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	30
Approximate annual O&M costs:	$270,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$120,000	Is plume migration controlled?	
Approximate pumping rate:	90 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
DCE, BTEX, MTBE

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

An additional source control operation is currently being implemented through an ongoing soil vapor extraction system (SVE). The SVE system is expected to be in operation less than the time period estimated for the pump and treat system. Depending on the treatment efficiency of the pump and treat system, an innovative treatment technology for biological treatment may be introduced during the course of its active operation.

Syncon Resins

Kearny, NJ (Region 2)
CERCLIS ID NJD064263817

Contact Information

RPM	State Regulator	Contractor
Pamela J. Baxter	Jeanette Abels	John Sperber
290 Broadway	NJDEP	LSR Levine and Fricke
New York, NY 10007-1866	401 East State St.	P.O. Box 316
212-637-4416 (phone)	Trenton, NJ 08625	Closter, NJ 07624
212-637-4393 (fax)	609-292-4873 (phone)	201-750-6880 (phone)
baxter.pam@epamail.gov	609-633-2360 (fax)	201-750-6890 (fax)
	jabels@dep.state.nj.us	spurber@webstan.net

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	3
Date original ROD was signed:	9/29/86	Date of construction completion:	4/1991
Date of last modification to ROD:	9/27/00	Date of operational and functional:	4/1991
Type of ROD:	Final	Expected date of turnover to state:	4/2001
Status of P&T system:	Operational	Expected date of completion:	9/2028
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	3 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	0
Approximate annual O&M costs:	$350,000	Frequency of sampling:	0 times per year
Costs related to monitoring:		Is plume migration controlled?	Yes
Approximate pumping rate:	20 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Acetone
Benzene
Chlorobenzene
Ethylbenzene
Toluene
Xylene

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

18: Wells used for water control. Also, there is a trench and three sump wells located in areas that flood locally.

21: Date of 10/93 is provided. This would mean it has already been transferred to the state. 10/93 is not a possible response given the format of the webpage. 4/2001 is provided temporarily until more information is available.

27: A slurry wall is providing the control

Vestal Water Supply Well 1-1

Vestal, NY (Region 2)
CERCLIS ID NYD980763767

Contact Information

RPM	State Regulator	Contractor
Sharon Trocher 290 Broadway New York, NY 10007-1866 212-637-3965 (phone) 212-637-3966 (fax) trocher.sharon@epa.gov	Jeffrey Trad NYSDEC 50 Wolf Road Albany, NY 12233-7010 518-457-9285 (phone) 518-457-7743 (fax) jetrad@gw.dec.state.ny.us	Heidemarie Adenau Foster Wheeler Env.Corporation 1000 The American Road Morris Plains, NJ 07950 973-630-7197 (phone) 973-630-8025 (fax) hadenau@fwenc.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	6/27/86	Date of construction completion:	12/1993
Date of last modification to ROD:		Date of operational and functional:	3/1995
Type of ROD:	Final	Expected date of turnover to state:	3/2005
Status of P&T system:	Operational	Expected date of completion:	3/2015
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	12
Approximate annual O&M costs:	$180,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$30,000	Is plume migration controlled?	Yes
Approximate pumping rate:	450 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene (DCE)
1,2-Dichloroethylene (DCE)
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Vineland Chemical Co. Groundwater Treatment Plant

Vineland, NJ (Region 2)
CERCLIS ID NJD002385664

Contact Information

RPM	State Regulator	Contractor
Matthew Westgate 290 Broadway 19th floor New York City, NY 10007-1866 212 637-4422 (phone) 212 637-4429 (fax) westgate.matthew@epamail.epa.gov	Craig Wallace N.J. Dept. of Environmental Protection 401 East State Street CN413 Trenton, NJ 08625-0413 609 984-3727 (phone) 609 633-2360 (fax) cwallac2@dep.state.nj.us	Gillespie Steve Sevenson Env. Services 1405A North Mill Road Vineland, NJ 08360 856 690-1758 (phone) 856 690-1759 (fax) vineland@voicenet.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	13
Date original ROD was signed:	9/28/89	Date of construction completion:	4/2000
Date of last modification to ROD:		Date of operational and functional:	6/2000
Type of ROD:	Final	Expected date of turnover to state:	6/2011
Status of P&T system:	Operational	Expected date of completion:	6/2031
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	40
Approximate annual O&M costs:	$4,000,000	Frequency of sampling:	52 times per year
Costs related to monitoring:	$750,000	Is plume migration controlled?	Yes
Approximate pumping rate:	1400 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Currently being evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/severe

Contaminants of Concern:

Arsenic

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Currently we are pumping 700 gpm. Major modifications are required to increase plant flow to maximum flow rate -1400 gpm.

We are in the process of hiring a contractor, SAIC of Harrisburg, PA, through the Philadelphia District Army Corps of Engineers, to perform a "SmartSite" Optimization Study. Kickoff meeting is scheduled for March 1 2001. If you want to study this site and perform the optimization study, call me now at 212 637-4422.

Williams Property

Swainton, Middle Township, NJ (Region 2)
CERCLIS ID NJD980529945

Contact Information

RPM	State Regulator	Contractor
Ferdinand Cataneo 290 Broadway New York City, NY 10007-1866 212-637-4428 (phone) 212-637-4393 (fax) cataneo.fred@epa.gov	Steve Wohleb NJDEP P.O. Box 413 Trenton, NJ 08625-0413 609-633-3970 (phone) 609-292-1975 (fax) swohleb@dep.state.nj.us	Richard Talbot TurnKey Env. Services, Inc 24 South Newton Street Road, Suite 1B Newton Square, PA 19073 610-356-3790 (phone) 610-356-4780 (fax) TurnKeyEnv@aol.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	2
Date original ROD was signed:	9/29/87	Date of construction completion:	1/1995
Date of last modification to ROD:		Date of operational and functional:	1/1995
Type of ROD:	Final	Expected date of turnover to state:	1/2001
Status of P&T system:	Operational	Expected date of completion:	12/2002
Primary goal of system:	Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	18
Approximate annual O&M costs:	$350,000	Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	Yes
Approximate pumping rate:	80 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Bis(2-chloroethyl) ether
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
Acetone
Isophorone
Methyl ethyl ketone (MEK)
Methyl isobutyl ketone (MIBK)
Xylene

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	yes
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

At this time the plume appears to have been remediated except for low level PCE and TCE tailing. The pump and treat is expected to be shut down later this year with the system maintained in a "ready-to-run" state. Long term monitoring for possible rebound of contamination will follow. Resumption of operations would be triggered if rebound, as defined in a long-term testing plan,occurs.

Regarding Question #21, please note that the NJDEP has been running the p&t since operations began in January 1995.

REGION 3 INFORMATION SHEETS

AIW Frank/Mid-County Mustang Site, OU#1

Exton, PA (Region 3)
CERCLIS ID PAD004351003

Contact Information

RPM	State Regulator	Contractor
Charlie Root	Ragesh Patel	Neil Teamerson
1650 Arch Street (3HS21)	PADEP	TetraTech NUS
Philadelphia, PA 19103	Lee Park, Suite 6010 555 North Lane	600 Clark Avenue, Suite 3
215-814-3193 (phone)	Conshohocken, PA 19428	King of Prussia, PA 19406
215-814-3002 (fax)	610-832-6161 (phone)	610-491-9688 (phone)
root.charlie@epa.gov	610-832-6260 (fax)	610-491-9645 (fax)
	patel.ragesh@state.pa.us	teamersonn@ttnus.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	9/29/95	Date of construction completion:	11/2000
Date of last modification to ROD:		Date of operational and functional:	9/2001
Type of ROD:	Final	Expected date of turnover to state:	9/2011
Status of P&T system:	Operational	Expected date of completion:	9/2031
Primary goal of system:	Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	15
Approximate annual O&M costs:	$180,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$50,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	118 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,1,2,2-Tetrachloroethane
Trans 1,2-Dichloroethylene

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This Pump and Treat is only a few months old and there is not enough performance data to date to make any recomendations regarding optimization.

Berks Sand Pit

Huffs Church, PA (Region 3)
CERCLIS ID PAD980691794

Contact Information

RPM	State Regulator	Contractor
Bruce Rundell 1650 Arch Street Philadephia, PA 19103-2087 215-814-3317 (phone) 215-814-3015 (fax) rundell.bruce@epa.gov	Elise Juers PADEP 909 Elmerton Av. Harrisburg, PA 17110-8200 717-705-4852 (phone) 717-705-4830 (fax) juers.elise@a1.dep.state.pa.45	Ed Kashdan Gannett Fleming PO Box 80794 Valley Forge, PA 19484 610-650-8101 (phone) 610-650-8190 (fax) ekashdan@GFnet.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/29/88	Date of construction completion:	2/1995
Date of last modification to ROD:	2/2/94	Date of operational and functional:	2/1995
Type of ROD:	Final	Expected date of turnover to state:	2/2005
Status of P&T system:	Operational	Expected date of completion:	2/2003
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	48
Approximate annual O&M costs:	$150,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	Yes
Approximate pumping rate:	90 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethylene (DCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Maximum TCA and DCE concentrations in 1988 were 7,300 and 3,500 ppb, respectivly. By 1999 concentrations have been reduced to 470 ppb and 78 ppb for TCA and DCE respectively. This has been accomplished by maximizing pump rate with respect to contaminant concentrartions. Currently there is one area that is less responcive to the pumping system. A pilot scale fentons reagent injection study will be conducted in this area in the Spring of 2001. If successful oxidant injection will be used throughout the plume.

Butz Landfill

Monroe Township, PA (Region 3)
CERCLIS ID PAD981034705

Contact Information

RPM	State Regulator	Contractor
Rom Roman 1650 Arch Street Philadelphia, PA 19103-2087 215-814-3212 (phone) 215-814-3015 (fax) roman.romuald@epa.gov	PADEP Paul Panek PADEP 4530 Bath Pike Bethlehem, PA 18017 610-861-2070 (phone) 610-861-2072 (fax) panek.paul@dep.state.pa.us	Charles Huval Koester Environmental Services 14649 Highway 41 N Evansville, IN 47725 812-483-4516 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	6/30/92	Date of construction completion:	4/2001
Date of last modification to ROD:	8/27/99	Date of operational and functional:	4/2001
Type of ROD:	Final	Expected date of turnover to state:	4/2011
Status of P&T system:	Operational	Expected date of completion:	4/2031
Primary goal of system:	Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	17
Approximate annual O&M costs:	$250,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$125,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	90 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Diesel fuel
Trichlorobenzene
Vinyl Chloride

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Doug Sutton completed this questionnaire based on phone interviews with Rom Roman (RPM) and Bruce Rundell (hydrogeologist).

At the time of this survey, the site was to begin operation within a couple of weeks. Thus, many of the responses are estimates including costs, flow rates, and expected date of completion.

Croydon TCE

Bristol Township, PA (Region 3)
CERCLIS ID PAD981035009

Contact Information

RPM	State Regulator	Contractor
Cesar Lee 1650 Arch St Philadelphia, PA 19103 215-814-3205 (phone) 215-814-3205 (fax) lee.cesar@epa.gov	Ewald Dave PADEP Lee Park, Suite 6010 Conshohocken, PA 19428 610-832-6200 (phone) 610-832-5950 (fax) Ewald.David@dep.state.pa.us	Harish Mital Tetra Tech, Inc. Plaza 273, 56 West Main Street Christiana, DE 19702 302-738-7551 (phone) 302-454-5988 (fax) harish.mital@tetratech.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	6
Date original ROD was signed:	6/29/90	Date of construction completion:	3/1995
Date of last modification to ROD:		Date of operational and functional:	3/1995
Type of ROD:	Final	Expected date of turnover to state:	3/2005
Status of P&T system:	Operational	Expected date of completion:	3/2025
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Suspected	Number of monitoring wells used:	7
Approximate annual O&M costs:	$200,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$100,000	Is plume migration controlled?	Yes
Approximate pumping rate:	25 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,2-Trichloroethane
1,1-Dichloroethylene (DCE)
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

CryoChem

Earl Township, PA (Region 3)
CERCLIS ID PAD002360444

Contact Information

RPM	State Regulator	Contractor
Joseph McDowell 1650 Arch Street Phila, PA 19103 215-814-3192 (phone) 215-814-3002 (fax) mcdowell.joseph@epa.gov	Rich Morgan PADEP 909 Elmerton Ave Harrisburg, PA 17110 610-916-0122 (phone) 610-916-0100 (fax) MORGAN.RICHARD@DEP.STATE.PA.US	Don Koch ETA 9115 Guilford Road Suite 100 Columbia, MD 21046 410-461-9920 (phone) 410-750-8565 (fax) dkoch@md.ccjm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	9
Date original ROD was signed:	9/30/91	Date of construction completion:	2/1998
Date of last modification to ROD:		Date of operational and functional:	6/1998
Type of ROD:	Final	Expected date of turnover to state:	6/2008
Status of P&T system:	Operational	Expected date of completion:	6/2010
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Don't know	Number of monitoring wells used:	4
Approximate annual O&M costs:	$125,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$40,000	Is plume migration controlled?	Yes
Approximate pumping rate:	60 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene (DCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Greenwood Chemical Site

Greenwood, VA (Region 3)
CERCLIS ID VAD003125374

Contact Information

RPM	State Regulator	Contractor
Philip Rotstein 1650 Arch Street Philadelphia, PA 19103 215-814-3232 (phone) 215-814-3002 (fax) rotstein.phil@epa.gov	Berry Wright Department of Environmental Quality 629 E. Main Street Richmond, VA 23219 804-698-4012 (phone) 804-698-4234 (fax) bfwright@deq.state.va.us	Jeff Waters CH2M Hill 1700 Market Street, Suite 1600 Philadelphia, PA 19103 215-563-4220 (phone) 215-563-3828 (fax) jwaters@ch2m.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	12/30/90	Date of construction completion:	11/2000
Date of last modification to ROD:		Date of operational and functional:	11/2001
Type of ROD:	Interim	Expected date of turnover to state:	11/2011
Status of P&T system:	Operational	Expected date of completion:	11/2020
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	34
Approximate annual O&M costs:	$400,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$50,000	Is plume migration controlled?	Not a goal
Approximate pumping rate:	45 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1-Dichloroethane
Acetone
Arsenic
Benzene and Toluene
Naphthalene, Acetic Acid, 1,2-Dichloroethane, SVOC TICs, Dibutyl phthalate, 2,4,6,-Trichlorophenol

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	yes
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Initial startup and testing of the pump and treat system began in November 2000. The system became fully operational in March 2001. Actual operational costs (O&M) not known at this time.

Havertown PCP OU2

Havertown, PA (Region 3)
CERCLIS ID PAD002338010

Contact Information

RPM	State Regulator	Contractor
Gregory Ham 1650 Arch Street (3HS21) Philadelphia, PA 19103-2029 215-814-3194 (phone) 215-814-3002 (fax) ham.greg@epa.gov	April Flipse PADEP 555 North Lane, Suite 6010 Conshohocken, PA 19428 610-832-5937 (phone) 610-832-6143 (fax) Flipse.April@dep.state.pa.us	Lori Stoll URS Corporation 200 Orchard Ridge Drive, Suite 101 Gaithersburg, MD 20878-1978 301-258-9780 (phone) 301-869-2043 (fax) lori_stoll@urscorp.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	4
Date original ROD was signed:	9/30/91	Date of construction completion:	5/2001
Date of last modification to ROD:		Date of operational and functional:	4/2002
Type of ROD:	Interim	Expected date of turnover to state:	4/2012
Status of P&T system:	Being Installed	Expected date of completion:	4/2033
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Observed	Number of monitoring wells used:	15
Approximate annual O&M costs:	$1,000,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$283,300	Is plume migration controlled?	
Approximate pumping rate:	45 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Benzene and Toluene
Dioxin (TCDD equivalents)
Pentachlorophenol (PCP)
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	yes
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This system includes a 200 foot long collection trench and four oil/water extraction wells. There is free product (PCP/oil) being recovered from most of the wells.

Hellertown Manufacturing

Bethlehem, PA (Region 3)
CERCLIS ID PAD002390748

Contact Information

RPM	State Regulator	Contractor
Cesar Lee	Meg Mustard	Jim Romig
1650 Arch Street	PADEP	CDM Federal Corporation
Philadelphia, PA 19103	4530 Bath Pike	993 Old Eagle School Road, Suite 408
215-814-3205 (phone)	Bethlehem, PA 18017	Wayne, PA 19087
215-814-3205 (fax)	610-861-2076 (phone)	610-293-0450 (phone)
lee.cesar@epa.gov	610-861-2072 (fax)	610-293-1920 (fax)
	boyer.margaret@dep.state.pa.us	romigjm@cdm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/3/91	Date of construction completion:	9/1996
Date of last modification to ROD:		Date of operational and functional:	3/1996
Type of ROD:	Final	Expected date of turnover to state:	9/2006
Status of P&T system:	Operational	Expected date of completion:	9/2026
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	12
Approximate annual O&M costs:	$350,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$150,000	Is plume migration controlled?	Yes
Approximate pumping rate:	50 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Benzene
Cis-1,2-dichloroethene
TCE and Vinyl chloride
Trans 1,2-Dichloroethylene
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Doug Sutton filled this out based on hand written notes of Cesar Lee.

North Penn Area 1

Souderton, Montgomery County, PA (Region 3)
CERCLIS ID PAD096834494

Contact Information

RPM	State Regulator	Contractor
Maria de los A. Garcia 1650 Arch Street Philadelphia, PA 19103 215-814-3199 (phone) 215-814-3002 (fax) garcia.maria@epa.gov	April Flipse Pennsylvania Department of Env. Protection Lee Park, Suite 6010 555 North Lane Conshohocken, PA 19428 610-832-5937 (phone) 610-832-6143 (fax)	Policarpio Mijares U.S. Army Corps of Engineers P.O. Box 1715 Baltimore, PA 21203 410-962-2782 (phone) 410-962-2318 (fax)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/30/94	Date of construction completion:	7/1998
Date of last modification to ROD:	9/24/98	Date of operational and functional:	9/1998
Type of ROD:	Final	Expected date of turnover to state:	9/2008
Status of P&T system:	Operational	Expected date of completion:	9/2018
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	4
Approximate annual O&M costs:	$100,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	2 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene (DCE)
Cis-1,2-dichloroethene
Trans 1,2-Dichloroethylene
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
Volatile organic compounds (VOCs)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

The system in this site consists of an extraction system that discharges to a local wastewater treatment facility. There is no conventional treatment system at the site.

North Penn Area 6

Lansdale, PA (Region 3)
CERCLIS ID PAD980926976

Contact Information

RPM	State Regulator	Contractor
Gregory Ham 1650 Arch Street (3HS21) Philadelphia, PA 19103-2029 215-814-3194 (phone) 215-814-3002 (fax) ham.greg@epa.gov	Robert Zang Pennsylvania Dept. of Env. Protection 555 North Lane, Suite 6010 Conshohocken, PA 19428 610-832-6152 (phone) 610-832-6259 (fax) Zang.Robert@state.pa.us	Ray Lees It Corporation 1220 Ward Avenue, Suite 300 West Chester, PA 19380-3409 610-241-5000 (phone) 610-241-5050 (fax) rlees@theitgroup.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	10
Date original ROD was signed:	8/10/00	Date of construction completion:	9/2002
Date of last modification to ROD:		Date of operational and functional:	6/2003
Type of ROD:	Final	Expected date of turnover to state:	6/2013
Status of P&T system:	Design	Expected date of completion:	6/2033
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Suspected	Number of monitoring wells used:	30
Approximate annual O&M costs:	$592,900	Frequency of sampling:	4 times per year
Costs related to monitoring:	$216,000	Is plume migration controlled?	
Approximate pumping rate:	300 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Carbon tetrachloride
TCE and Vinyl chloride
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This site consists of a groundwater plume covering an area approximately 3 square miles, with multiple identified sources. It will be done as a mixed work site (some wells installed and operated by EPA, some by PRPs). The first two wells are being done under a non-time critical removal action, the remainder as a remedial action.

Raymark

Hatboro, PA (Region 3)
CERCLIS ID 0300894

Contact Information

RPM	State Regulator	Contractor
Deanna Moultrie 1650 Arch Street Philadelphia, PA 19103 215-814-5125 (phone) 215-814-3002 (fax) moultrie.deanna@epa.gov	David Minsker PADEP Lee Park Suite 6010 555 North Lane Conshohocken, PA 19428 610-832-6193 (phone) 610-832-6143 (fax) Minsker.David@dep.state.pa.us	Andy Hopton CDM Federal Programs 993 Old Eagle School Road Wayne, PA 19083 610-293-0450 (phone) 610-293-1920 (fax) HoptonAP@cdm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	2
Date original ROD was signed:	9/28/90	Date of construction completion:	1/1994
Date of last modification to ROD:		Date of operational and functional:	6/1995
Type of ROD:	Final	Expected date of turnover to state:	1/2004
Status of P&T system:	Operational	Expected date of completion:	1/2014
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	0
Approximate annual O&M costs:	$155,711	Frequency of sampling:	0 times per year
Costs related to monitoring:	$140,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	62 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Carbozol
Trichlorobenzene

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

Originally, the time frame for aquifer restoration was 20 years from system startup but we are currently re-evaluating the effectiveness of the remedy and that time frame may change.

Saunders Supply Company

Chuckatuck, VA (Region 3)
CERCLIS ID VAD003117389

Contact Information

RPM	State Regulator	Contractor
Andrew Palestini 1650 Arch Street Philadelphia, PA 19103 215-814-3233 (phone) 215-814-3002 (fax) palestini.andy@epa.gov	Thomas Modena Virginia Department of Env.Quality 629 East Main Street Richmond, VA 23219 804-698-4183 (phone) 804-698-4500 (fax) tdmodena@deq.state.va.us	Marc Gutterman U.S. Army Corps of Engineers 803 Front Street Norfolk, VA 23510 757-441-7669 (phone) 757-441-7478 (fax) Marc.D.Gutterman@nao02.usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	4
Date original ROD was signed:	9/27/96	Date of construction completion:	4/1998
Date of last modification to ROD:		Date of operational and functional:	5/1999
Type of ROD:	Final	Expected date of turnover to state:	5/2009
Status of P&T system:	Operational	Expected date of completion:	4/2008
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	10
Approximate annual O&M costs:	$80,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	Yes
Approximate pumping rate:	2 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Arsenic
Pentachlorophenol (PCP)

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

To clarify #19 above: The system was constructed by Removal because the plume was getting close to a drinking reservoir.

To clarify #30: The treatment plant is located on the PRP's property but the recovery wells and monitorong wells are located on the adjoining property. We placed piping and power in the utilities conduit trench for another recovery well. We have access to these wells and the conduit trench through an access agreement between the PRP and the owner of the adjoining property. However, any work outside of this area could be very difficult to implement because it would probably require another access agreement.

REGION 4 INFORMATION SHEETS

ABC Cleaners

Jacksonville, NC (Region 4)
CERCLIS ID NCD024644494

Contact Information

RPM	State Regulator	Contractor
Luis Flores 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8807 (phone) flores.luis@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 (phone) 919-733-4811 (fax) nile.testerman@ncmail.net	

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:
Date original ROD was signed:	1/26/93		Date of construction completion:
Date of last modification to ROD:			Date of operational and functional:
Type of ROD:	Final		Expected date of turnover to state:
Status of P&T system:	Operational		Expected date of completion:
Primary goal of system:	Restoration		Approximate downtime per year:
Presence of NAPLs	Not present		Number of monitoring wells used:
Approximate annual O&M costs:			Frequency of sampling:
Costs related to monitoring:			Is plume migration controlled?
Approximate pumping rate:			Progress of aquifer restoration:
Result of previous evaluation of peformance/effectiveness:			Difficulty (due to social/political factors) of implementing minor/major changes:

Contaminants of Concern:

1,1-Dichloroethylene (DCE)
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
vinyl chloride

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Douglas Sutton completed this form based on a phone interview with Luis Flores.

The site has been shut down for approximately 1 year.

The EPA and the previous site contractor are currently in litigation and additional site details could not be discussed.

American Creosote Works (DNAPL)

Pensacola, FL (Region 4)
CERCLIS ID

Contact Information

RPM	State Regulator	Contractor
Mark Fite 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8927 (phone) fite.mark@epa.gov	John Sykes FDEP 850-488-019 (phone) 850-488-0190 (fax)	Joe Findley USACE, Mobile District Mobile, AL 334-694-4012 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	8
Date original ROD was signed:	2/3/94	Date of construction completion:	9/1998
Date of last modification to ROD:		Date of operational and functional:	9/1998
Type of ROD:	Final	Expected date of turnover to state:	5/2003
Status of P&T system:	Operational	Expected date of completion:	5/2003
Primary goal of system:	Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	4
Approximate annual O&M costs:	$300,000	Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	No
Approximate pumping rate:	0.1 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Acenaphthene
Benzene
Dibenzofuran
Fluoranthene
Naphthalene
Pentachlorophenol (PCP)
carcinogenic PAHs

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

Doug Sutton completed this form based on an interview with Mark Fite.

This system is a DNAPL recovery system that will be decommissioned in 2003. Therefore, the site will not be transferred to the state. A Fund-lead P&T solute recovery system will be installed in 2004.

Optimization is currently underway with USACE.

American Creosote Works (solute)

Pensacola, FL (Region 4)
CERCLIS ID

Contact Information

RPM	State Regulator	Contractor
Mark Fite 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8927 (phone) fite.mark@epa.gov	John Sykes FDEP 850-488-0190 (phone)	Joe Findley USACE, Mobile District Mobile, AL 334-694-4012 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	2/3/94	Date of construction completion:	9/2004
Date of last modification to ROD:		Date of operational and functional:	9/2004
Type of ROD:	Final	Expected date of turnover to state:	9/2014
Status of P&T system:	Predesign	Expected date of completion:	9/2009
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	10
Approximate annual O&M costs:	$452,000	Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:	105 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Acenaphthene
Benzene
Dibenzofuran
Fluoranthene
Naphthalene
Pentachlorophenol (PCP)
carcinogenic PAHs

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Douglas Sutton completed this form based on a phone interview with Mark Fite.

This system is planned to address dissolved groundwater contamination in 2004 after the associated DNAPL recovery system is decommissioned.

Data provided here are estimates taken from the ROD.

Benfield Industries

Hazelwood, NC (Region 4)
CERCLIS ID NCD981026479

Contact Information

RPM	State Regulator	Contractor
Jon Bornholm 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8820 (phone) bornholm.jon@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 (phone) 919-733-4811 (fax) nile.testerman@ncmail.net	Chris Leggett CMC Newport, TN 423-625-0557 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	2
Date original ROD was signed:	7/31/92	Date of construction completion:	4/2001
Date of last modification to ROD:		Date of operational and functional:	5/2001
Type of ROD:	Final	Expected date of turnover to state:	5/2011
Status of P&T system:	Operational	Expected date of completion:	5/2021
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	8
Approximate annual O&M costs:	$30,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$10,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	16 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Creosote and petroleum hydrocarbons

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

This form was completed by Douglas Sutton based on a phone interview with Jon Bornholm.

Monitoring frequency is expected to drop from quarterly to annually.

Cape Fear Wood Preserving

Fayetteville, NC (Region 4)
CERCLIS ID NCD003188828

Contact Information

RPM	State Regulator	Contractor
Jon Bornholm 61 Forsyth Street, SW Atlanta, GA 30303-3104 404-562-8820 (phone) 404-562-8788 (fax) bornholm.jon@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2901 (phone) 919-733-4811 (fax) nile.testerman@ncmail.net	Ed Hicks Black & Veatch 1145 Sanctuary Parkway, Suite 475 Alpharetta, GA 30004 770-521-8141 (phone) 770-751-8322 (fax) hicksec@bc.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	7
Date original ROD was signed:	6/30/89	Date of construction completion:	9/2001
Date of last modification to ROD:	3/23/01	Date of operational and functional:	9/2002
Type of ROD:	Final	Expected date of turnover to state:	10/2011
Status of P&T system:	Design/Not Installed	Expected date of completion:	12/2009
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Observed	Number of monitoring wells used:	25
Approximate annual O&M costs:	$40,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$30,000	Is plume migration controlled?	
Approximate pumping rate:	43 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Benzene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Coleman Evans Wood Preserving

Whitehouse, FL (Region 4)
CERCLIS ID FLD991279894

Contact Information

RPM	State Regulator	Contractor
Randall Chaffins 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8929 (phone) chaffins.randall@epa.gov	John Sykes FDEP 850-413-0066 (phone)	Todd Trulock USACE, Jacksonville District Jacksonville, FL 904-232-1110 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:
Date original ROD was signed:	9/25/86		Date of construction completion:
Date of last modification to ROD:	9/25/97		Date of operational and functional:
Type of ROD:	Interim		Expected date of turnover to state:
Status of P&T system:	Predesign		Expected date of completion:
Primary goal of system:	Restoration		Approximate downtime per year:
Presence of NAPLs	Observed		Number of monitoring wells used:
Approximate annual O&M costs:			Frequency of sampling:
Costs related to monitoring:			Is plume migration controlled?
Approximate pumping rate:			Progress of aquifer restoration:
Result of previous evaluation of peformance/effectiveness:	Not evaluated		Difficulty (due to social/political factors) of implementing minor/major changes:

Contaminants of Concern:

Dioxin
Pentachlorophenol (PCP)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure

Comments:

This form was completed by Douglas Sutton based on a phone interview with Randall Chaffins.

There are three RODs for this OU. The first is dated 1986 and the last is dated 1997.

As the system is in the pre-design stage, no information is availabe about system operations.

Elmore Waste Disposal

Greer, SC (Region 4)
CERCLIS ID SCD980839542

Contact Information

RPM	State Regulator	Contractor
Ralph Howard 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8829 (phone) howard.ralph@epa.gov	Lucas Berresford SCDHEC 21 Bull Street Columbia, SC 29201	Ed Hicks Black and Veatch Atlanta, GA 770-751-7517 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	9
Date original ROD was signed:	4/26/93	Date of construction completion:	9/1998
Date of last modification to ROD:		Date of operational and functional:	9/1998
Type of ROD:	Final	Expected date of turnover to state:	9/2008
Status of P&T system:	Operational	Expected date of completion:	9/2018
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Don't know	Number of monitoring wells used:	17
Approximate annual O&M costs:	$180,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$18,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
Volatile organic compounds (VOCs)

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

This form was completed by Douglas Sutton based on information gathered during the demonstration project and the RSE visit in 2000.

Treatment processes include GAC and discharge to the POTW.

FCX Statesville

Statesville, NC (Region 4)
CERCLIS ID NCD095458527

Contact Information

RPM	State Regulator	Contractor
Ken Mallory 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8802 (phone) mallory.ken@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 (phone) 919-733-4811 (fax) nile.testerman@ncmail.net	Ralph McKeen Roy F. Weston Atlanta, GA 770-263-5438 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	10
Date original ROD was signed:	9/27/93	Date of construction completion:	
Date of last modification to ROD:	9/30/96	Date of operational and functional:	5/1998
Type of ROD:	Final	Expected date of turnover to state:	5/2008
Status of P&T system:	Operational	Expected date of completion:	5/2008
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	18
Approximate annual O&M costs:	$150,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$40,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	20 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Pesticides
Volatile organic compounds (VOCs)
PCE

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project. Data on the extraction, treatment, and monitoring systems were obtained from the report resultingn from the RSE conducted in 2000.

Miami Drum

Hialeah, FL (Region 4)
CERCLIS ID FLD076027820

Contact Information

RPM	State Regulator	Contractor
Jim McGuire 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8911 (phone) mcguire.jim@epa.gov		

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $		Number of extraction wells:	40
Date original ROD was signed:	1/0/00		Date of construction completion:	9/1992
Date of last modification to ROD:			Date of operational and functional:	9/1992
Type of ROD:	Final		Expected date of turnover to state:	9/2002
Status of P&T system:	Operational		Expected date of completion:	
Primary goal of system:	Water supply		Approximate downtime per year:	
Presence of NAPLs	Not present		Number of monitoring wells used:	
Approximate annual O&M costs:	$1,000,000		Frequency of sampling:	
Costs related to monitoring:			Is plume migration controlled?	
Approximate pumping rate:	104000 gpm		Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:			Difficulty (due to social/political factors) of implementing minor/major changes:	

Contaminants of Concern:

Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Douglas Sutton completed this form based on a phone interview with Jim McGuire.

No current RPM is appointed to this site. Jim McGuire is the point of contact.

EPA Region 4 provides $1,000,000 per year to Dade County to operate 40 air strippers that have been installed to remediate aquifer and to treat water extracted from public well fields and used for water supply.

The total number of wells is not known but this number is likely similar to number of airstrippers (40).

Palmetto Wood

Lexington, SC (Region 4)
CERCLIS ID SCD003362217

Contact Information

RPM	State Regulator	Contractor
Al Cherry 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8807 (phone) cherry.al@epa.gov	Keisha Long SCDH 21 Bull Street Columbia, SC 29201 803-896-4073 (phone)	Tim Eggert CDM 2030 Powers Ferry Road, Suite 325 Atlanta, GA 30339 678-202-8912 (phone) 770-951-8910 (fax) eggerttj@cdm.com

System Information and Data

Type of Fund-lead Site:	EPA-lead		Number of extraction wells:	10
Date original ROD was signed:	9/30/87		Date of construction completion:	5/1997
Date of last modification to ROD:	8/4/93		Date of operational and functional:	1/1998
Type of ROD:	Final		Expected date of turnover to state:	5/2008
Status of P&T system:	Operational		Expected date of completion:	5/2008
Primary goal of system:	Containment & Restoration		Approximate downtime per year:	4 weeks
Presence of NAPLs	Not present		Number of monitoring wells used:	8
Approximate annual O&M costs:	$300,000		Frequency of sampling:	2 times per year
Costs related to monitoring:	$25,000		Is plume migration controlled?	Yes
Approximate pumping rate:	130 gpm		Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

This form was completed by Doug Sutton based on a phone interview with Al Cherry and Tim Eggert.

11 of 17 original wells have met clean-up standards

expected time to remediation completion is an estimate

treatment processes include pH adjustment and discharge to the POTW

REGION 5 INFORMATION SHEETS

Arrowhead Refinery

Hermantown, MN (Region 5)
CERCLIS ID MND980823975

Contact Information

RPM	State Regulator	Contractor
Darryl Owens 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-7089 (phone) owens.darryl@epa.gov	Maureen Johnson MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-7353 (phone) maureen.johnson@pca.state.mn.us	Gary Schroeher Delta Environmental 2770 Cleveland Ave Roseville, MN 55113-1127 651-639-9449 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	0
Date original ROD was signed:	9/30/86	Date of construction completion:	6/1993
Date of last modification to ROD:	2/9/94	Date of operational and functional:	7/1993
Type of ROD:	Final	Expected date of turnover to state:	7/2003
Status of P&T system:	Operational	Expected date of completion:	4/2004
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	18
Approximate annual O&M costs:	$70,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$10,000	Is plume migration controlled?	Yes
Approximate pumping rate:	25 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

VOCs, PNAs, VC
Pentachlorophenol (PCP)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on phone interviews with Darryl Owens and Maureen Johnson in 5/2001.

There are no extraction wells, but there is over 700 feet of trenches at a depth of 25 feet.

Better Brite Plating Co. Chrome and Zinc Shops

Depere, WI (Region 5)
CERCLIS ID WIT560010118

Contact Information

RPM	State Regulator	Contractor
John Peterson 77 West Jackson Boulevard Chicago, IL 60604-3507 312-353-1264 (phone) peterson.john@epa.gov	Keld Lauredsen WDNR 1125 Military Ave. Box 10448 Green Bay, WI 54307 920-492-5921 (phone) 920-492-5913 (fax) lauredsenk@dnr.state.wi.us	

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	0
Date original ROD was signed:	9/24/96	Date of construction completion:	8/2000
Date of last modification to ROD:		Date of operational and functional:	4/1993
Type of ROD:		Expected date of turnover to state:	6/2006
Status of P&T system:	Operational	Expected date of completion:	4/2030
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	14
Approximate annual O&M costs:	$36,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$10,000	Is plume migration controlled?	Yes
Approximate pumping rate:	0 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation	yes
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on phone interviews with John Peterson and Keld Lauredsen.

This site consists of two different contaminant areas. The P&T system operated in the chrome shop from 1993 to 1999 and was moved to the zinc shop in 2000.

DNR provides the oversight; therefore, a contractor contact was not given.

The site has no extraction wells but has two trenches.

Douglass Road

Mishawaka, IN (Region 5)
CERCLIS ID IND980607881

Contact Information

RPM	State Regulator	Contractor
Dion Novak 77 West Jackson Blvd. Chicago, IL 60604-3507 312-886-4737 (phone) Novak.Dion@epa.gov	Kevin Herron 317-234-0354 (phone)	Dan Plomb CH2MHILL 135 S. 84th Street Suite 325 Milwaukee, WI 53214 414-272-2426 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	5/3/96	Date of construction completion:	9/2000
Date of last modification to ROD:		Date of operational and functional:	7/2001
Type of ROD:	Final	Expected date of turnover to state:	9/2010
Status of P&T system:	Installed	Expected date of completion:	10/2030
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	36
Approximate annual O&M costs:	$120,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$60,000	Is plume migration controlled?	
Approximate pumping rate:	1000 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Arsenic
TCE and Vinyl chloride
Tetrahydrofuran
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

Site is currently operating at approximately 60%.

Duell and Gardner

Dalton Township, MI (Region 5)
CERCLIS ID MID980504716

Contact Information

RPM	State Regulator	Contractor
Kyle Rogers 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-1995 (phone) rogers.kyle@epa.gov	Walelign Wagaw MDEQ P.O. Box 30426 Lansing, MI 48909 517-373-9896 (phone)	Tim Gouger USACE, Rapid Response 12565 West Center Road Omaha, NE 68144-3869 402-293-2514 (phone) 402-291-8177 (fax) Timothy.P.Gouger@nwo02.usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	2
Date original ROD was signed:	9/30/93	Date of construction completion:	7/2001
Date of last modification to ROD:	5/31/01	Date of operational and functional:	7/2001
Type of ROD:	Interim	Expected date of turnover to state:	7/2011
Status of P&T system:	Installed	Expected date of completion:	7/2007
Primary goal of system:	Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	25
Approximate annual O&M costs:		Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:	80 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Anthracene
Carbozol
Chloromethane
N-N dimethylanaline, Gentin Violet

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on a phone interview with Kyle Rogers in 5/2001.

One well is currently installed and pumping. Another well will be installed in July 2001 marking the beginning of O&F.

Eau Claire Municipal Wel Field

Eau Claire, WI (Region 5)
CERCLIS ID WID980820054

Contact Information

RPM	State Regulator	Contractor
Sheri Bianchin 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4745 (phone) bianchin.sheri@epa.gov		

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	14
Date original ROD was signed:	3/31/88	Date of construction completion:	6/1987
Date of last modification to ROD:	8/1/90	Date of operational and functional:	3/1991
Type of ROD:		Expected date of turnover to state:	
Status of P&T system:	Operational	Expected date of completion:	
Primary goal of system:		Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	
Approximate annual O&M costs:	$175,000	Frequency of sampling:	
Costs related to monitoring:		Is plume migration controlled?	Don't know
Approximate pumping rate:	4500 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	severe/severe

Contaminants of Concern:

Trans 1,2-Dichloroethylene
Vernolate

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information obtained from

1) www.epa.gov/R5Super/npl/wisconsin/WID980820054.htm

and

2) Information Paper #61: Contaminated Land and Brownfields Cleanup Programs
State of Wisconsin Legislative Bureau, 1/2001

The EPA RPM was not available for comment.

Reference on stated that as of 6/30/00 the EPA had spent
$5.9M dollars on the site and Wisconsin had spent $175K on the site. If the state assumes approximately 10% of the O&M costs and the site ran for approximately 9 years (up to 6/30/00) then this translates to an approximate O&M cost of $175K. This approximation is entered as the approximate O&M cost for item 15.

System goals appear to be both restoration and water supply.

La Salle Electrical Utilities

La Salle, IL (Region 5)
CERCLIS ID ILD980794333

Contact Information

RPM	State Regulator	Contractor
Steve Padovani 77 West Jackson Boulevard Chicago, IL 60604-3507 312-353-6755 (phone) padovani.steven@epa.gov	Rich Lang IEPA P.O. Box 1515 La Salle, IL 61301 815-223-6836 (phone) epa4137@epa.state.il.us	Neil Brown Ecology and Environment 33 N. Deerborne St. Chicago, IL 60602 312-578-9243 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	0
Date original ROD was signed:	8/29/86	Date of construction completion:	2/1998
Date of last modification to ROD:	3/30/88	Date of operational and functional:	3/1994
Type of ROD:	Final	Expected date of turnover to state:	3/2004
Status of P&T system:	Operational	Expected date of completion:	3/2005
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	25
Approximate annual O&M costs:	$230,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$50,000	Is plume migration controlled?	Yes
Approximate pumping rate:	20 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Transuranic wastes
PCB, TCA

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

This form was completed by Douglas Sutton based information collected during the demonstration project in 4/2000 and on a phone interview with Steve Padovani in 4/2001.

There are no extraction wells, but there are 4 trenches.

Treatment processes include treatment with liquid and vapor phase carbon and discharge to the POTW.

Long Prairie Groundwater Contamination

Long Prairie, MN (Region 5)
CERCLIS ID MND980904072

Contact Information

RPM	State Regulator	Contractor
Sheila Sullivan 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-5251 (phone) sullivan.sheila@epa.gov	Mariam Horneff MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-7228 (phone)	Bill Bangsund Barr Engineering 612-832-2738 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	9
Date original ROD was signed:	6/14/88	Date of construction completion:	11/1996
Date of last modification to ROD:		Date of operational and functional:	8/1996
Type of ROD:	Final	Expected date of turnover to state:	10/2007
Status of P&T system:	Operational	Expected date of completion:	10/2015
Primary goal of system:	Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	22
Approximate annual O&M costs:	$300,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$56,000	Is plume migration controlled?	Yes
Approximate pumping rate:	227 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Dichloroethylene
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
VC

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption yes
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on phone interviews with Sheila Sullivan and Mariam Horneff in 5/2001.

MacGillis and Gibbs/Bell Lumber & Pole

New Brighton, MN (Region 5)
CERCLIS ID MND006192694

Contact Information

RPM	State Regulator	Contractor
Darryl Owens 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-7089 (phone) owens.darryl@epa.gov	Nile Fellows MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-6300 (phone)	Larry Campbell Black and Veatch Chicago, IL

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	14
Date original ROD was signed:	9/30/91	Date of construction completion:	10/1999
Date of last modification to ROD:	9/22/94	Date of operational and functional:	10/1999
Type of ROD:	Final	Expected date of turnover to state:	10/2009
Status of P&T system:	Operational	Expected date of completion:	10/2029
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Observed	Number of monitoring wells used:	30
Approximate annual O&M costs:	$300,000	Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	Don't know
Approximate pumping rate:	60 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Chromium
Pentachlorophenol (PCP)
carcinogenic PAHs

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2001.

Data regarding the extraction, treatment, and monitoring systems was updated using information from the report generated from the RSE conducted in 2000.

Oconomowoc Electroplating

Ashippun, WI (Region 5)
CERCLIS ID WID006100275

Contact Information

RPM	State Regulator	Contractor
Steve Padovani	Paul Kozol	Craig Evans
77 West Jackson Boulevard	WDNR	USACE, St. Paul District
Chicago, IL 60604-3507	3911 Fish Hatchery Road	190 Fifth Street East
312-353-6755 (phone)	Fitchburg, WI 53711	St. Paul, MN 55101-1638
	608-275-3301 (phone)	651-290-5594 (phone)
padovani.steven@epa.gov	608-275-3338 (fax)	651-290-5800 (fax)
	kozolp@dnr.state.wi.us	Craig.O.Evans@mvp02.usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	9/20/90	Date of construction completion:	9/1996
Date of last modification to ROD:		Date of operational and functional:	9/1996
Type of ROD:	Final	Expected date of turnover to state:	9/2006
Status of P&T system:	Operational	Expected date of completion:	9/2026
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	20
Approximate annual O&M costs:	$471,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$70,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	30 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Cadmium
Cyanide
Volatile organic compounds (VOCs)

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project inn 4/2000.

Data regarding the extraction, treatment, and monitoring systems were updated based on the report generated from the RSE conducted in 2000.

Onalaska Municipal Landfill

Onalaska, WI (Region 5)
CERCLIS ID WID980821656

Contact Information

RPM	State Regulator	Contractor
Timothy Prendiville 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-5122 (phone) prendiville.timothy@epa.gov	Dave Carper WDNR 3550 Mormon Coulee Road La Crosse, WI 54601 608-785-9973 (phone) 608-785-9990 (fax) carped@dnr.state.wi.us	Jim Fisher CH2MHill Milwaukee, WI 414-272-1052 (phone) jfisher1@ch2m.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	8/14/90	Date of construction completion:	7/1994
Date of last modification to ROD:		Date of operational and functional:	8/1995
Type of ROD:	Final	Expected date of turnover to state:	6/2004
Status of P&T system:	Operational	Expected date of completion:	7/2002
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	10
Approximate annual O&M costs:	$200,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$80,000	Is plume migration controlled?	Yes
Approximate pumping rate:	560 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Benzo(a)pyrene
Trans 1,2-Dichloroethylene
Volatile chlorinated organics

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and a phone interview with Timothy Prendiville in 5/2001.

Ott/Story/Cordova Chem Co.

Dalton Township, MI (Region 5)
CERCLIS ID MID060174240

Contact Information

RPM	State Regulator	Contractor
John Fagiolo 77 West Jackson Blvd. Chicago, IL 60604-3507 312-886-0800 (phone) fagiolo.john@epa.gov	Lisa Summerfield Michigan Dept. of Env.Quality P.O. Box 30426 Lansing, MI 48909 517-335-3388 (phone) summerfl@state.mi.us	Brain Bouwhuis USACE-Detroit District PO Box 629 Grand Haven, MI 49417 231-766-2007 (phone) 231-766-3287 (fax) Brian.j.Bouwhuis@usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	10
Date original ROD was signed:	9/29/89	Date of construction completion:	2/1996
Date of last modification to ROD:	9/29/90	Date of operational and functional:	2/1996
Type of ROD:	Final	Expected date of turnover to state:	8/2010
Status of P&T system:	Operational	Expected date of completion:	8/2030
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	30
Approximate annual O&M costs:	$2,400,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$250,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	700 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,2-Dichloroethane
1,2-Dichloroethylene (DCE)
Organophosphorus pesticides (4,4'-DDT, lindane)
Vapona
vinyl chloride

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

This form was completed by Douglas Sutton based on a phone interview with John Fagiolo.

The subcontractor for this site is Carl Jager at Fishbeck Topmpson (231-766-9227).

With regard to the gpm, the actual gpm is 700, while the peak is 1200.

Another extraction well will be installed shortly.

Peerless Plating

Muskegon Township, MI (Region 5)
CERCLIS ID MID006031348

Contact Information

RPM	State Regulator	Contractor
Mike Ribordy 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4592 (phone) ribordy.mike@epa.gov		Mike Johnson Tetra Tech 312-856-8796 (phone)

System Information and Data

Type of Fund-lead Site:		Number of extraction wells:	6
Date original ROD was signed:	9/21/92	Date of construction completion:	11/2000
Date of last modification to ROD:		Date of operational and functional:	
Type of ROD:	Final	Expected date of turnover to state:	
Status of P&T system:	Installed	Expected date of completion:	
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	6
Approximate annual O&M costs:	$400,000	Frequency of sampling:	4 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:	165 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Cadmium
Trichloroethylene (TCE)

Treatment Processes:

Metals precipitation	yes
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and

www.epa.gov/R5Super/npl/michigan/MID006031348.htm

The RPM was not successfully contacted.

U.S. Aviex

Howard Township, MI (Region 5)
CERCLIS ID MID980794556

Contact Information

RPM	State Regulator	Contractor
Ken Glatz 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-1434 (phone) glatz.ken@epa.gov	Judy Gapp MDEQ P.O. Box 30426 Lansing, MI 48909 517-335-3391 (phone) 517-335-4887 (fax) gappj@state.mi.us	Jack Brunner Tetra Tech 312-856-8788 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	6
Date original ROD was signed:	9/7/88	Date of construction completion:	9/1993
Date of last modification to ROD:		Date of operational and functional:	9/1993
Type of ROD:	Final	Expected date of turnover to state:	9/2003
Status of P&T system:	Operational	Expected date of completion:	9/2003
Primary goal of system:	Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Not present	Number of monitoring wells used:	30
Approximate annual O&M costs:	$300,000	Frequency of sampling:	4 times per year
Costs related to monitoring:		Is plume migration controlled?	No
Approximate pumping rate:	170 gpm	Progress of aquifer restoration:	20% to 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloroethane
diethylether

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on phone interviews with Ken Glatz and Judy Gapp.

Verona Well Field

Battle Creek, MI (Region 5)
CERCLIS ID MID980793806

Contact Information

RPM	State Regulator	Contractor
Richard Boice 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4740 (phone) boice.richard@epa.gov	Beth O'Brien MDEQ P.O. Box 30426 Lansing, MI 48909 517-335-3908 (phone) obrienea@state.mi.us	

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	6
Date original ROD was signed:	8/12/85	Date of construction completion:	6/1996
Date of last modification to ROD:		Date of operational and functional:	6/1996
Type of ROD:	Final	Expected date of turnover to state:	6/2006
Status of P&T system:	Operational	Expected date of completion:	Indefinite
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	2 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	10
Approximate annual O&M costs:	$225,000	Frequency of sampling:	1 times per year
Costs related to monitoring:		Is plume migration controlled?	Yes
Approximate pumping rate:	250 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,2-Dichloropropane
Tin
Trans 1,2-Dichloroethylene
Volatile chlorinated organics

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project in 4/2000 and on phone interviews with Richard Boice and Beth O'Brien.

At times, NAPL is pulled in from offsite.

Wash King Laundry

Pleasant Plains Township, MI (Region 5)
CERCLIS ID MID980701247

Contact Information

RPM	State Regulator	Contractor
Russell Hart 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4844 (phone) hart.russell@epa.gov	Sally Beebe MDEQ-ERD P.O. Box 30426 Lansing, MI 48909 517-373-4110 (phone) 517-335-4887 (fax) beebes@state.mi.us	Malcolm Pirnie 517-337-0111 (phone)

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	5
Date original ROD was signed:	3/31/93	Date of construction completion:	4/2001
Date of last modification to ROD:	7/31/96	Date of operational and functional:	4/2001
Type of ROD:	Final	Expected date of turnover to state:	4/2011
Status of P&T system:	Operational	Expected date of completion:	4/2021
Primary goal of system:	Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Don't know	Number of monitoring wells used:	23
Approximate annual O&M costs:	$75,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$15,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	250 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	yes
other/not sure	

Comments:

This form was completed by Douglas Sutton based on information collected during the demonstration project and a phone interview with Russell Hart.

There are 8 monitoring wells sampled quarterly and
14 monitoring wells sampled annually for a total of 46 samples per year. The 23 wells and semi-annual sampling were input to suggest 46 samples per year.

REGION 6 INFORMATION SHEETS

American Creosote Works

Winnfield, LA (Region 6)
CERCLIS ID LAD000239814

Contact Information

RPM	State Regulator	Contractor
Stacey Bennett 1445 Ross Avenue Dallas, TX 75202-2733 214-665-6729 (phone) 214-665-6660 (fax) bennett.stacey@epa.gov	Janaye Danage Louisiana Dept.of Env.Quality P.O. Box 82178 Baton Rouge, LA 70884-2178 225-765-0475 (phone) 225-765-0484 (fax) janaye_d@deq.state.la.us	Bill Faught CH2MHill 7600 W. Tidwell, Suite 400 Houston, TX 77040-5719 713-462-0161 (phone) 713-462-0165 (fax) bfaught@ch2m.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	18
Date original ROD was signed:	4/28/93	Date of construction completion:	2/1997
Date of last modification to ROD:		Date of operational and functional:	2/1997
Type of ROD:	Final	Expected date of turnover to state:	2/2027
Status of P&T system:	Operational	Expected date of completion:	2/2027
Primary goal of system:	Containment	Approximate downtime per year:	1 week
Presence of NAPLs	Observed	Number of monitoring wells used:	18
Approximate annual O&M costs:	$360,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$360,000	Is plume migration controlled?	Yes
Approximate pumping rate:	5 gpm	Progress of aquifer restoration:	Not a goal
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Chlorinated polyaromatic hydrocarbons (CPAHs)
Creosote and petroleum hydrocarbons

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The ROD states that the in-situ bioremediation and groundwater p&T as a long-term remedial action for this site. According to the ROD and the State Superfund Contract(SSC), the EPA will finance 90% of the in-situ bioremediation system and the GW pump and treat system until the ROD performance criteria are met. The SSC states that, "there are no technically-separable construction/operational functions associated specifically with groundwater pump and treat since this will occur incidentally with in-situ soil treatment. Therefore, the time limitation (10 years) stated in 40 CFR Section 300.435(f)(3) concerning the treatment of groundwater is not applicable." This is the reason why I did not put a date in which the pump and treatment system was deemed functional and operational, because this is not applicable for this site. What the ROD is saying in plain English is that the in-situ bioremediation treatment is the primary treatment. Until we reach the goals of the in-situ bioremediation, it will be impossible to determine whether groundwater goals are being met. The success of the groundwater P& T is actually predicated on the successful completion of the in-situ bioremediation treatment.

Also, note that the State (LDEQ) does not assume O& M, according to the ROD, until in-situ bioremediation is completed, which is 20 years from constructic

A five-year review was completed in August 2000. We are currently in the process of taking additional sampling parameters and making adjustments to the

If you need more information, call me at (214)665-6729. Stacey Bennett, RPM Region 6

Bayou Bonfouca

Slidell, LA (Region 6)
CERCLIS ID LAD980745632

Contact Information

RPM	State Regulator	Contractor
Katrina Coltrain	Rich Johnson	Lee Guillory
1445 Ross Avenue	Louisiana Dept.of Env.Quality	USACE-New Orleans District
Dallas, TX 75202	P.O. Box 82282	P.O. Box 60267
214-665-8143 (phone)	Baton Rouge, LA 70884-2282	New Orleans, LA 70160-0267
214-665-6660 (fax)	225-765-0487 (phone)	504-862-2934 (phone)
coltrain.katrina@epa.gov	225-765-0435 (fax)	504-862-2896 (fax)
	rich_j@deq.state.la.us	lee.a.guillory@mvn02.usace.army.mil

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	44
Date original ROD was signed:	3/31/87	Date of construction completion:	7/2000
Date of last modification to ROD:	7/20/95	Date of operational and functional:	3/2001
Type of ROD:	Final	Expected date of turnover to state:	7/2003
Status of P&T system:	Operational	Expected date of completion:	7/2021
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	11
Approximate annual O&M costs:	$402,000	Frequency of sampling:	12 times per year
Costs related to monitoring:		Is plume migration controlled?	Don't know
Approximate pumping rate:	22.5 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Indeno(1,2,3-cd)pyrene
Chrysene

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments to Bayou Bonfouca:

Note to questions:

#9--An ESD was signed on February 5, 1990 which made adjustments to the ROD. The ROD amendment only stated that the incinerator at Bonfouca would be used to treat soils from Southern Ship Superfund site.

#13 and 14-- The cost is estimated between 360K to 444K per year and is all attributable to LTRA.

#15--There are three arrays on site with 44 individual wells. Individually the wells pump at 1/4gpm. Each array is estimated at 5-10gpm. The pumping rate is dependent on the drawdown and is adjusted to maintain a -4fmsl.

#17--Array 2 was completed in 1991 and brought on line that same year. Based on the ESD and subsequent reports, new wells were constructed and completed in 2000.

#18--The EPA, along with LDEQ, will meet to determine O&F March 2001.

#20--The aquifer is not currently used and will unlikly be used in the future as a drinking water source due to insufficient yield. The ESD states that a risk based 10-4 to 10-6 level will be used or whatever is technologically feasible. The main objective of the system is to contain migration and prevent recontamination of the bayou.

#21--There is not planned down time for the system. The system is set up with bypass measures when maintenance is needed. The system is only shut do

#22--Treatment involves an oil/water separator, sand filter, oleophilic filter, granular activated carbon, and post aeration.

#24--The monitoring wells are monitored daily to ensure that the -4fmsl drawdown is maintained. These wells are surveyed once a month to monitor subsid

#27 and #28--reports on the effectiveness of the system was done and resulted in the upgrades to the system and the installation of additional wells which w

Cimarron Mining

Carizozo, NM (Region 6)
CERCLIS ID NMD980749378

Contact Information

RPM	State Regulator	Contractor
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System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	9/21/90	Date of construction completion:	4/1991
Date of last modification to ROD:		Date of operational and functional:	12/1991
Type of ROD:	Final	Expected date of turnover to state:	10/2004
Status of P&T system:	Operational	Expected date of completion:	Indefinite
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	4 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	3
Approximate annual O&M costs:	$1,000,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$60,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	1 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/severe

Contaminants of Concern:

Nitrate

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

Geneva Industries

Houston, TX (Region 6)
CERCLIS ID TXD980748453

Contact Information

RPM	State Regulator	Contractor
Ruben Moya	James Sher	Sanjay Ramabhadran
1445 Ross Ave., Suite 1200	TNRCC	Lockwood, Andrews & Newman Inc.
Dallas, TX 75202	P.O.Box 13087	1500 Citywest
214-665-2755 (phone)	Austin, TX 78711-3087	Houston, TX 77042
214-665-6660 (fax)	512-239-2444 (phone)	713-266-6900 (phone)
moya.ruben@epa.gov	512-239-2450 (fax)	713-266-8971 (fax)
	JSher@tnrcc.state.tx.us	sanjay@lan-inc.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $		Number of extraction wells:	13
Date original ROD was signed:	9/18/86		Date of construction completion:	4/1993
Date of last modification to ROD:			Date of operational and functional:	7/1993
Type of ROD:	Final		Expected date of turnover to state:	1/2004
Status of P&T system:	Operational		Expected date of completion:	1/2004
Primary goal of system:	Containment & Restoration		Approximate downtime per year:	52 weeks
Presence of NAPLs	Not present		Number of monitoring wells used:	13
Approximate annual O&M costs:	$240,000		Frequency of sampling:	2 times per year
Costs related to monitoring:	$240,000		Is plume migration controlled?	Yes
Approximate pumping rate:	5 gpm		Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient		Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
PCB, Benzene, Toluene, Chlorobenzene

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

NOTE
The Geneva Superfund Site has remained "shutdown" due to contractual problems between contractor and sub-contractor. The amount of time site has been shutdown is now approximately 1 year.

City of Perryton Well #2

Perryton, TX (Region 6)
CERCLIS ID TX0001399435

Contact Information

RPM	State Regulator	Contractor
Vincent Malott 1445 Ross Avenue Dallas, TX 75202 214-665-8313 (phone) 214-665-6660 (fax) malott.vincent@epa.gov	Diane Poteet TNRCC P.O. Box 13087 Austin, TX 78711 512-239-2502 (phone) 512-239-2450 (fax) dpoteet@tnrcc.state.tx.us	Peter van Noort CH2M Hill 5339 Alpha Road, Suite 300 Dallas, TX 75240 972-980-2170 (phone) 972-385-0846 (fax) pvannoor@ch2m.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/29/99	Date of construction completion:	8/2001
Date of last modification to ROD:		Date of operational and functional:	8/2003
Type of ROD:	Interim	Expected date of turnover to state:	8/2013
Status of P&T system:	Design	Expected date of completion:	8/2023
Primary goal of system:	Containment	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	10
Approximate annual O&M costs:	$37,000	Frequency of sampling:	2 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:	150 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Carbon tetrachloride
Chloroform

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The interim remedy for this site consists of operating a municipal well (currently inactive) together with an air stripper to begin mass removal with limited hydraulic control of the contaminant plume. The treated water will be supplied to the city water supply system. The final remedy for this site has yet to be selected pending completion of the RI/FS reports and a final site-wide ROD scheduled for FY2001. A ground water monitoring schedule will also be selected pending the final site-wide remedy. There are no indications of a DNAPL based on the site data. The O&F date was set at 2 years past the construction date in case additional remedial measures are selected in the final ROD.

Midland Products

Ola, AR (Region 6)
CERCLIS ID ARD98074566

Contact Information

RPM	State Regulator	Contractor
Carlos Sanchez 1445 Ross Avenue Dallas, TX 75202 214-665-8507 (phone) 214-665-6660 (fax) sanchez.carlos@epa.gov	Clark McWilliams Arkansas Dept.of Env.Quality P.O. Box 8913 Little Rock, AR 72219 501-682-0850 (phone) 501-682-0565 (fax) clarkm@adeq.state.ar.us	Russell Perry IT Corp. 13111 NW Highway, Suite 310 Houston, TX 77040-6392 713-996-4400 (phone) 713-939-9546 (fax) rperry@theitgroup.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	8
Date original ROD was signed:	3/24/88	Date of construction completion:	11/1993
Date of last modification to ROD:		Date of operational and functional:	1/1994
Type of ROD:	Final	Expected date of turnover to state:	1/2004
Status of P&T system:	Operational	Expected date of completion:	1/2034
Primary goal of system:	Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Suspected	Number of monitoring wells used:	20
Approximate annual O&M costs:	$180,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$60,000	Is plume migration controlled?	Yes
Approximate pumping rate:	3 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Anthracene
Fluoranthene
Naphthalene
Pentachlorophenol (PCP)

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

North Cavalcade Superfund Site

Houston, TX (Region 6)
CERCLIS ID TXD980873343

Contact Information

RPM	State Regulator	Contractor
Camille Hueni U.S. EPA Region 6, 1445 Ross Ave., 12th Floor, Dallas, TX 75202-7233 214-665-2231 (phone) 214-665-6660 (fax) hueni.camille@epa.gov	Uche Ikemba TNRCC P.O. Box 13087; Mail Code 143 Austin, TX 78711-3087 512-239-2595 (phone) 512-239-2449 (fax) uikemba@tnrcc.state.tx.us	Frank Frey Foster Wheeler Env.Corporation 1001 S. Dairy Ashford Street, Ste. 210 Houston, TX 77077 281-597-4821 (phone) 281-596-0308 (fax) ffrey@fwenc.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	19
Date original ROD was signed:	6/28/88	Date of construction completion:	3/2001
Date of last modification to ROD:		Date of operational and functional:	12/2005
Type of ROD:	Final	Expected date of turnover to state:	12/2005
Status of P&T system:	Installed	Expected date of completion:	12/2010
Primary goal of system:	Restoration	Approximate downtime per year:	52 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	20
Approximate annual O&M costs:		Frequency of sampling:	0 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:	19 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Acenaphthene
Acenaphthylene
Anthracene
Arsenic
Benzene and Toluene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
BTEX
Chrysene
Creosote and petroleum hydrocarbons
Dibenzofuran
DNAPL

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

The ground water treatment system has been out of operation since 1995 due to difficulties with DNAPL recovery. Prior to the system shut-down, the system treated 11,500,000 gallons of contaminated groundwater, and recovered 7,000 gallons of DNAPL.

The treatment system is undergoing modification and is expected to be complete and operational by March, 2001, at which time ground water monitoring will begin again (for this reason, information may have been entered as $o.oo). Once the system goes on-line, the pump & treat system will be further evaluated for remedial objectives.

Answers to questions 20-23 are unknown at this point; information was entered to allow form submittal.

Odessa Chromium #1

Odessa, TX (Region 6)
CERCLIS ID TXD980867279

Contact Information

RPM	State Regulator	Contractor
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System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	6
Date original ROD was signed:	3/18/88	Date of construction completion:	11/1993
Date of last modification to ROD:	11/23/99	Date of operational and functional:	12/2001
Type of ROD:	Final	Expected date of turnover to state:	12/2001
Status of P&T system:	Operational	Expected date of completion:	12/2001
Primary goal of system:	Restoration	Approximate downtime per year:	15 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	7
Approximate annual O&M costs:	$500,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$8,000	Is plume migration controlled?	Yes
Approximate pumping rate:	60 gpm	Progress of aquifer restoration:	more than 80% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

In-Situ Ferrous Sulfate treatment added by an ESD to the ROD had enhanced remedial efforts

Sprague Road Ground Water Plume

Odessa, TX (Region 6)
CERCLIS ID TX0001407444

Contact Information

RPM	State Regulator	Contractor
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System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	22
Date original ROD was signed:	9/29/00	Date of construction completion:	9/2002
Date of last modification to ROD:		Date of operational and functional:	9/2003
Type of ROD:	Final	Expected date of turnover to state:	9/2013
Status of P&T system:	Design	Expected date of completion:	9/2028
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	50
Approximate annual O&M costs:	$1,200,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$80,000	Is plume migration controlled?	
Approximate pumping rate:	200 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This site consists of three separate chromium contaminant plumes originating from three different facilities. The plume size and chromium concentrations are different between all three plumes. Since the contaminant is a metal there is no DNAPL or LNAPL.

REGION 7 INFORMATION SHEETS

Ace Services

Colby, KS (Region 7)
CERCLIS ID KSD046746731

Contact Information

RPM	State Regulator	Contractor
Bob Stewart 901 N. 5th St Kansas City, KS 66101 913-551-7654 (phone) 913-551-9654 (fax) stewart.robert@epa.gov	Cynthia Randall Kansas Dept of Health and Environment Forbes Field, Bldg 20 Topeka, KS 66620 785-291-3245 (phone) 785-296-4823 (fax) CRandal@kdhe.state.ks.us	Gary Felkner Black & Veatch Special Projects Corp 8400 Ward Parkway Kansas City, MO 64114 913-458-6583 (phone) 913-458-9391 (fax) felknerg@bv.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	12
Date original ROD was signed:	5/5/99	Date of construction completion:	9/2002
Date of last modification to ROD:		Date of operational and functional:	9/2003
Type of ROD:	Final	Expected date of turnover to state:	9/2013
Status of P&T system:	Design	Expected date of completion:	9/2015
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	62
Approximate annual O&M costs:	$500,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$50,000	Is plume migration controlled?	
Approximate pumping rate:	800 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Cleburn Street Well Site/OU2

Grand Island, NE (Region 7)
CERCLIS ID NED981499312

Contact Information

RPM	State Regulator	Contractor
Mary Peterson	Ralph Martin	David Sanders
901 North 5th Street	Nebraska Dept.of Env.Quality	Black and Veatch Special Projects Corp.
Kansas City, KS 66101	1200 N Street, Suite 400 The Atrium	6601 College Boulevard
913-551-7882 (phone)	Lincoln, NE 68509-8922	Overland Park, KS 66211
913-551-7063 (fax)	402-471-3120 (phone)	913-458-6605 (phone)
peterson.mary@epa.gov	402-471-2909 (fax)	913-458-0000 (fax)
	ralph.martin@ndeq.state.ne.us	SandersHD@bv.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	3
Date original ROD was signed:	6/7/96	Date of construction completion:	9/1998
Date of last modification to ROD:		Date of operational and functional:	10/1999
Type of ROD:	Final	Expected date of turnover to state:	12/2009
Status of P&T system:	Operational	Expected date of completion:	12/2019
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	1 week
Presence of NAPLs	Suspected	Number of monitoring wells used:	8
Approximate annual O&M costs:	$100,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	Don't know
Approximate pumping rate:	90 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

In order to evaluate the effectiveness of containment, the contractor has been tasked to perform pumping tests. These tests are currently planned to take place during the next quarterly sampling event which is scheduled for April 2001.

It is pertinent to note that significant progress is being made toward aquifer restoration. However, that progress has not been quantified to date.

Valley Park TCE Site - OU2

Valley Park, MO (Region 7)
CERCLIS ID MOD98096834

Contact Information

RPM	State Regulator	Contractor
Steve Auchterlonie 901 N. 5th St. Kansas City, KS 66101 913-551-7778 (phone) 913-551-7437 (fax) auchterlonie.steve@epa.gov	Dave Mosby MDNR - Superfund Unit P.O. Box 176 Jefferson City, MO 65102-0176 573-751-1288 (phone) 573-751-7869 (fax) nrmosbd@mail.dnr.state.mo.us	

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	
Date original ROD was signed:	8/15/01	Date of construction completion:	1/2005
Date of last modification to ROD:		Date of operational and functional:	1/2006
Type of ROD:	Final	Expected date of turnover to state:	1/2006
Status of P&T system:	Predesign	Expected date of completion:	1/2016
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	
Presence of NAPLs	Suspected	Number of monitoring wells used:	
Approximate annual O&M costs:		Frequency of sampling:	
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:		Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

1,1,1-Trichloroethane
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

This project is only now completing the ROD in FY2001. Negotiations and consent decree lodging and entry will carry through 2002. Design is planned for 2003 and construction through mid 2005.

Part of the construction may be imlemented by the responsible parties, but we are planning for the main system to be fund-lead with MDNR using federal funds via a cooperative agreement.

REGION 9 INFORMATION SHEETS

Modesto Superfund Site

Modesto, CA (Region 9)
CERCLIS ID CAD981997752

Contact Information

RPM	State Regulator	Contractor
David Seter 75 Hawthorne Street San Francisco, CA 94105 415-744-2212 (phone) seter.david@epa.gov	Emanuel Mensah State of California, DTSC 916-255-3704 (phone)	Chris Lichens Ecology and Environment 415-981-2811 (phone)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	1
Date original ROD was signed:	9/26/97	Date of construction completion:	7/2000
Date of last modification to ROD:		Date of operational and functional:	5/2002
Type of ROD:	Interim	Expected date of turnover to state:	5/2012
Status of P&T system:	Installed	Expected date of completion:	5/2022
Primary goal of system:	Containment	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	10
Approximate annual O&M costs:	$300,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	#N/A
Approximate pumping rate:	50 gpm	Progress of aquifer restoration:	#N/A
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

perchloroethylene

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The answers to items 20-23 are estimates.

Muscoy

San Bernadino, CA (Region 9)
CERCLIS ID CA1234

Contact Information

RPM	State Regulator	Contractor
Kim Hoang 75 Hawthorne Street San Francisco, CA 94105 415-744-2370 (phone) (fax) hoang.kim@epa.gov	Yasser Aref CalEPA Dept.of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630 714-484-5349 (phone)	Dwayne Duetcher URS

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	3/24/95	Date of construction completion:	10/2003
Date of last modification to ROD:		Date of operational and functional:	10/2004
Type of ROD:	Interim	Expected date of turnover to state:	10/2014
Status of P&T system:	Installed	Expected date of completion:	10/2024
Primary goal of system:	Containment	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	15
Approximate annual O&M costs:	$1,100,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$100,000	Is plume migration controlled?	
Approximate pumping rate:	9000 gpm	Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Doug Sutton filled out this questionnaire based on notes he took during a conversation with Kim Hoang.

James Bye from the San Bernadino Water Department is familiar with the site and should be noted along with the state regulator and contractor

Newmark

San Bernadino, CA (Region 9)
CERCLIS ID CAD981434517

Contact Information

RPM	State Regulator	Contractor
Kim Hoang 75 Hawthorne Street San Francisco, CA 94105 415-744-2370 (phone) (fax) hoang.kim@epa.gov	Yasser Aref CalEPA Dept Toxic Substances Control 5796 Corporate Ave. Cypress, CA 90630 714-484-5349 (phone)	Dwayne Duetcher URS

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	8
Date original ROD was signed:	8/4/93	Date of construction completion:	10/1998
Date of last modification to ROD:		Date of operational and functional:	10/1998
Type of ROD:	Interim	Expected date of turnover to state:	10/2008
Status of P&T system:	Operational	Expected date of completion:	10/2028
Primary goal of system:	Containment	Approximate downtime per year:	
Presence of NAPLs	Don't know	Number of monitoring wells used:	15
Approximate annual O&M costs:	$900,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$100,000	Is plume migration controlled?	Yes
Approximate pumping rate:	12000 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Doug Sutton completed this questionnaire based on notes taken during a conversation with Kim Hoang.

A settlement in the near future may change the lead on this porject.

Selma Treating Co.

Selma, CA (Region 9)
CERCLIS ID CAD29452141

Contact Information

RPM	State Regulator	Contractor
Michelle Lau 75 Hawthorne Street San Francisco, CA 94105 415-744-2227 (phone) 415-744-2180 (fax) lau.michelle@epa.gov	Chris Sherman DPES 10151 Croyden Way, Suite 3 Sacramento, CA 95827 916-255-3706 (phone) 916-255-3697 (fax)	John Kirschbaum USACE, Omaha District 12565 West Center Road Omaha, NE 68144-3869 402-293-2525 (phone) 402-221-7838 (fax)

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	6
Date original ROD was signed:	9/24/88	Date of construction completion:	9/1998
Date of last modification to ROD:	6/30/01	Date of operational and functional:	10/1998
Type of ROD:	Final	Expected date of turnover to state:	10/2008
Status of P&T system:	Operational	Expected date of completion:	10/2008
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	0 weeks
Presence of NAPLs	Not present	Number of monitoring wells used:	20
Approximate annual O&M costs:	$300,000	Frequency of sampling:	4 times per year
Costs related to monitoring:	$35,000	Is plume migration controlled?	Yes
Approximate pumping rate:	150 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/severe

Contaminants of Concern:

Chromium

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Doug Sutton completed this questionnaire based on a phone interview with Michelle Lau, the RPM for the site.

Regarding items 27 and 29, a recent 5-year review found that the plume was controleed in the shallow aquifer but that additional monitoring is required to determine if it is controlled in the intermediate and deep aquifers.

The entry in item 22 is an estimate.

REGION 10 INFORMATION SHEETS

Boomsnub/Airco / Site-Wide Ground Water OU

Hazel Dell, WA (Region 10)
CERCLIS ID WAD009624453

Contact Information

RPM	State Regulator	Contractor
Debra Yamamoto	Dan Alexanian	Jerry DeMuro
1200 Sixth Avenue - ECL-113	Dept.of Ecology - SWRO	URS, Inc.
Seattle, WA 98101	P.0. Box 47775	1500 Century Square, 1501 4th Ave, Suite 1500
206-553-7216 (phone)	Olympia, WA 98504	Seattle, WA 98101
206-553-0124 (fax)	360-407-6249 (phone)	206-674-1800 (phone)
yamamoto.debbie@epa.gov	360-407-6305 (fax)	206-674-1801 (fax)
	dale461@ecy.wa.gov	Jerry_DeMuro@urscop.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	22
Date original ROD was signed:	2/3/00	Date of construction completion:	10/2000
Date of last modification to ROD:		Date of operational and functional:	12/2001
Type of ROD:	Final	Expected date of turnover to state:	12/2011
Status of P&T system:	Operational	Expected date of completion:	10/2030
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	3 weeks
Presence of NAPLs	Suspected	Number of monitoring wells used:	80
Approximate annual O&M costs:	$1,000,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$204,000	Is plume migration controlled?	Yes
Approximate pumping rate:	135 gpm	Progress of aquifer restoration:	Don't know
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	moderate/severe

Contaminants of Concern:

1,1,1-Trichloroethane
1,1-Dichloroethylene (DCE)
1,2-Dichloroethane
Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)
Hexavalent Chromium
Total Chromium

Treatment Processes:

Metals precipitation	
Air stripping	yes
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

Question #20) the O&F is not yet complete, construction of a sewer line will take place this year. When that is complete extraction rates will increase up to 240 GPM. The date of O&F is not known at this time.

Question #21) The State will take over 10 years from the above date.

Question #26) Ground water long term monitoring takes place twice a year. The extraction wells are sampled quarterly and special ground water sampling may take place monthly, e.g. sampling at the toe of the plume.

Bunker Hill Superfund Site

Kellogg, ID (Region 10)
CERCLIS ID IDD048340921

Contact Information

RPM	State Regulator	Contractor
Carmella Grandinetti 1200 Sixth Avenue Seattle, WA 98101 206-553-8696 (phone) 206-553-0124 (fax) grandinetti.cami@epa.gov	Nick Zilka Idaho Dept.of Env. Quality 1005 W. McKinley Avenue Kellog, ID 83837 208-783-5781 (phone) 208-783-4561 (fax) nzilka@nidlink.com	

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	
Date original ROD was signed:	9/1/92	Date of construction completion:	12/2010
Date of last modification to ROD:		Date of operational and functional:	12/2020
Type of ROD:	Final	Expected date of turnover to state:	12/2030
Status of P&T system:	Predesign	Expected date of completion:	12/2050
Primary goal of system:	Restoration	Approximate downtime per year:	
Presence of NAPLs	Not present	Number of monitoring wells used:	58
Approximate annual O&M costs:		Frequency of sampling:	4 times per year
Costs related to monitoring:		Is plume migration controlled?	
Approximate pumping rate:		Progress of aquifer restoration:	
Result of previous evaluation of peformance/effectiveness:	Not evaluated	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Asbestos
Creosote
Lindane
Merphos
RDX (cyclonite)
Selenium
Volatile organic compounds (VOCs)

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure yes

Comments:

Question #19) Date in the survey is not true, gave date to complete survey. See below for explanation.

Question #20) Date in the survey is not true, gave date to complete survey. See below for explanation.

Question #21 Date in the survey is not true, gave date to complete survey. See below for explanation.

Question #22 Date in the survey is not true, gave date to complete survey. See below for explanation.

Explanation:
The 1992 Record of Decision for the Bunker Hill non-populated areas included ground water Pump&treat as well as surface water controls and treatment. However, none of the ground or surface water quality activities have been implemented to date. The site was divided into 2 phases in 1995 when EPA and the Idaho Dept. of Env. Quality signed a State Superfund Contract. Phase 1, which includes source control measures is currently being implemented. Based on the impact that phase 1 source control measures have on site surface water and ground water, Phase 2 water quality activities (including an active pump and treat system) may or may not be necessary. A decision regarding the need for and extent of water quality remedial activities will be made i based on the results of ongoing surface water and ground water quality monitoring.

Commencement Bay, South Tacoma Channel, Well 12A

Tacoma, WA (Region 10)
CERCLIS ID 981773849

Contact Information

RPM	State Regulator	Contractor
Kevin Rochlin ECL-112, 1200 6th Avenue Seattle, WA 98101 206-553-2106 (phone) 206-553-0124 (fax) rochlin.kevin@epa.gov		Tom Abbott URS 2401 4th Avenue, Suite 1000 Seattle, WA 98121 206-674-1800 (phone) 206-674-1801 (fax) abbot.thomas@urs.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	5
Date original ROD was signed:	1/1/85	Date of construction completion:	6/1988
Date of last modification to ROD:	1/1/87	Date of operational and functional:	5/1988
Type of ROD:	Final	Expected date of turnover to state:	1/2004
Status of P&T system:	Operational	Expected date of completion:	1/2011
Primary goal of system:	Containment & Restoration	Approximate downtime per year:	3 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	20
Approximate annual O&M costs:	$300,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$25,000	Is plume migration controlled?	Yes
Approximate pumping rate:	150 gpm	Progress of aquifer restoration:	less than 20% restored
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

1,1,2,2-Tetrachloroethane
1,2-Dichloroethene
Cis-1,2-dichloroethene
TCE and Vinyl chloride
Trans 1,2-Dichloroethylene

Treatment Processes:

Metals precipitation
Air stripping
Biological treatment
UV oxidation
Carbon adsorption yes
Filtration
Ion Exchange
Reverse Osmosis
Off-gas treatment
other/not sure

Comments:

McCormick & Baxter Creosoting Co.

Portland, OR (Region 10)
CERCLIS ID OR009020603

Contact Information

RPM	State Regulator	Contractor
Alan Goodman	William Dana	John Montgomery
811 SW 6th Avenue, 3rd Floor	Oregon Dept. Env. Quality	Ecology and Environment
Portland, OR 97204	811 SW 6th Avenue	333 SW Fifth
503-326-3685 (phone)	Portland, OR 97204	Portland, OR 97204
503-326-3399 (fax)	503-229-6530 (phone)	503-248-5600 (phone)
goodman.al@epa.gov	503-229-5830 (fax)	503-248-5577 (fax)
	Dana.William.H@DEQ.State.OR.US	JMontgomery@ene.com

System Information and Data

Type of Fund-lead Site:	State-lead w/ Fund $	Number of extraction wells:	6
Date original ROD was signed:	3/1/96	Date of construction completion:	3/1996
Date of last modification to ROD:	3/1/98	Date of operational and functional:	3/1996
Type of ROD:	Final	Expected date of turnover to state:	3/2006
Status of P&T system:	Operational	Expected date of completion:	Indefinite
Primary goal of system:	Containment	Approximate downtime per year:	5 weeks
Presence of NAPLs	Observed	Number of monitoring wells used:	25
Approximate annual O&M costs:	$250,000	Frequency of sampling:	2 times per year
Costs related to monitoring:	$40,000	Is plume migration controlled?	No
Approximate pumping rate:	3 gpm	Progress of aquifer restoration:	Not a goal
Result of previous evaluation of peformance/effectiveness:	Evaluated and found sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/minor

Contaminants of Concern:

Arsenic
Chlorinated polyaromatic hydrocarbons (CPAHs)
Creosote/Pentachlorophenol (PCP)
Pentachlorophenol (PCP)

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	yes
Reverse Osmosis	
Off-gas treatment	
other/not sure	yes

Comments:

The site RPM says that a barrier system is being design to prevent the PAHs and PCP from discharging to the river. The barrier design will be completed this year or next. The site treatment processes also include NAPL/water separation and dissolved air flotation (DAF).

Wyckoff/Eagle Harbor Superfund Site

Bainbridge Island, WA (Region 10)
CERCLIS ID WAD009248295

Contact Information

RPM	State Regulator	Contractor
Hanh Gold	Guy Barrett	Ken Scheffler
1200 Sixth Avenue, ECL-115	State of Washington Dept.of Ecology	CH2M HILL
Seattle, WA 98101	P.O. Box 47600	P.O. Box 91500
206-553-0171 (phone)	Olympia, WA 98504-7600	Bellevue, WA 98009-2050
206-553-0124 (fax)	360-407-7244 (phone)	425-453-5000 (phone)
gold.hanh@epa.gov	360-407-7154 (fax)	425-462-5957 (fax)
	gbar461@ecy.wa.gov	kscheffl@ch2m.com

System Information and Data

Type of Fund-lead Site:	EPA-lead	Number of extraction wells:	8
Date original ROD was signed:	9/29/94	Date of construction completion:	2/1990
Date of last modification to ROD:		Date of operational and functional:	2/1990
Type of ROD:	Interim	Expected date of turnover to state:	1/2024
Status of P&T system:	Operational	Expected date of completion:	Indefinite
Primary goal of system:	Containment	Approximate downtime per year:	
Presence of NAPLs	Observed	Number of monitoring wells used:	20
Approximate annual O&M costs:	$500,000	Frequency of sampling:	1 times per year
Costs related to monitoring:	$20,000	Is plume migration controlled?	Yes
Approximate pumping rate:	80 gpm	Progress of aquifer restoration:	Not a goal
Result of previous evaluation of peformance/effectiveness:	Evaluated and found not sufficient	Difficulty (due to social/political factors) of implementing minor/major changes:	minor/moderate

Contaminants of Concern:

Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Pentachlorophenol (PCP)
Polynuclear Aromatic Hydrocarbons

Treatment Processes:

Metals precipitation	
Air stripping	
Biological treatment	yes
UV oxidation	
Carbon adsorption	yes
Filtration	yes
Ion Exchange	
Reverse Osmosis	
Off-gas treatment	
other/not sure	

Comments:

The P&T system was constructed by the PRPs as part of an administrative order. When EPA took over operations of the system in 1993, it was in a severe state of disrepair. In the 1994 interim ROD, EPA determined that the system is not effective at hydraulic containment of L- and DNAPL, and a new pump & treat system and barrier wall was deemed appropriate (i.e., containment remedy). This remedy was never implemented, however, in February 2000, EPA signed a final ROD selecting thermal remediation, or steam injection, as the remedy for soil and groundwater. Steam injection remediation will begin with an onsite pilot study. The current pump & treat system will be used to treat extracted contaminants during the operation of this pilot study. Construction of the pilot system will begin summer 2001 and operation is anticipated to begin early 2002. If the pilot study is successful at meeting performance objectives, EPA will expand the system for full-scale cleanup. Therefore, optimization analysis is not applicable or appropriate for this pump & treat system. It should be noted that a sheet pile wall has been constructed around this site to significantly reduce migration of contaminants to Eagle Harbor and Puget Sound.

APPENDIX B

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 1

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 1 which was conducted during January 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

A total of eight pre-operational and operational Fund-lead P&T systems were identified in Region 1. Of this eight, seven are operational and one is pre-operational (i.e., pre-design, design, being installed, installed but not yet operating)

In addition, the remedial action for one Fund-lead P&T system has been completed and two Fund-lead P&T systems are no longer operating. One of the two systems that are no longer operating, Norwood PCBs, has been shut down to determine if new groundwater standards set by the state are being met. Pinette's Salvage Yard is also no longer operating. The system has been shut down and the site managers are monitoring concentrations to determine if contamination is contained. An Explanation of Significant Differences will be filed in the near future.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational system) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed. Because some EPA Regions do not have two Fund-lead P&T systems, an additional RSE may be allocated to Region 1 allowing a total of three RSEs to be conducted in this Region as part of this project.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,

- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 1 classified as completed, operational, planned, and no-longer operating. Those in bold were selected or are being considered for RSEs.

Completed
Sylvester/Gilson Road
Operational
Baird and McGuire
Charles George Landfill
Groveland Wells
Kearsarge Metallurgical Corp.
Keefe Environmental Systems
Savage Well Municipal Water Supply
Silresim Chemical Corp.
Pre-Operational
Eastern Surplus Company Superfund Site
No-longer Operating
Norwood PCBs
Pinette's

Only operational systems were considered in selecting the three systems to receive RSEs. Based on the screening methodology employed in this project, Baird and McGuire, Savage Well Municipal Water Supply, and Silresim Chemical Corp. were the sites with sufficient operating histories where optimization would yield the greatest percentage reduction in life-cycle costs. In addition, the Remedial Project Manager (RPM) of the Savage site expressed interest in having an RSE conducted at the site, and the 5-year review of the Silresim site noted that the system performance and effectiveness were insufficient. Collectively, the life-cycle savings, RPM interest, and effectiveness issues provided the criteria for selecting Baird and McGuire, Savage Well Municipal Water Supply, and Silresim Chemical Corp. for receiving RSEs.

Region 1, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems
Sylvester/Gilson Road

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**8**
Number that are EPA lead	**5 of 8**
Number that are State lead	**3 of 8**
System Status	
Number that are operational	**7**
Number that are pre-operational	**1**
Number where restoration is a goal	**8 of 8**
Number where the plume is controlled*	**4 of 7**
Number that are estimated to be more than 80% complete*	**2 of 7**
Number previously evaluated and effectiveness found sufficient*	**4 of 7**
Number previously evaluated and effectiveness found not sufficient*	**1 of 7**
Extent of Contamination	
Number where NAPLs are observed	**3 of 8**
Number with more than 1 major contaminant identified	**7 of 8**
Number with 3 or more treatment processes	**6 of 8**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$875,000**
Average estimated annual monitoring cost	**$84,375**
Average number of years until turnover to the States	**6.1**
Average number of years until completion	**14.4**

*Operational sites only

No-Longer-Operating Fund-lead P&T Systems
Pinette's Salvage Yard
Norwood PCBs

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 1, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Baird & McGuire Superfund Site	$3,500,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Charles George Landfill Superfund Site	$450,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Not evaluated
Eastern Surplus Company Superfund Site	$200,000	EPA	Final	Being Installed	Containment & Restoration	N/A	N/A	Not evaluated
Groveland Wells Superfund Site	$500,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Sufficient
Kearsarge Metallurgical Corp.	$250,000	State with Fund Money	Final	Operational	Restoration	Yes	more than 80%	Sufficient
Keefe Environmental Systems	$200,000	State with Fund Money	Final	Operational	Containment & Restoration	Yes	more than 80%	Sufficient
Savage Well Municipal Water System	$500,000	State with Fund Money	Final	Operational	Containment & Restoration	No	less than 20%	Not evaluated
Silresim Chemical Corp.	$1,400,000	EPA	Final	Operational	Containment & Restoration	No	less than 20%	Not Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Easter Surplus Company Superfund Site is pre-operational; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 1, Table 3 -- P&T System Histories and Projections

July 3, 2001

	Date							
System	**Original ROD**	**Last ROD Modification**	**Construction Completed**	**Operational and Functional**	**Turnover to State**	**Years Until Turnover**	**Expected Completion**	**Years Until Completion**
Baird & McGuire Superfund Site	9/30/86		4/1993	4/1994	4/2004	2.7	4/2023	21.8
Charles George Landfill Superfund Site	3/23/88	9/26/98	9/1998	9/1999	9/2009	8.2	9/2028	27.2
Eastern Surplus Company Superfund Site	9/28/00		8/2001	10/2001	9/2011	10.2	9/2007	6.2
Groveland Wells Superfund Site	9/9/91	11/15/96	4/2000	5/2001	4/2011	9.8	4/2031	29.8
Kearsarge Metallurgical Corp.	9/28/90		9/1993	9/1993	9/2003	2.2	9/2005	4.2
Keefe Environmental Systems	3/21/88	6/8/90	9/1993	9/1994	9/2003	2.2	9/2003	2.2
Savage Well Municipal Water System	9/27/91	12/19/96	3/1998	4/1999	3/2009	7.7	3/2009	7.7
Silresim Chemical Corp.	9/19/91		11/1995	9/1997	9/2007	6.2	12/2017	16.4

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 1, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Baird & McGuire Superfund Site	Taylor Melissa EPA Region 1 One Congress Street 11th floor Boston, MA 02114 617-918-1310 617-918-1291 (fax) Taylor.MelissaG@epa.gov	Dorothy Allen MADEP One Winter Street Boston, MA 02108 617-292-5795 617-292-5530 (fax) Dorothy.Allen@state.ma.us	Don Dwight Metcalf & Eddy 30 Harvard Mill Sq. Wakefield, MA 01880 781-224-6286 781-224-6880 (fax) Don_Dwight@metcalfeddy.com
Charles George Landfill Superfund Site	Stanley Elaine EPA Region 1 One Congress Street, Suite 1100 Boston, MA 02114-2023 617-918-1332 617-918-1291 (fax) stanley.elainet@epa.gov	David Buckley Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108 617-556-1184 617-292-5530 (fax) buckley.david@state.ma.us	David O'Connor U.S. Army Corps of Engineers, North Central Residnet Office 50 McArthur Avenue, Box 689 Devens, MA 01432-4400 978-772-0148 978-772-3104 (fax) david.o'connor@nae02.usace.army.mil
Eastern Surplus Company Superfund Site	Hathaway Edward EPA Region 1 1 Congress Street, Suite 1100, mailcode: HBT Boston, MA 02114 617-918-1372 617-918-1291 (fax) hathaway.ed@epa.gov	Rebecca Hewett Maine DEP 17 State House Station Augusta, ME 04333-0017 207-287-8554 207-287-7826 (fax) rebecca.l.hewett@state.me.us	Gordon Bullard TTNUS 55 Jonspin Road Wilmington, MA 01887 978-658-7899 978-658-7870 (fax) bullardg@ttnus.com
Groveland Wells Superfund Site	Golden Derrick EPA Region 1 One Congress Street - Suite 1100 (HBO) Boston, MA 02114 617-918-1448 617-918-1291 (fax) golden.derrick@epa.gov	Janet Waldron Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108 617-556-1156 617-556-1118 (fax) janet.waldron@state.ma.us	Cinthia Mclane Metcalf & Eddy 30 Harvard Mill Square Wakefield, MA 01880 781-224-6377 781-245-6293 (fax) cindy_mclane@metcalfeddy.com

Region 1, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Kearsarge Metallurgical Corp.	Goehlert Dick EPA Region 1 One Congress Street Boston, MA 02114-2023 617-918-1335 617-918-1291 (fax) goehlert.dick@epa.gov	Paul Lincoln NHDES 6 Hazen Drive Concord, NH 03301 603-271-2911 603-271-2456 (fax) p_andrews@des.state.nh.us	Bette Nowack Weston 1 Wall St. Manchester, NH 03101 603-656-5400
Keefe Environmental Systems	Sprague Cheryl EPA Region 1 One Congress Street, Suite 1100 Boston, MA 02114-2023 617 918-1244 617 918-1291 (fax) Sprague.cheryl@epa.gov	Thomas Andrews New Hampshire Department of Environmental Services 6 Hazen Drive Concord, NH 03301-6527 603 271-2910 601 271-2456 (fax) Tandrews@des.state.nh.us	Harvey King Woodard and Curran 41 Hutchins Drive Portland, ME 04102 207 774-2112 207 774-6635 (fax) hking@woodardcurren.com
Savage Well Municipal Water System	GOEHLERT RICHARD EPA Region 1 ONE CONGRESS STREET BOSTON, MA 02114-2023 617-918-1335 617-918-1291 (fax) GOEHLERT.DICK@EPA.GOV	THOMAS ANDREWS NHDES 6 HAZEN DRIVE CONCORD, NH 03301 603-271-2910 603-271-2456 (fax) t_andrews@des.state.nh.us	Joe Newton CDM Elm St Milford, NH 03055 603-249-9840 603-249-9851 (fax) jnewton@cdm.com
Silresim Chemical Corp.	Janowski Chester EPA Region 1 1 Congress Street, Suite 1100, HBO Boston, MA 02114-2023 617-918-1324 617-918-1291 (fax) janowski.chet@epa.gov	Janet Waldron MADEP One Winter Street, 7th Floor Boston, MA 02108 617-556-1156 617-292-5530 (fax) janet.waldron@state.ma.us	John Haley Foster Wheeler Environmental Corp. 133 Federal Street, 6th Floor Boston, MA 02110 617-457-8200 617-457-8498 (fax) jhaley@fwec.com

Region 1, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Baird & McGuire Superfund Site	Observed	8	Heavy metals LNAPL Pesticides Semi-volatile organic compounds (SVOC) Volatile organic compounds (VOCs) Aresenic BTEX PAHs	Metals Precipitation Air Stripping Carbon Adsorption Filtration
Charles George Landfill Superfund Site	Don't know	6	Arsenic BTEX Chlorobenzene Mercury Tetrahydrofuran 1,4-Dioxane	Other/Not Sure
Eastern Surplus Company	Suspected	2	Methylene Chloride PCE	Carbon Adsorption Filtration Ion Exchange
Groveland Wells Superfund Site	Don't know	1	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Metals Precipitation UV oxidation Carbon Adsorption Filtration
Kearsarge Metallurgical	Suspected	2	1,1,1-Trichloroethane Trichloroethylene (TCE)	Air Stripping Off-Gas Treatment
Keefe Environmental Systems	Not present	4	1,2,3,4-Tetrachlorodibenzodioxin (TCDD) 1,2-Dichloroethene Benzo(a)pyrene Trans 1,2-Dichloroethylene	Air Stripping Carbon Adsorption Filtration
Savage Well Municipal Water System	Observed	4	1,1,1-Trichloroethane Chlorinated Solvents Cis-1,2-dichloroethene Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping Carbon Adsorption Off-Gas Treatment
Silresim Chemical Corp.	Observed	8	1,1,2,2-Tetrachloroethane 1,1-Dichloroethylene (DCE) Acids Benzo(b)fluoranthene Methylphenol Solid Propellants Trans 1,2-Dichloroethylene Volatile chlorinated organics	Metals Precipitation Air Stripping Filtration Off-Gas Treatment

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 1, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
	Operational								
Baird & McGuire Superfund Site	27.5%	$12,402,549	21.8	Sufficient	150	7	4	80	Moderate Severe
Charles George Landfill Superfund Site	17.5%	$1,121,604	27.2	Not evaluated	30	9	1	40	Moderate Severe
Groveland Wells Superfund Site	27.5%	$2,065,504	29.8	Sufficient	140	10	4	21	Minor Minor
Kearsarge Metallurgical Corp.	10.0%	$56,941	4.2	Sufficient	42	14	2	60	Moderate Moderate
Keefe Environmental Systems	7.5%	($1,583)	2.2	Sufficient	20	4	3	82	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 1, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
	Operational								
Savage Well Municipal Water System	32.5%	$934,042	7.7	Not evaluated	100	4	3	114	Minor Minor
Silresim Chemical Corp.	40.0%	$6,025,600	16.4	Not Sufficient	25	31	4	94	Minor Minor
	Pre-Operational								
Eastern Surplus Company Superfund Site	28.0%	$245,611	6.2	Not evaluated	20	12	3	60	Minor Moderate

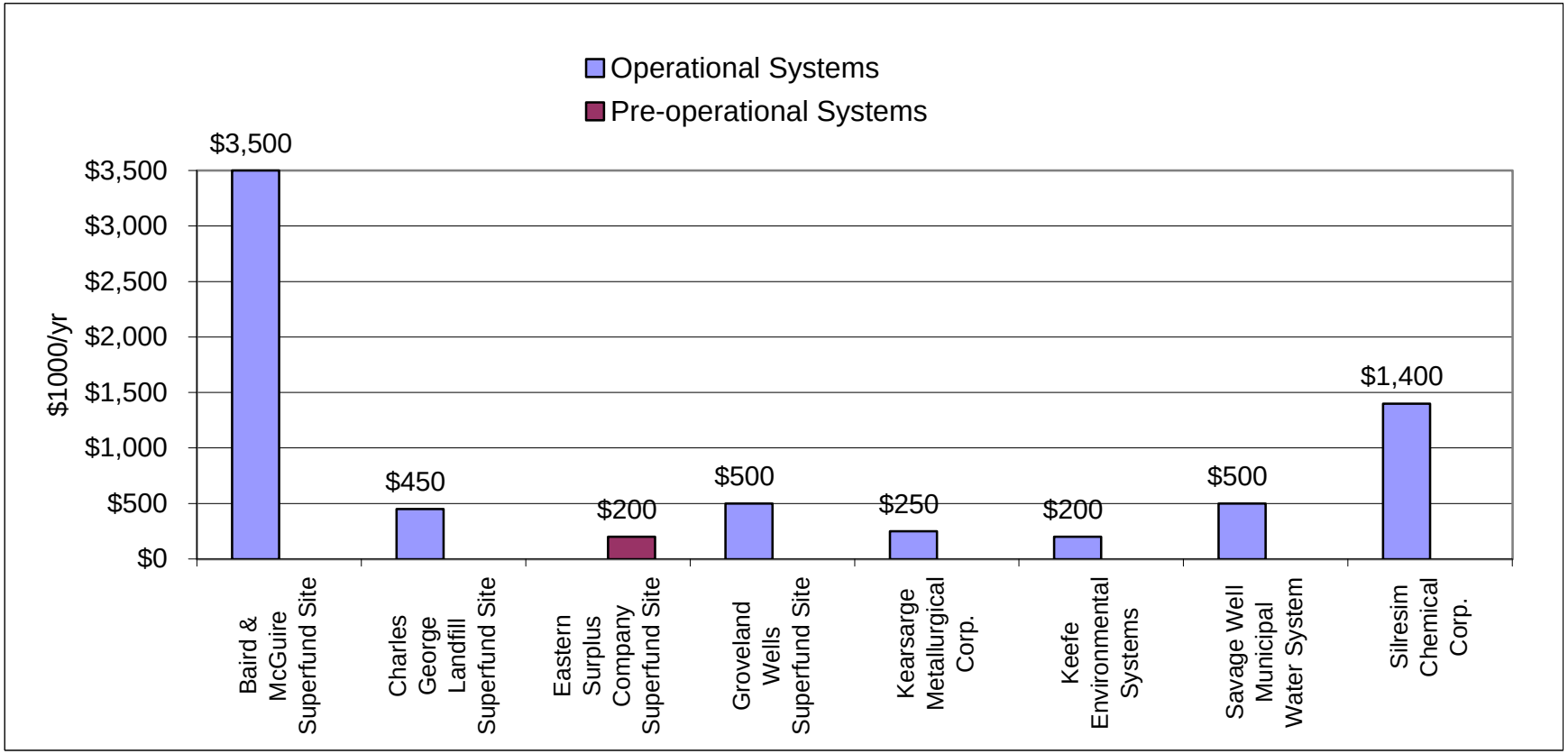
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 1, Figure 1 -- Estimated Annual Costs of Systems

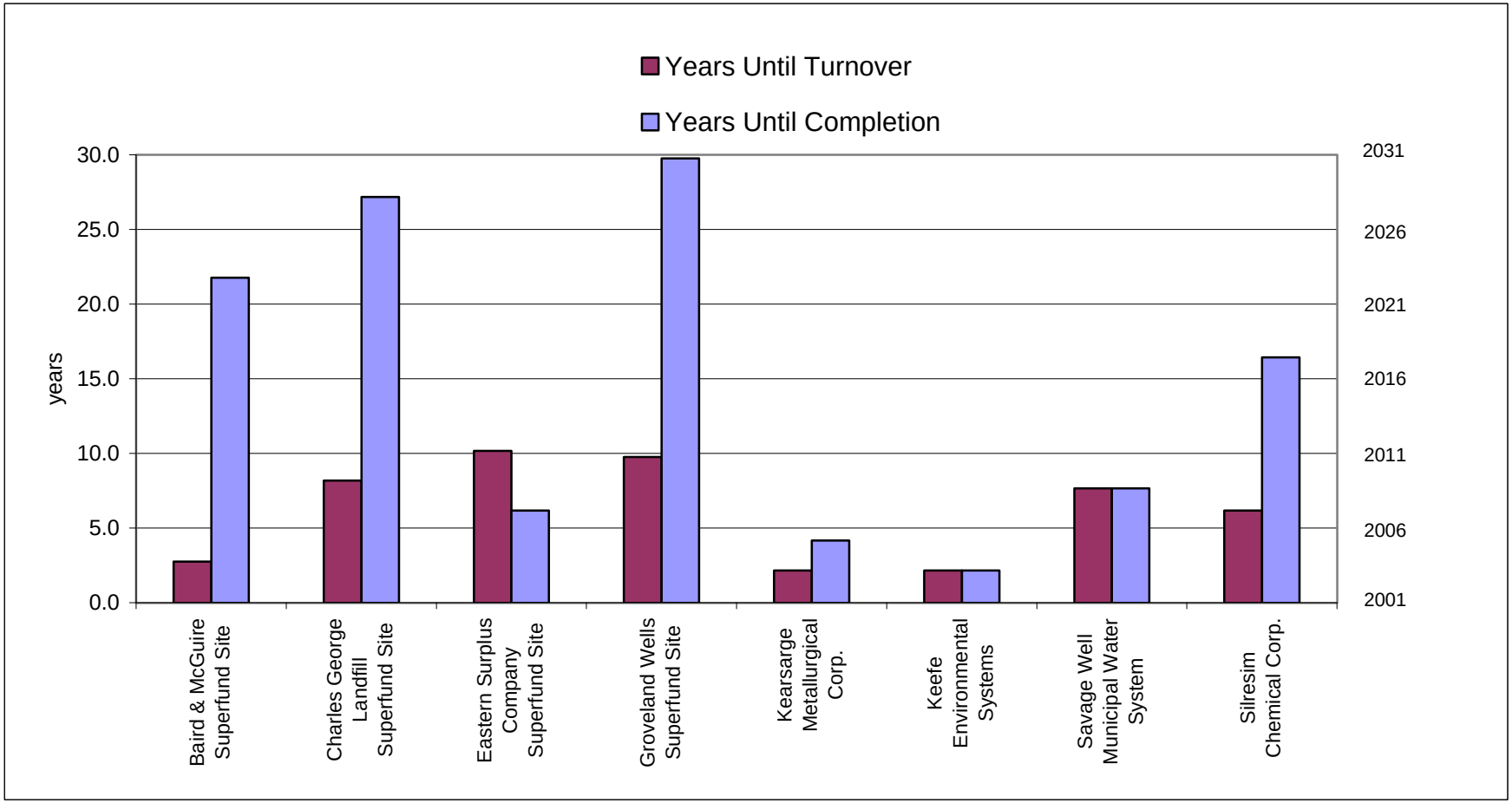
July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 1, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 2

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 2 which began in January 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Twenty-two Fund-lead P&T systems were identified in Region 2. Of these twenty-two systems, 18 are operational and four are pre-operational (i.e., pre-design, design, being installed, installed but not yet operating). In addition, pump-and-treat may be selected as a remedy for one Fund-lead site when the Record of Decision is completed.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational system) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables (Note: two of the pre-operational systems, Dover Municipal Well 4 and Metal TEC/Aerosystems, may ultimately use a remedy other than P&T):

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed. The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

To estimate potential life-cycle savings from optimization, a default reduction in life-cycle costs of 20% is assumed and is adjusted based on the above factors. For example, according to the screening methodology, a system with many above-ground treatment processes and a high pumping rate may exhibit greater than a 20% reduction in life-cycle costs whereas a system with few extraction wells and one treatment process may exhibit less than a 20% reduction in life-cycle costs.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE. Because some EPA Regions do not have two Fund-lead P&T systems, an additional RSE may be allocated to Region 2 allowing a total of three RSEs to be conducted in this Region as part of this project.

Selecting Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 2 classified as operational, pre-operational, or potential. Those in bold were selected or are being considered for RSEs.

Operational

- American Thermostat
- Bog Creek Farm
- **Brewster Wellfield**
- Circuitron
- **Claremont Polychemical Corp.**
- Combe Fill South
- Garden State Cleaners/South
- Higgins Farm
- Islip Municipal Landfill
- Lang Property
- Lipari Landfill
- **Mattiace Petrochemical**
- Mohonk Road Industrial Plant
- SMS Instruments
- Syncon Resins
- Vestal Water Supply Well 1-1
- Vineland Chemical Company
- Williams Property

Pre-operational

- Dover Municipal Well 4
- Metal TEC/Aerosystems
- Montgomery Township/Rocky Hill*
- Stanton Cleaners Area

Potential

- Lehigh Valley

* Montgomery Township/Rocky Hill actually consists of two sites that will share a single P&T system.

Only operational systems are considered in selecting the systems in Region 2 to receive RSEs. Due to the absence of Fund-lead P&T systems in other Regions, additional resources are available to conduct

an additional RSE in Region 2, bringing the total number of RSEs conducted in this Region to three. The Mattiace Petrochemical and Claremont Polychemical Sites already have been selected for an RSEs due to their relatively high potential savings indicated by the screening process. The selection of Brewster Wellfield is based on recommendations from within the Region.

Although Vineland, American Thermostat, Combe Fill South, and Higgins Farm also have relatively high potential savings as determined by the screening process, these sites were deemed inappropriate by the Region for receiving RSEs. At the time of the screening process, Vineland was undergoing an external evaluation for optimization, American Thermostat was undergoing evaluation by the Region and the Army Corps of Engineers for optimization, and Combe Fill South and Higgins Farm were the subjects of litigation.

Region 2, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**22**
Number that are EPA lead	**18 of 22**
Number that are State lead	**4 of 22**
System Status	
Number that are operational	**18**
Number that are pre-operational	**4**
Number where restoration is a goal	**21 of 22**
Number where the plume is controlled*	**15 of 18**
Number that are estimated to be more than 80% complete*	**1 of 18**
Number previously evaluated and effectiveness found sufficient*	**10 of 18**
Number previously evaluated and effectiveness found not sufficient*	**2 of 18**
Extent of Contamination	
Number where NAPLs are observed	**4 of 22**
Number with more than 1 major contaminant identified	**17 of 22**
Number with 3 or more treatment processes	**13 of 22**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$828,947**
Average estimated annual monitoring cost	**$190,900**
Average number of years until turnover to the States	**7.9**
Average number of years until completion	**17.7**

*Operational sites only

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 2, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
American Thermostat	$1,175,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Sufficient
Bog Creek Farm LTRA	$460,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Brewster Wellfield	$400,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Not evaluated
Circuitron	$480,000	EPA	Final	Operational	Restoration	Yes	less than 20%	Sufficient
Claremont Polychemical	$740,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Not evaluated
Combe Fill South Landfill	$920,000	State with Fund Money	Final	Operational	Containment & Restoration	No	Unknown	Not Sufficient
Dover Municipal Well 4	unknown	EPA	Final	Predesign	Restoration	N/A	N/A	N/A

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.
3. Estimated progress toward restoration refers to the estimated portion of the plume that has been restored to cleanup levels.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Garden State Cleaners/South Jersey Clothing Company	$500,000	EPA	Final	Operational	Containment & Restoration	No	Unknown	Currently being evaluated
Higgins Farm	$1,000,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Not evaluated
Islip Municipal Landfill	$225,000	State with Fund Money	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Lang Property	$700,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Lipari Landfill site	$2,500,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Mattiace Petrochemical	$700,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Sufficient
Metal TEC/Aerosystems	unknown	EPA	Final	Predesign	N/A	N/A	N/A	N/A

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.
3. Estimated progress toward restoration refers to the estimated portion of the plume that has been restored to cleanup levels.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Mohonk Road Industrial Plant	unknown	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Currently being evaluated
Montgomery Township/Rocky Hill	$400,000	EPA	Final	Design	Restoration	N/A	N/A	N/A
SMS Instruments	$400,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Stanton Cleaners Area Groundwater Contamination Site	$270,000	EPA	Final	Being Installed	Containment & Restoration	N/A	N/A	N/A
Syncon Resins	$350,000	State with Fund Money	Final	Operational	Containment & Restoration	Yes	less than 20%	Not Sufficient
Vestal Water Supply Well 1-1	$180,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Sufficient
Vineland Chemical Co. Groundwater Treatment	$4,000,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Currently being evaluated
Williams Property	$350,000	State with Fund Money	Final	Operational	Restoration	Yes	more than 80%	Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.
3. Estimated progress toward restoration refers to the estimated portion of the plume that has been restored to cleanup levels.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2, Table 3 -- P&T System Histories and Projections

July 3, 2001

	Date							
System	**Original ROD**	**Last ROD Modification**	**Construction Completed**	**Operational and Functional**	**Turnover to State**	**Years Until Turnover**	**Expected Completion**	**Years Until Completion**
American Thermostat	6/29/90		9/1998	9/1998	10/2008	7.3	9/2028	27.2
Bog Creek Farm LTRA	6/28/89		5/1994	8/1994	9/2004	3.2	12/2024	23.4
Brewster Wellfield	9/30/86	12/2/96	4/1997	9/1997	10/2007	6.2	10/2007	6.2
Circuitron	9/30/94		6/2000	5/15/2001	6/2010	8.9	6/2003	1.9
Claremont Polychemical	9/28/90		12/1998	2/2000	2/2010	8.6	2/2020	18.6
Combe Fill South Landfill	9/23/86		6/1998	9/1998	9/2008	7.2	9/2028	27.2
Dover Municipal Well 4	9/30/92		Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2, Table 3 -- P&T System Histories and Projections

July 3, 2001

	Date							
System	**Original ROD**	**Last ROD Modification**	**Construction Completed**	**Operational and Functional**	**Turnover to State**	**Years Until Turnover**	**Expected Completion**	**Years Until Completion**
Garden State Cleaners/South Jersey Clothing Company	9/26/91		3/1999	9/2000	10/2009	8.3	9/2029	28.2
Higgins Farm	9/30/92		5/1998	1/1999	1/2009	7.5	9/2028	27.2
Islip Municipal Landfill	9/19/92		9/1996	9/1997	9/2006	5.2	1/2003	1.5
Lang Property	9/29/86		9/1995	10/1995	10/2005	4.2	1/2005	3.5
Lipari Landfill site	9/30/85		12/1992	6/1993	10/2019	18.3	12/2004	3.4
Mattiace Petrochemical	6/27/91		8/1998	9/1999	3/2009	7.7	8/2029	28.1
Metal TEC/Aerosystems	9/27/90		Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2, Table 3 -- P&T System Histories and Projections

July 3, 2001

	Date							
System	**Original ROD**	**Last ROD Modification**	**Construction Completed**	**Operational and Functional**	**Turnover to State**	**Years Until Turnover**	**Expected Completion**	**Years Until Completion**
Mohonk Road Industrial Plant	3/31/00		5/2000	7/2001	7/2011	10.0	7/2031	30.0
Montgomery Township/Rocky Hill	6/27/88		9/2003	9/2003	9/2013	12.2	9/2033	32.2
SMS Instruments	9/29/89		6/1994	6/1995	6/2005	3.9	3/2004	2.7
Stanton Cleaners Area Groundwater Contamination Site	3/31/99		6/2001	9/2001	9/2011	10.2	9/2021	20.2
Syncon Resins	9/29/86	9/27/00	4/1991	4/1991	4/2001	0.0	9/2028	27.2
Vestal Water Supply Well 1-1	6/27/86		12/1993	3/1995	3/2005	3.7	3/2015	13.7
Vineland Chemical Co. Groundwater Treatment	9/28/89		4/2000	6/2000	6/2011	9.9	6/2031	29.9
Williams Property	9/29/87		1/1995	1/1995	1/2001	0.0	12/2002	1.4

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
American Thermostat	Christos Tsiamis EPA Region 2 290 Broadway New York, NY 12233 212-637-4257 212-637-3966 (fax) tsiamis.christos@epa.gov	Joseph Yavonditte New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-9285 518-457-7743 (fax) jayavond@gw.dec.state.ny.us	Feeney Richard Foster Wheeler Environmental Corporation 1000 The American Road Morris Plains, NJ 07950 973-630-8092 973-630-8111 (fax) RFeeney@fwenc.com
Bog Creek Farm LTRA	Edward Finnerty EPA Region 2 290 Broadway New York, NY 10007 212 637 4367 212-637-4393 (fax) Finnerty.Ed@EPA.GOV	Craig Wallace NJDEP 401 E State St. Trenton, NJ 08625 609 984 2990 609 633 2360 (fax) Cwallace@DEP.STATE.NJ.US	George Paprocki USACE Ft. Monmouth Eatontown, NJ 07703 732 389 3040 732 389 1564 (fax) George.B.Paprocki@nan02.USACE.army.mil
Brewster Wellfield	Lisa Wong EPA Region 2 290 Broadway New York, NY 10007 212-637-4267 212-637-3966 (fax) wong.lisa@epa.gov	George Momberger New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-0927 518-457-8989 (fax) gfmomber@gw.dec.state.ny.us	Dawn Cermak Sevenson Environmental Services, Inc Box 71A Route 518, Franklin Twsp Princeton, NJ 08540 732-297-0432 732-297-0441 (fax) hawksister@earthlink.net
Circuitron	Sharon Trocher EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-3965 212-637-3966 (fax) trocher.sharon@epa.gov	Jeffrey Trad New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233-7010 518-457-9285 518-457-7743 (fax) jetrad@gw.dec.state.ny.us	Shewen Bian USACE, New York District 1900 Hempstead Turnpike, Suite 16 East Meadow, NY 11554 516-794-2913 516-794-2975 (fax)

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Claremont Polychemical	Maria Jon EPA Region 2 290 Broadway, 20th Floor New York, NY 10007 212-637-3967 212-637-4284 (fax) Jon.Maria@epamail.epa.gov	Jeff Trad New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12218 518-457-9285 518-457-7743 (fax) jetrad@gw.dec.state.ny.us	Mark Kucera U.S. Army Corps of Engineers 501 Winding Road Old Bethpage, NY 11804 516-249-8912 516-249-8928 (fax)
Combe Fill South Landfill	Pamela J. Baxter EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-4416 212-637-4393 (fax) baxter.pam@epamail.gov	Paula Walshe NJDEP 401 East State St. Trenton, NJ 08625 609-633-1119 609-292-1975 (fax) pwalshe@dep.state.nj.us	James Nash Chapman, Inc. 25 West Highand Avenue Atlantic Highlands, NJ 07716 732-291-7773 732-291-7776 (fax)
Dover Municipal Well 4	Diego Garcia EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-4947 garcia.diego@epa.gov	Mary Lou Parra NJDEP 401 East State St. Trenton, NJ 08625 609-633-3618	Kamala Morgan USACE, Kansas City District 601 East 12th St. Kansas City,, MO 64106 816-983-3377
Garden State Cleaners/South Jersey	Brian Quinn EPA Region 2 290 Broadway, 19th Floor New York, NY 10007 212-637-4381 212-637-4393 (fax) quinn.brian@epa.gov	Akshay Parikh N.J.D.E.P. 401 E. State Street, P.O. Box 413 Trenton, NJ 08625 609-777-0693 609-633-2360 (fax) APARIKH@dep.state.nj.us	Steven Gillespie Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305 856-905-0782 856-697-9187 (fax) sevenson@voicenet.com

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Higgins Farm	Pamela J. Baxter EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-4416 212-637-4393 (fax) baxter.pam@epamail.gov	Unknown NJDEP 401 East State St. Trenton, NJ 08625	Dawn Cermail Sevenson Environmental Service, Inc. 71A Route 518 Princeton, NJ 08540 732-297-0432 732-297-0441 (fax) hawksiyseter@earthlink.com
Islip Municipal Landfill	Mark Dannenberg EPA Region 2 290 Broadway New York, NY 10007 212-637-4251 212-637-3966 (fax) dannenberg.mark@epa.gov	Carl Hoffman New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-9538 518-457-4198 (fax) crhoffma@gw.dec.state.ny.us	Paul DiMaria Islip Resource Recovery Agency 401 Main Street Islip, NY 11751 631-224-5644 631-224-5645 (fax) wfgraner@hotmail.com
Lang Property	Lawrence Granite EPA Region 2 290 Broadway - 19th floor New York, New York, NY 10007-1866 212-637-4423 212-637-4393 (fax) granite.larry@epamail.epa.gov	Thomas Ferrara NJDEP 401 East State Street Trenton, NJ 08625 609-292-4095 609-633-2360 (fax)	Thomas Roche U.S. Army Corps of Engineers 192 City Line Road Browns Mills, NJ 08015 609-893-0983 609-893-5415 (fax) thomas.p.roche@usace.army.mil
Lipari Landfill site	Ferdinand Cataneo EPA Region 2 290 Broadway New York City, NY 10007-1866 212-637-4428 212-637-4393 (fax) cataneo.fred@epa.gov	Michael Burlingame NJDEP P.O. Box 413 Trenton, NJ 08625-0413 609-292-1424 609-292-1975 (fax) mburling@dep.state.nj.us	Lee Anne Simmler URS/Radian International 743 Mullica Hill Road Glassboro, NJ 08028 856-582-6000 856-582-6946 (fax) lee_anne_simmler@urscorp.com

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Mattiace Petrochemical	Edward Als EPA Region 2 290 Broadway NYC, NY 10007-1866 212-637-4272 212-637-3966 (fax) als.ed@epa.gov	Michael Mason NY State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-9285 518-457-7743 (fax) mamason@gw.dec.state.ny.us	Karuppenan Subburamu Foster Wheeler Environmental Corp. 1000 the American Road Morris Plains, NJ 07950 973-630-8518 973-630-8111 (fax) ksubburamu@fwenc.com
Metal TEC/Aerosystems	Dan Weissman EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-4384 weissman.dan@epa.gov	Anton Navaragah NJDEP 401 East State St. Trenton, NJ 08625 609-777-0340	N/A
Mohonk Road Industrial Plant	Patrick Hamblin EPA Region 2 290 Broadway, 20th Floor New York, NY 10007-1866 212-637-3314 212-637-3966 (fax) hamblin.patrick@epa.gov	Michael Komoroske NYSDEC 50 Wolf Road, Room 242 Albany, NY 12233-7010 518-457-3395 518-457-4198 (fax) mjkomoro@gw.dec.state.ny.us	Eric Hamilton EarthTech 7870 Villa Park Drive, Suite 400 Richmond, VA 23228 804-515-8300 804-515-8414 (fax) e_hamilton@earthtech.com
Montgomery Township/Rocky Hill	Monica Mahar EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-3942 mahar.monica@epa.gov	Larry Quinn NJDEP 401 East State St. Trenton, NJ 08625 609-633-0766 lquinn@dep.state.nj.us	Geoffrey McKenzie CDM 107-F Corporate Blvd. South Plainsfield, NJ 07080 908-757-9500 mckenziegm@cdm.com

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
SMS Instruments	Mark Dannenberg EPA Region 2 290 Broadway New York, NY 10007 212-637-4251 212-637-3966 (fax) dannenberg.mark@epa.gov	Joseph Yavonditte New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-9280 518-457-4198 (fax) jayovond@gw.dec.state.ny.us	Paul Hagerman CDM Federal 125 Maiden Lane New York, NY 10038 212-785-9123 212-785-6114 (fax) hagermanpr@cdm.com
Stanton Cleaners Area Groundwater Contamination Site	Damian Duda EPA Region 2 290 Broadway - 20th Floor New York, NY 10007-1866 212-637-4269 212-637-3966 (fax) duda.damian@epa.gov	Thomas Gibbons New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 518-457-3960 518-457-4158 (fax) tlgibbon@gw.dec.state.ny.us	Thomas Williams Earth Tech 7870 Villa Park Drive - Suite 400 Richmond, VA 23228 516-482-7162 516-466-8396 (fax) twilliams@earthtech.com
Syncon Resins	Pamela J. Baxter EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-4416 212-637-4393 (fax) baxter.pam@epamail.gov	Jeanette Abels NJDEP 401 East State St. Trenton, NJ 08625 609-292-4873 609-633-2360 (fax) jabels@dep.state.nj.us	John Sperber LSR Levine and Fricke P.O. Box 316 Closter, NJ 07624 201-750-6880 201-750-6890 (fax) spurber@webstan.net
Vestal Water Supply Well 1-1	Sharon Trocher EPA Region 2 290 Broadway New York, NY 10007-1866 212-637-3965 212-637-3966 (fax) trocher.sharon@epa.gov	Jeffrey Trad New York State Department of Environmental Conservation 50 Wolf Road Albany, NY 12233-7010 518-457-9285 518-457-7743 (fax) jetrad@gw.dec.state.ny.us	Heidemarie Adenau Foster Wheeler Environmental Corporation 1000 The American Road Morris Plains, NJ 07950 973-630-7197 973-630-8025 (fax) hadenau@fwenc.com

Region 2, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Vineland Chemical Co. Groundwater Treatment	Matthew Westgate EPA Region 2 290 Broadway 19th floor New York City, NY 10007-1866 212 637-4422 212 637-4429 (fax) westgate.matthew@epamail.epa.gov	Craig Wallace N.J. Dept. of Environmental Protection 401 East State Street CN413 Trenton, NJ 08625-0413 609 984-3727 609 633-2360 (fax) cwallac2@dep.state.nj.us	Gillespie Steve Sevenson Environmental Services 1405A North Mill Road Vineland, NJ 08360 856 690-1758 856 690-1759 (fax) vineland@voicenet.com
Williams Property	Ferdinand Cataneo EPA Region 2 290 Broadway New York City, NY 10007-1866 212-637-4428 212-637-4393 (fax) cataneo.fred@epa.gov	Steve Wohleb NJDEP P.O. Box 413 Trenton, NJ 08625-0413 609-633-3970 609-292-1975 (fax) swohleb@dep.state.nj.us	Richard Talbot TurnKey Environmental Services, Inc 24 South Newton Street Road, Suite 1B Newton Square, PA 19073 610-356-3790 610-356-4780 (fax) TurnKeyEnv@aol.com

Region 2 Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
American Thermostat	Suspected	3	1,2-Dichloropropane Trichlorobenzene Tetrachloroethylene (PCE)	Metals Precipitation Air Stripping Carbon Adsorption Filtration
Bog Creek Farm LTRA	Observed	9	1,1,1-Trichloroethane 1,2-Dichloroethylene (DCE) 2,4-Dimethylphenol Benzene Phenol Toluene copper lead zinc	Metals Precipitation Air Stripping Carbon Adsorption Filtration
Brewster Wellfield	Suspected	2	1,2-Dichloroethylene (DCE) Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping
Circuitron	Not present	4	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene (DCE) Trichloroethylene (TCE)	Air Stripping Carbon Adsorption Filtration
Claremont Polychemical	Don't know	4	1,1,1-Trichloroethane Toluene Xylene PCE	Metals Precipitation Air Stripping Carbon Adsorption
Combe Fill South Landfill	Not present	8	1,4-Dichlorobenzene Benzene Carbon tetrachloride Chlorobenzene Chloroform Ethylbenzene Methylene Chloride Toluene	Metals Precipitation Biological Treatment Carbon Adsorption Filtration
Dover Municipal Well 4	Not present	2	TCE PCE	Not Determined
Garden State Cleaners/South	Not present	2	Trans 1,2-Dichloroethylene Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping Carbon Adsorption

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2 Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Higgins Farm	Not present	6	Acetone Arsenic Chloride Chlorobenzene Toluene Xylene	Metals Precipitation Air Stripping Filtration Ion Exchange
Islip Municipal Landfill	Not present	1	Volatile organic compounds (VOCs)	Metals Precipitation Air Stripping
Lang Property	Suspected	5	tetrachlorethylene 1,1-dichloroethene 1,1-dichloroethane trichloroethene chromium	Carbon Adsorption Filtration Off-Gas Treatment
Lipari Landfill site	Suspected	9	Benzene and Toluene Bis(2-chloroethyl) ether Xylene 1,2-Dichloroethane Methylene Chloride Phenol Chromium Lead Zinc	Metals Precipitation Carbon Adsorption Off-Gas Treatment Other/Not Sure
Mattiace Petrochemical	Observed	12	Aromatic VOCs Chlorinated Aliphatics Chlorinated Solvents Ethylbenzene Tetrachloroethylene Trichloroethylene Ethylbenzene Toluene Xylenes Methylene Chloride Dichlorobenzene Acetone	Metals Precipitation Air Stripping Carbon Adsorption Filtration Off-Gas Treatment

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2 Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Metal TEC/Aerosystems	Observed	2	TCE PCE	Not determined
Mohonk Road Industrial Plant	Not present	4	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene (DCE) Trichloroethylene (TCE)	Air Stripping Carbon Adsorption Filtration Off-Gas Treatment
Montgomery Township/Rocky	Don't know	1	TCE	Air Stripping Carbon Adsorption
SMS Instruments	Not present	1	Xylene	Air Stripping Carbon Adsorption
Stanton Cleaners Area Groundwater	Suspected	4	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) DCE BTX MTBE	Metals Precipitation Air Stripping Carbon Adsorption Filtration Off-Gas Treatment
Syncon Resins	Observed	6	Acetone Benzene Chlorobenzene Ethylbenzene Toluene Xylene	Metals Precipitation Air Stripping Biological Treatment Carbon Adsorption Filtration Off-Gas Treatment
Vestal Water Supply Well 1-1	Not present	5	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene (DCE) 1,2-Dichloroethylene (DCE) Trichloroethylene (TCE)	Air Stripping
Vineland Chemical Co.	Not present	1	Arsenic	Metals Precipitation Filtration
Williams Property	Not present	7	Bis(2-chloroethyl) ether Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) Acetone Isophorone Methyl ethyl ketone (MEK) Methyl isobutyl ketone (MIBK) Xylene	Biological Treatment UV oxidation Carbon Adsorption

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Region 2 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
American Thermostat	29.5%	$5,021,877	27.2	Sufficient	70	14	4	228	Minor Severe
Bog Creek Farm LTRA	30.0%	$1,833,415	23.4	Sufficient	30	33	4	9	Minor Minor
Brewster Wellfield	17.5%	$317,513	6.2	Not evaluated	50	4	1	64	Minor Minor
Circuitron	8.0%	$26,187	1.9	Sufficient	80	3	3	76	Minor Moderate
Claremont Polychemical	30.0%	$2,578,700	18.6	Not evaluated	420	3	3	56	Minor Minor
Combe Fill South Landfill	38.0%	$5,065,193	27.2	Not Sufficient	121	19	4	72	Minor Moderate
Garden State Cleaners/South	32.5%	$2,383,103	28.2	Currently being evaluated	300	15	2	54	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
3. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
4. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
5. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Higgins Farm	40.0%	$5,799,020	27.2	Not evaluated	30	20	4	102	Minor Moderate
Islip Municipal Landfill	7.5%	($8,929)	1.5	Sufficient	300	6	2	96	Minor Minor
Lang Property	5.0%	$70,395	3.5	Sufficient	30	1	3	32	Minor Minor
Lipari Landfill site	17.5%	$1,136,049	3.4	Sufficient	125	25	4	39	Minor Minor
Mattiace Petrochemical	23.0%	$2,357,411	28.1	Sufficient	10	9	5	15	Minor Moderate
Mohonk Road Industrial Plant	unknown	unknown	30.0	Currently being evaluated	40	3	4	34	Minor Moderate
SMS Instruments	7.5%	$35,130	2.7	Sufficient	100	2	2	72	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
3. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
4. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
5. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Syncon Resins	28.0%	$1,401,885	27.2	Not Sufficient	20	3	6	0	Minor Moderate
Vestal Water Supply Well 1-1	10.0%	$145,660	13.7	Sufficient	450	1	1	12	Minor Minor
Vineland Chemical Co. Groundwater	30.0%	$18,266,142	29.9	Currently being evaluated	1400	13	2	2080	Moderate Severe
Williams Property	5.0%	($9,717)	1.4	Sufficient	80	2	3	36	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
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Region 2 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Pre-Operational									
Dover Municipal Well 4	unknown	unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metal TEC/Aerosystems	unknown	unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Montgomery Township/Rocky Hill	28.0%	$1,696,715	32.2	N/A	250	3	2	80	Minor Moderate
Stanton Cleaners Area Groundwater	28.0%	$908,161	20.2	N/A	90	3	5	120	Minor Moderate

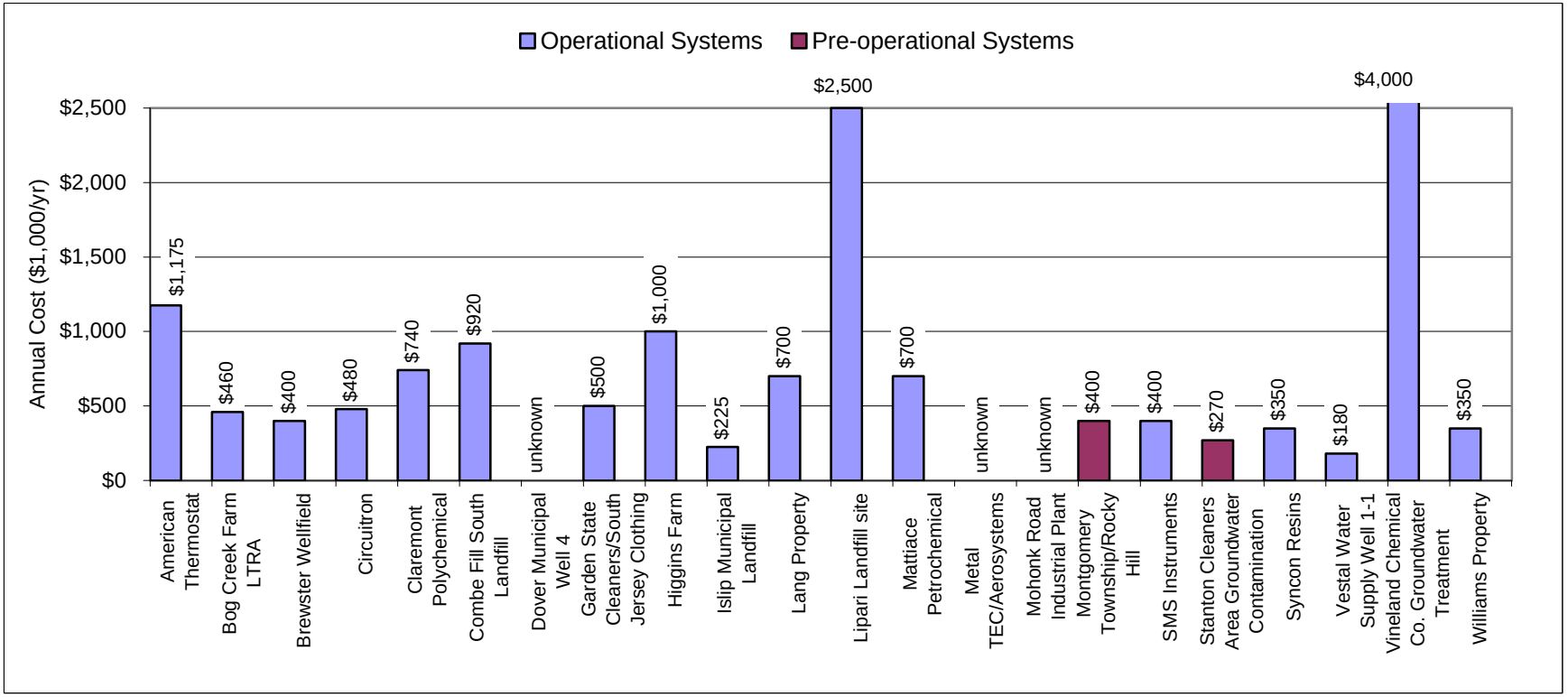
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
3. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
4. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per
5. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 2, Figure 1 -- Estimated Annual Costs of Systems

July 3, 2001



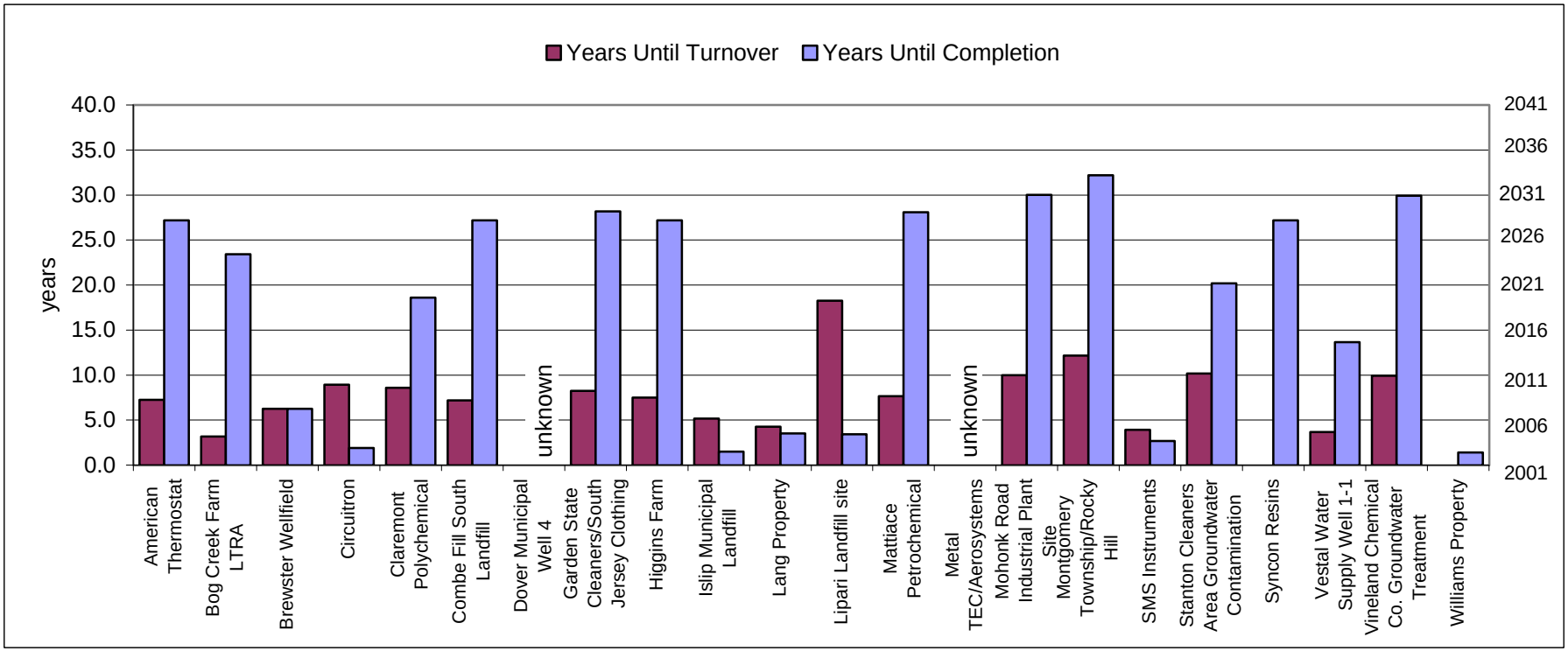
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.
3. Cost data is not yet available for the Mohonk Road Industrial Plant Site

Region 2, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Montgomery Township/Rocky Hill are two separate Fund-lead sites that will share a single P&T system.
2. The following systems are pre-operational; therefore, the associated data are estimates and some items are unknown: Dover Municipal Well 4, MetalTec/Aerosystems, Montgomery Township/Rocky Hill, and Stanton Cleaners.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 3

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 3 which began in January 2001 and is an ongoing process. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Twelve Fund-lead P&T systems were identified in Region 3. Of this twelve, ten are operational and two are pre-operational (i.e., pre-design, design, being installed, or installed but not operating). In addition, two Fund-lead sites have been identified that will likely involve P&T technology.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.
- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.
- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed. Because some Regions do not have two Fund-lead P&T systems, the allotted but unused RSEs for those Regions are allocated to other Regions.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 3 classified as completed, operational, planned, and no-longer operating. Those in bold were selected for RSEs.

Operational
- AIW Frank
- Berks Sand Pit
- Butz Landfill
- Croydon TCE
- Cryo-Chem
- Greenwood Chemical
- **Hellertown Manufacturing**
- North Penn Area 1
- **Raymark**
- Saunders Supply

Pre-Operational
- Havertown PCP
- North Penn Area 6

Potential
- Crossley Fram
- Vienna PCE

Typically, only systems with operational histories are chosen to receive RSEs, and the status of P&T systems in Region 3 at the time of site screening complicates site selection. During the screening, many of the P&T systems transitioned from pre-operational to operational systems. Specifically, at the time of the screening, AIW Frank, Butz Landfill, and Greenwood Chemical were considered pre-operational.

After these transitioning systems, Croydon TCE, Hellertown Manufacturing, and Raymark represented the next largest estimated life-cycle cost savings based on the screening methodology employed for the project. Croydon TCE was eliminated from consideration as it represented a conflict of interest for many of the RSE team members. Hellertown Manufacturing, although scheduled for transition to the responsible parties in late 2001, was still recommended for an RSE based on the support of Region 3. Finally, the selection of Raymark was encouraged by the Remedial Project Manager. Thus, Hellertown Manufacturing and Raymark are both selected for RSEs in Region 3.

Region 3, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**12**
Number that are EPA lead	**12 of 12**
Number that are State lead	**0 of 12**
System Status	
Number that are operational	**10**
Number that are pre-operational	**2**
Number where restoration is a goal	**12 of 12**
Number where the plume is controlled*	**5 of 10**
Number that are estimated to be more than 80% complete*	**0 of 10**
Number previously evaluated and effectiveness found sufficient*	**4 of 10**
Number previously evaluated and effectiveness found not sufficient*	**1 of 10**
Extent of Contamination	
Number where NAPLs are observed	**1 of 12**
Number with more than 1 major contaminant identified	**12 of 12**
Number with 3 or more treatment processes	**5 of 12**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$298,634**
Average estimated annual monitoring cost	**$102,442**
Average number of years until turnover to the States	**7.6**
Average number of years until completion	**20.0**

*Operational sites only

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 3, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
AIW Frank/Mid-County Mustang Site, OU#1	$180,000	EPA	Final	Operational	Restoration	Unknown	Unknown	Sufficient
Berks Sand Pit	$150,000	EPA	Final	Operational	Restoration	Yes	20% - 80%	Sufficient
Butz Landfill	$250,000	EPA	Final	Operational	Restoration	Unknown	less than 20%	Not evaluated
Croydon TCE	$200,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Sufficient
CryoChem	$125,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Sufficient
Greenwood Chemical Site	$400,000	EPA	Interim	Operational	Containment & Restoration	Control is not a goal	Unknown	Not evaluated
Havertown PCP OU2	$1,000,000	EPA	Interim	Being Installed	Containment & Restoration	N/A	N/A	Not evaluated
Hellertown Manufacturing	$350,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Not Sufficient
North Penn Area 1	$100,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Havertown PCP and North Penn Area 6 are pre-operational; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 3, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
North Penn Area 6	$592,900	EPA	Final	Design	Containment & Restoration	N/A	N/A	Not evaluated
Raymark	$155,711	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Not evaluated
Saunders Supply Company	$80,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Havertown PCP and North Penn Area 6 are pre-operational; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 3, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
AIW Frank/Mid-County Mustang Site, OU#1	9/29/95		11/2000	9/2001	9/2011	10.2	9/2031	30.2
Berks Sand Pit	9/29/88	2/2/94	2/1995	2/1995	2/2005	3.6	2/2003	1.6
Butz Landfill	6/30/92	8/27/99	4/2001	4/2001	4/2011	9.8	4/2031	29.8
Croydon TCE	6/29/90		3/1995	3/1995	3/2005	3.7	3/2025	23.7
CryoChem	9/30/91		2/1998	6/1998	6/2008	6.9	6/2010	8.9
Greenwood Chemical Site	12/30/90		11/2000	11/2001	11/2011	10.3	11/2020	19.3
Havertown PCP OU2	9/30/91		5/2001	4/2002	4/2012	10.8	4/2033	31.8
Hellertown Manufacturing	9/3/91		9/1996	3/1996	9/2006	5.2	9/2026	25.2
North Penn Area 1	9/30/94	9/24/98	7/1998	9/1998	9/2008	7.2	9/2018	17.2
North Penn Area 6	8/10/00		9/2002	6/2003	6/2013	11.9	6/2033	31.9
Raymark	9/28/90		1/1994	6/1995	1/2004	2.5	1/2014	12.5
Saunders Supply Company	9/27/96		4/1998	5/1999	5/2009	7.8	4/2008	6.8

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Region 3, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
AIW Frank/Mid-County Mustang Site, OU#1	Charlie Root EPA Region 3 1650 Arch Street (3HS21) Philadelphia, PA 19103 215-814-3193 215-814-3002 (fax) root.charlie@epa.gov	Ragesh Patel Pennsylvania Department of Environmental Protection Lee Park, Suite 6010 555 North Lane Conshohocken, PA 19428 610-832-6161 610-832-6260 (fax) patel.ragesh@state.pa.us	Neil Teamerson TetraTech NUS 600 Clark Avenue, Suite 3 King of Prussia, PA 19406 610-491-9688 610-491-9645 (fax) teamersonn@ttnus.com
Berks Sand Pit	Bruce Rundell EPA Region 3 1650 Arch Street Philadephia, PA 19103-2087 215-814-3317 215-814-3015 (fax) rundell.bruce@epa.gov	Elise Juers PADEP 909 Elmerton Av. Harrisburg, PA 17110-8200 717-705-4852 717-705-4830 (fax) juers.elise@a1.dep.state.pa.45	Ed Kashdan Gannett Fleming PO Box 80794 Valley Forge, PA 19484 610-650-8101 610-650-8190 (fax) ekashdan@GFnet.com
Butz Landfill	Rom Roman EPA Region 3 1650 Arch Street Philadelphia, PA 19103-2087 215-814-3212 215-814-3015 (fax) roman.romuald@epa.gov	PADEP Paul Panek PADEP 4530 Bath Pike Bethlehem, PA 18017 610-861-2070 610-861-2072 (fax) panek.paul@dep.state.pa.us	Charles Huval Koester Environmental Services 14649 Highway 41 N Evansville, IN 47725 812-483-4516
Croydon TCE	Cesar Lee EPA Region 3 1650 Arch St Philadelphia, PA 19103 215-814-3205 215-814-3205 (fax) lee.cesar@epa.gov	Ewald Dave PADEP Lee Park, Suite 6010 Conshohocken, PA 19428 610-832-6200 610-832-5950 (fax) Ewald.David@dep.state.pa.us	Harish Mital Tetra Tech, Inc. Plaza 273, 56 West Main Street Christiana, DE 19702 302-738-7551 302-454-5988 (fax) harish.mital@tetratech.com

Region 3, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
CryoChem	Joseph McDowell EPA Region 3 1650 Arch Street Phila, PA 19103 215-814-3192 215-814-3002 (fax) mcdowell.joseph@epa.gov	Rich Morgan PADEP 909 Elmerton Ave Harrisburg, PA 17110 610-916-0122 610-916-0100 (fax) MORGAN.RICHARD@DEP.STATE.PA.US	Don Koch ETA 9115 Guilford Road Suite 100 Columbia, MD 21046 410-461-9920 410-750-8565 (fax) dkoch@md.ccjm.com
Greenwood Chemical Site	Philip Rotstein EPA Region 3 1650 Arch Street Philadelphia, PA 19103 215-814-3232 215-814-3002 (fax) rotstein.phil@epa.gov	Berry Wright Department of Environmental Quality 629 E. Main Street Richmond, VA 23219 804-698-4012 804-698-4234 (fax) bfwright@deq.state.va.us	Jeff Waters CH2M Hill 1700 Market Street, Suite 1600 Philadelphia, PA 19103 215-563-4220 215-563-3828 (fax) jwaters@ch2m.com
Havertown PCP OU2	Gregory Ham EPA Region 3 1650 Arch Street (3HS21) Philadelphia, PA 19103-2029 215-814-3194 215-814-3002 (fax) ham.greg@epa.gov	April Flipse Pennsylvania Dept. of Environmental Protection 555 North Lane, Suite 6010 Conshohocken, PA 19428 610-832-5937 610-832-6143 (fax) Flipse.April@dep.state.pa.us	Lori Stoll URS Corporation 200 Orchard Ridge Drive, Suite 101 Gaithersburg, MD 20878-1978 301-258-9780 301-869-2043 (fax) lori_stoll@urscorp.com
Hellertown Manufacturing	Cesar Lee EPA Region 3 1650 Arch Street Philadelphia, PA 19103 215-814-3205 215-814-3205 (fax) lee.cesar@epa.gov	Meg Mustard PADEP 4530 Bath Pike Bethlehem, PA 18017 610-861-2076 610-861-2072 (fax) boyer.margaret@dep.state.pa.us	Jim Romig CDM Federal Corporation 993 Old Eagle School Road, Suite 408 Wayne, PA 19087 610-293-0450 610-293-1920 (fax) romigjm@cdm.com

Region 3, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
North Penn Area 1	Maria de los A. Garcia EPA Region 3 1650 Arch Street Philadelphia, PA 19103 215-814-3199 215-814-3002 (fax) garcia.maria@epa.gov	April Flipse Pennsylvania Department of Environmental Protection Lee Park, Suite 6010 555 North Lane Conshohocken, PA 19428 610-832-5937 610-832-6143 (fax)	Policarpio Mijares U.S. Army Corps of Engineers P.O. Box 1715 Baltimore, PA 21203 410-962-2782 410-962-2318 (fax)
North Penn Area 6	Gregory Ham EPA Region 3 1650 Arch Street (3HS21) Philadelphia, PA 19103-2029 215-814-3194 215-814-3002 (fax) ham.greg@epa.gov	Robert Zang Pennsylvania Dept. of Environmental Protection 555 North Lane, Suite 6010 Conshohocken, PA 19428 610-832-6152 610-832-6259 (fax) Zang.Robert@state.pa.us	Ray Lees It Corporation 1220 Ward Avenue, Suite 300 West Chester, PA 19380-3409 610-241-5000 610-241-5050 (fax) rlees@theitgroup.com
Raymark	Deanna Moultrie EPA Region 3 1650 Arch Street Philadelphia, PA 19103 215-814-5125 215-814-3002 (fax) moultrie.deanna@epa.gov	David Minsker PADEP Lee Park Suite 6010 555 North Lane Conshohocken, PA 19428 610-832-6193 610-832-6143 (fax) Minsker.David@dep.state.pa.us	Andy Hopton CDM Federal Programs 993 Old Eagle School Road Wayne, PA 19083 610-293-0450 610-293-1920 (fax) HoptonAP@cdm.com
Saunders Supply Company	Andrew Palestini EPA Region 3 1650 Arch Street Philadelphia, PA 19103 215-814-3233 215-814-3002 (fax) palestini.andy@epa.gov	Thomas Modena Virginia Department of Environmental Quality 629 East Main Street Richmond, VA 23219 804-698-4183 804-698-4500 (fax) tdmodena@deq.state.va.us	Marc Gutterman U.S. Army Corps of Engineers 803 Front Street Norfolk, VA 23510 757-441-7669 757-441-7478 (fax) Marc.D.Gutterman@nao02.usace.army.mil

Region 3, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
AIW Frank/Mid-County Mustang Site, OU#1	Not present	2	1,1,2,2-Tetrachloroethane Trans 1,2-Dichloroethylene	Air Stripping Carbon Adsorption Filtration Off-Gas Treatment
Berks Sand Pit	Not present	2	1,1,1-Trichloroethane 1,1-Dichloroethylene (DCE)	Air Stripping
Butz Landfill	Not present	3	Diesel fuel Trichlorobenzene Vinyl Chloride	Air Stripping Off-Gas Treatment
Croydon TCE	Suspected	4	1,1,2-Trichloroethane 1,1-Dichloroethylene (DCE) Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) Trichloroethylene (TCE)	Air Stripping Carbon Adsorption
CryoChem	Don't know	3	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene (DCE)	Air Stripping
Greenwood Chemical Site	Don't know	5	1,1-Dichloroethane Acetone Arsenic Benzene and Toluene Naphthalene Acetic Acid, 1,2-Dichloroethane, SVOC TICs, Dibutyl phthalate, 2,4,6,-Trichlorophenol	Metals Precipitation UV oxidation Carbon Adsorption Filtration Off-Gas Treatment
Havertown PCP OU2	Observed	4	Benzene and Toluene Dioxin (TCDD equivalents) Pentachlorophenol (PCP) Trichloroethylene (TCE)	Metals Precipitation UV oxidation Carbon Adsorption Filtration
Hellertown Manufacturing	Not present	5	Benzene Cis-1,2-dichloroethene TCE and Vinyl chloride Trans 1,2-Dichloroethylene Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping Carbon Adsorption

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 3, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
North Penn Area 1	Not present	7	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene (DCE) Cis-1,2-dichloroethene Trans 1,2-Dichloroethylene Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) Volatile organic compounds (VOCs)	Other/Not Sure
North Penn Area 6	Suspected	3	Carbon tetrachloride TCE and Vinyl chloride Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Metals Precipitation Air Stripping Off-Gas Treatment
Raymark	Not present	2	Carbozol Trichlorobenzene	Carbon Adsorption Off-Gas Treatment
Saunders Supply Company	Suspected	2	Arsenic Pentachlorophenol (PCP)	Metals Precipitation Carbon Adsorption Filtration

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 3 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
	Operational								
AIW Frank/Mid-County Mustang Site, OU#1	28.0%	$746,159	30.2	Sufficient	118	5	4	60	Minor Moderate
Berks Sand Pit	5.0%	($17,266)	1.6	Sufficient	90	1	1	48	Minor Minor
Butz Landfill	25.0%	$925,229	29.8	Not evaluated	90	3	2	68	Minor Minor
Croydon TCE	20.0%	$516,796	23.7	Sufficient	25	6	2	28	Minor Minor
CryoChem	8.0%	$42,373	8.9	Sufficient	60	9	1	4	Minor Moderate
Greenwood Chemical Site	32.5%	$1,538,361	19.3	Not evaluated	45	5	5	136	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 3 Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
	Operational								
Hellertown Manufacturing	20.5%	$979,619	25.2	Not Sufficient	50	1	2	48	Minor Moderate
North Penn Area 1	10.0%	$86,353	17.2	Not evaluated	2	1	1	8	Minor Minor
Raymark	17.5%	$216,640	12.5	Not evaluated	62	2	2	0	Minor Minor
Saunders Supply Company	17.0%	$46,510	6.8	Not evaluated	2	4	3	40	Minor Severe
	Pre-Operational								
Havertown PCP OU2	25.5%	$3,894,975	31.8	Not evaluated	45	4	4	30	Minor Moderate
North Penn Area 6	35.5%	$3,210,586	31.9	Not evaluated	300	10	3	120	Minor Moderate

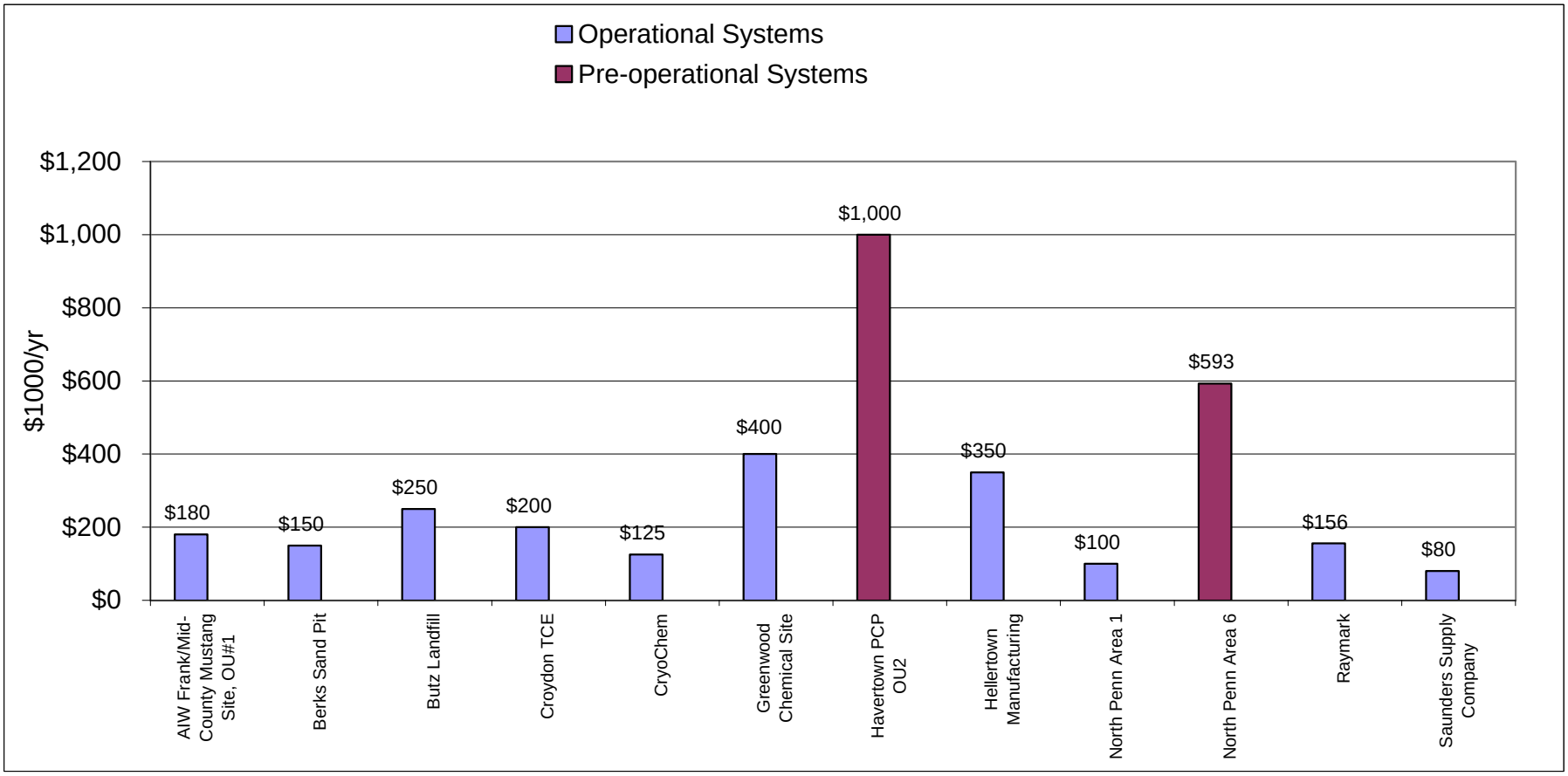
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 3, Figure 1 -- Estimated Annual O&M Costs

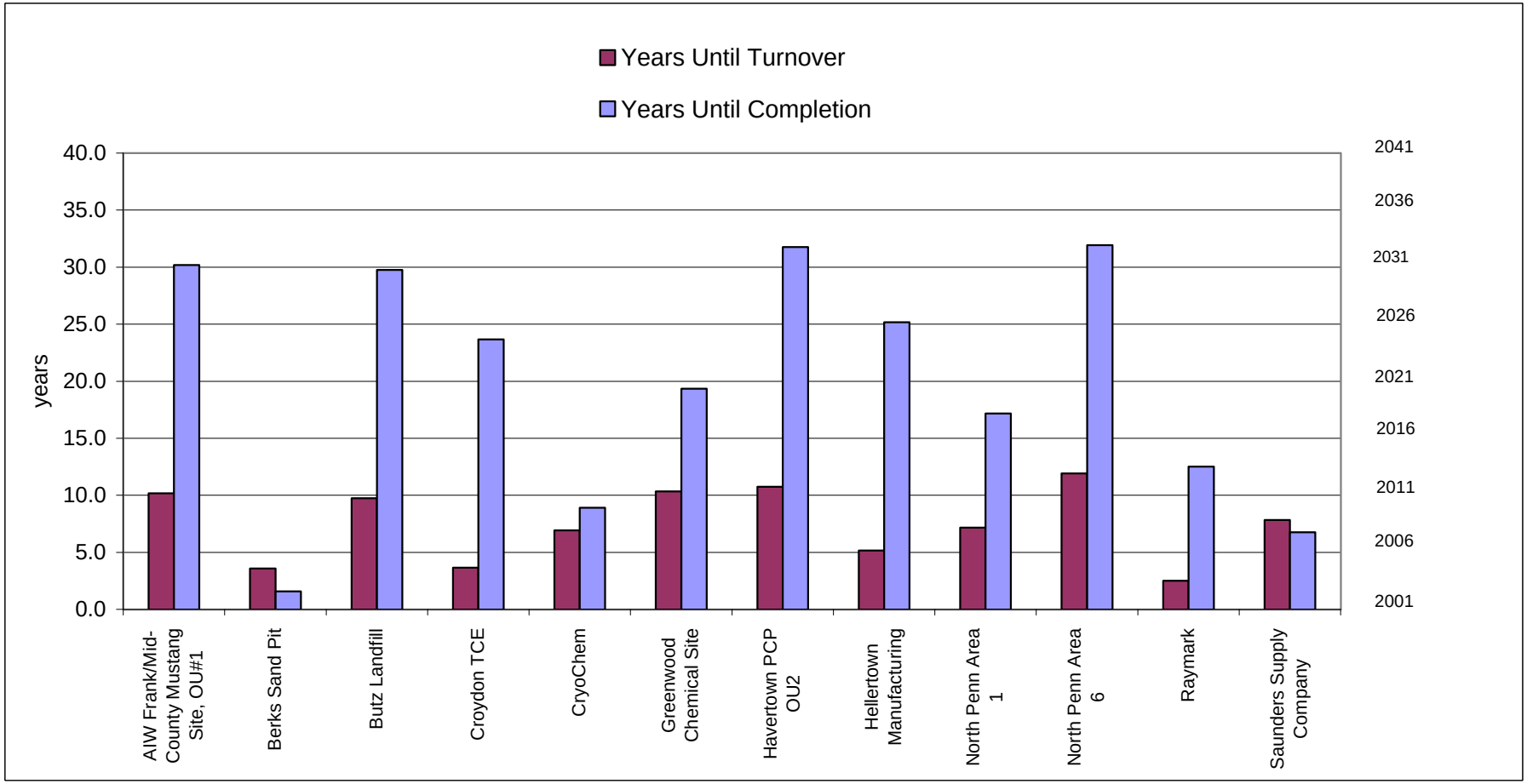
July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 3, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 4

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 4 that began in July 2000 as part of a demonstration optimization project and was revisited in April and May 2001 as part of a nationwide optimization project. The Fund-lead P&T systems in Region 4 were identified during the demonstration project and baseline information was collected on each system. Two of the identified P&T systems were selected to receive RSEs and those two systems received their RSEs in 2000. This report includes information collected during the demonstration project as well as additional information collected during the nationwide project conducted in 2001. Where applicable, system information collected in 2000 has been updated by system information collected in 2001.

The data presented in this report reflect estimates updated by the site Remedial Project Managers between April and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

Cost and Performance Data

Ten Fund-lead P&T systems were identified in Region 4. Of this ten, seven are operational and three are pre-operational (i.e., pre-design, design, being installed, or installed but not operating). In addition, two Fund-lead P&T systems have been identified that have been transferred to the responsible parties and an additional Fund-lead P&T system is no longer operating.

Data collection is incomplete for the following three systems in Region 4 for the following reasons:

- EPA is currently in litigation with the system contractor for ABC Cleaners and details of the system could not be discussed.

- There is no Remedial Project Manager for the Miami Drum site. EPA provides funding to the local government for water supply but does not provide oversight.

- P&T is specified in the Record of Decision for Coleman Evans but that technology will likely not be used.

Cost and performance data and other information pertaining to the remaining identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization or from phone interviews and were stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLs are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed. Because some Regions do not have two Fund-lead P&T systems, the allotted but unused RSEs for those Regions are allocated to other Regions.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 4 classified as operational, pre-operational, transferred to responsible parties, and no-longer operating. Those in bold were selected for RSEs.

Operational
- ABC Cleaners
- American Creosote (current)
- Benfield
- **Elmore Waste Disposal**
- **FCX Statesville**
- Miami Drum
- Palmetto Wood

Pre-Operational
- American Creosote (future)
- Cape Fear Wood Preserving
- Coleman Evans

Transferred to Responsible Parties
- Distler's Brickyard
- Distler's Farm

No Longer Operating
- Hollingsworth Solderless Terminals

Elmore Waste Disposal and FCX Statesville were selected for RSEs during the demonstration project based on the interest of the Remedial Project Managers and estimated potential savings as determined by screening calculations.

Region 4, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**10**
Number that are EPA lead	**9 of 10**
Number that are State lead	**1 of 10**
System Status	
Number that are operational	**7**
Number that are pre-operational	**3**
Number where restoration is a goal	**9 of 10**
Number where the plume is controlled*	**1 of 7**
Number that are estimated to be more than 80% complete*	**0 of 7**
Number previously evaluated and effectiveness found sufficient*	**3 of 7**
Number previously evaluated and effectiveness found not sufficient*	**0 of 7**
Extent of Contamination	
Number where NAPLs are observed	**4 of 10**
Number with more than 1 major contaminant identified	**7 of 10**
Number with 3 or more treatment processes	**1 of 10**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$306,500**
Average estimated annual monitoring cost	**$12,300**
Average number of years until turnover to the States	**7.2**
Average number of years until completion	**10.0**

*Operational sites only

No-Longer-Operating Fund-lead P&T Systems
Hollingsworth Solderless Terminals

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 4, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
ABC Cleaners	Unknown	EPA	Final	Operational	Restoration	N/A	N/A	N/A
American Creosote Works (DNAPL)	$300,000	EPA	Final	Operational	Restoration	No	less than 20%	Not evaluated
American Creosote Works (solute)	$452,000	EPA	Final	Predesign	Containment & Restoration	N/A	N/A	Not evaluated
Benfield Industries	$30,000	EPA	Final	Operational	Containment & Restoration	Unknown	less than 20%	Not evaluated
Cape Fear Wood Preserving	$40,000	EPA	Final	Designed/ Not Installed	Containment & Restoration	N/A	N/A	Not evaluated
Coleman Evans Wood Preserving	Unknown	EPA	Interim	Predesign	Restoration	N/A	N/A	Not evaluated
Elmore Waste Disposal	$180,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Sufficient
FCX Statesville	$150,000	EPA	Final	Operational	Containment & Restoration	Unknown	less than 20%	Sufficient
Miami Drum	$1,000,000	State with Fund Money	Final	Operational	Water supply	N/A	N/A	N/A
Palmetto Wood	$300,000	EPA	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. American Creosote Works (solute), Cape Fear Wood Preserving, and Coleman Evans Wood Preserving are pre-operational systems; therefore, the reported data are estimates and some information is unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 4, Table 3 -- P&T System Histories and Projections

July 3, 2001

	Date							
System	**Original ROD**	**Last ROD Modification**	**Construction Completed**	**Operational and Functional**	**Turnover to State**	**Years Until Turnover**	**Expected Completion**	**Years Until Completion**
ABC Cleaners	1/26/93							
American Creosote Works (DNAPL)	2/3/94		9/1998	9/1998	5/2003	1.8	5/2003	1.8
American Creosote Works (solute)	2/3/94		9/2004	9/2004	9/2014	13.2	9/2009	8.2
Benfield Industries	7/31/92		4/2001	5/2001	5/2011	9.8	5/2021	19.8
Cape Fear Wood Preserving	6/30/89	3/23/01	9/2001	9/2002	10/2011	10.3	12/2009	8.4
Coleman Evans Wood Preserving	9/25/86	9/25/97						
Elmore Waste Disposal	4/26/93		9/1998	9/1998	9/2008	7.2	9/2018	17.2
FCX Statesville	9/27/93	9/30/96		5/1998	5/2008	6.8	5/2008	6.8
Miami Drum	1/0/00		9/1992	9/1992	9/2002	1.2		
Palmetto Wood	9/30/87	8/4/93	5/1997	1/1998	5/2008	6.8	5/2008	6.8

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 4, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
ABC Cleaners	Luis Flores EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8807 (fax) flores.luis@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 919-733-4811 (fax) nile.testerman@ncmail.net	
American Creosote Works (DNAPL)	Mark Fite EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8927 (fax) fite.mark@epa.gov	John Sykes FDEP FL 850-488-019 850-488-0190 (fax)	Joe Findley USACE, Mobile District Mobile, AL 334-694-4012
American Creosote Works (solute)	Mark Fite EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8927 (fax) fite.mark@epa.gov	John Sykes FDEP FL 850-488-0190 850-488-0190 (fax)	Joe Findley USACE, Mobile District Mobile, AL 334-694-4012
Benfield Industries	Jon Bornholm EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8820 (fax) bornholm.jon@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 919-733-4811 (fax) nile.testerman@ncmail.net	Chris Leggett CMC Newport, TN 423-625-0557

Region 4, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Cape Fear Wood Preserving	Jon Bornholm EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-3104 404-562-8820 404-562-8788 (fax) bornholm.jon@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2901 919-733-4811 (fax) nile.testerman@ncmail.net	Ed Hicks Black & Veatch 1145 Sanctuary Parkway, Suite 475 Alpharetta, GA 30004 770-521-8141 770-751-8322 (fax) hicksec@bc.com
Coleman Evans Wood Preserving	Randall Chaffins EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8929 chaffins.randall@epa.gov	John Sykes FDEP FL 850-413-0066 850-488-0190 (fax)	Todd Trulock USACE, Jacksonville District Jacksonville, FL 904-232-1110
Elmore Waste Disposal	Ralph Howard EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8829 howard.ralph@epa.gov	Lucas Berresford SCDHEC 21 Bull Street Columbia, SC 29201	Ed Hicks Black and Veatch Atlanta, GA 770-751-7517
FCX Statesville	Ken Mallory EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8802 mallory.ken@epa.gov	Nile Testerman NCDENR 401 Oberlin Road Raleigh, NC 27605 919-733-2801 919-733-4811 (fax) nile.testerman@ncmail.net	Ralph McKeen Roy F. Weston Atlanta, GA 770-263-5438

Region 4, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Miami Drum	Jim McGuire EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8911 mcguire.jim@epa.gov		
Palmetto Wood	Al Cherry EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303-8960 404-562-8807 cherry.al@epa.gov	Keisha Long SCDH 21 Bull Street Columbia, SC 29201 803-896-4073	Tim Eggert CDM 2030 Powers Ferry Road, Suite 325 Atlanta, GA 30339 678-202-8912 770-951-8910 (fax) eggerttj@cdm.com

Region 4, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
ABC Cleaners	Not present	3	1,1-Dichloroethylene (DCE) Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) vinyl chloride	Air Stripping Filtration
American Creosote Works (DNAPL)	Observed	7	Acenaphthene Benzene Dibenzofuran Fluoranthene Naphthalene Pentachlorophenol (PCP) carcinogenic PAHs	Carbon Adsorption Filtration Other/Not Sure
American Creosote Works (solute)	Observed	7	Acenaphthene Benzene Dibenzofuran Fluoranthene Naphthalene Pentachlorophenol (PCP) carcinogenic PAHs	Biological Carbon Adsorption
Benfield Industries	Not present	1	Creosote and petroleum hydrocarbons	Other/Not Sure
Cape Fear Wood Preserving	Observed	5	Benzene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene	Carbon Adsorption
Coleman Evans Wood Preserving	Observed	2	Dioxin Pentachlorophenol (PCP)	
Elmore Waste Disposal	Don't know	2	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) Volatile organic compounds (VOCs)	Carbon Adsorption Other/Not Sure
FCX Statesville	Don't know	3	Pesticides Volatile organic compounds (VOCs) PCE	Carbon Adsorption Filtration
Miami Drum	Not present	1	Trichloroethylene (TCE)	Air Stripping
Palmetto Wood	Not present	1	Chromium	Other/Not Sure

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 4, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
	Operational								
ABC Cleaners	unknown	unknown		N/A			2		N/A
American Creosote Works (DNAPL)	7.5%	$3,248	1.8	Not evaluated	0.1	8	3	8	Minor Minor
Benfield Industries	15.0%	$29,974	19.8	Not evaluated	16	2	1	32	Minor Minor
Elmore Waste Disposal	20.0%	$375,872	17.2	Sufficient	30	9	2	68	Minor Minor
FCX Statesville	20.0%	$134,513	6.8	Sufficient	20	10	2	72	Minor Minor
Miami Drum	unknown	unknown		N/A	104000	40	1		N/A
Palmetto Wood	18.0%	$262,124	6.8	Sufficient	130	10	1	16	Minor Moderate
	Pre-Operational								
American Creosote Works (solute)	17.5%	$468,926	8.2	Not evaluated	105	3	2	20	Minor Minor
Cape Fear Wood Preserving	22.5%	$32,696	8.4	Not evaluated	43	7	1	100	Minor Moderate
Coleman Evans Wood Preserving	unknown	unknown		Not evaluated					N/A

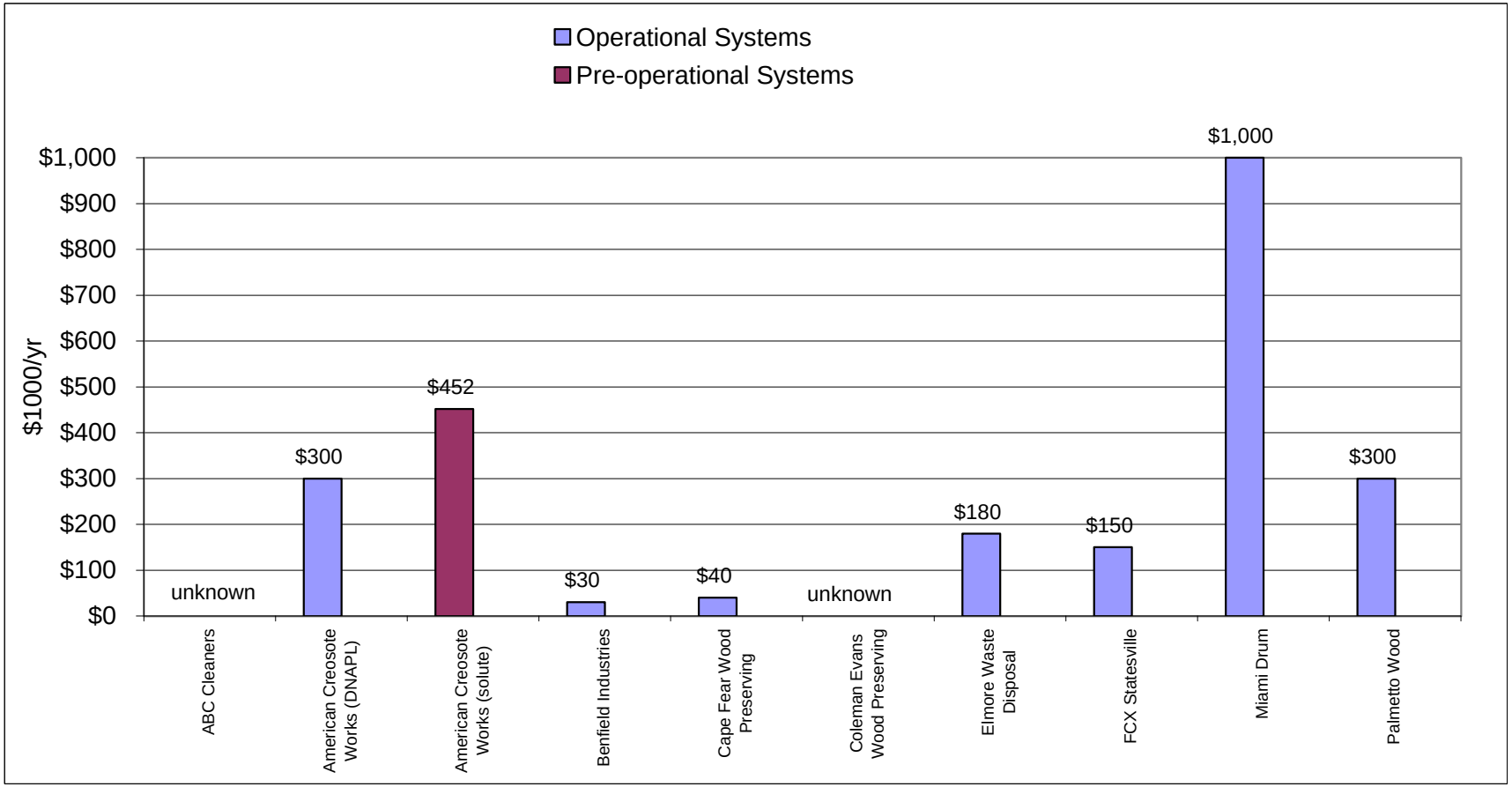
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 4, Figure 1 -- Estimated Annual Costs of Systems

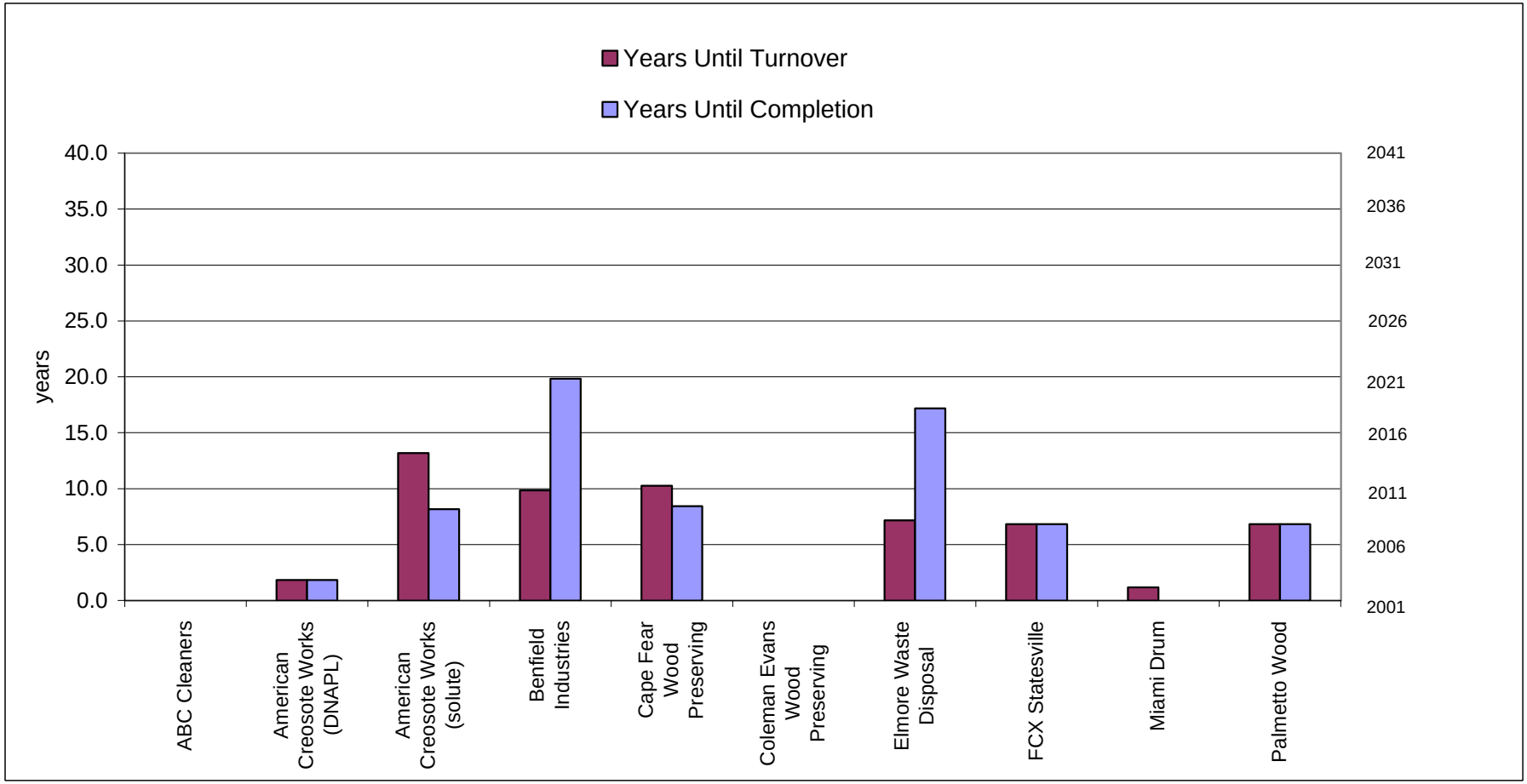
July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 4, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 5

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 5 which began in April 2000 as part of a demonstration optimization project and was revisited in April and May 2001 as part of a nationwide optimization project. The Fund-lead P&T systems in Region 5 were identified during the demonstration project and baseline information was collected on each system. Two of the identified P&T systems were selected to receive RSEs and those two systems received their evaluations in 2000. This report includes information collected during the demonstration project as well as additional information collected during the nationwide project conducted in 2001. Where applicable, system information collected in 2000 has been updated by system information collected in 2001.

The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Fifteen Fund-lead P&T systems were identified in Region 5. Of this fifteen, twelve are operational and three are pre-operational (i.e., pre-design, design, being installed, or installed but not operating). In addition, two previous Fund-lead P&T systems have been transferred to the relevant states and another has been transferred to the responsible party.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected during phone interviews with the Remedial Project Managers (RPMs) and were stored in a database. All RPMs were successfully contacted except for those associated with Eau Claire Well Field and Duell and Gardner. For these two systems,

information was obtained from the site Record of Decisions, fact sheets, and notes from previous interviews during the demonstration project. The collected information for all Fund-lead P&T systems in Region 5 is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.
- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.
- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.
- Table 5 notes for each system and the associated site if NAPLs are present, the top contaminants of concern, and the above-ground treatment processes.
- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed. Because some Regions do not have two Fund-lead P&T systems, the allotted but unused RSEs for those Regions are allocated to other Regions.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,

- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 5 classified as operational, pre-operational, transferred to responsible parties, and no-longer operating. Those in bold were selected for RSEs.

Operational
- Arrowhead
- Better Brite
- Eau Claire
- La Salle
- Long Prairie
- **MacGillis and Gibbs**
- **Oconomowoc**
- Onalaska
- **Ott/Story/Cordova**
- U.S. Aviex
- Verona
- Wash King

Pre-Operational
- Douglass Road
- Duell and Gardner
- Peerless Plating

Transferred to States
- Old Mill
- Perham Arsenic

Transferred to Responsible Parties
- Bofors Nobel

MacGillis and Gibbs and Oconomowoc Electroplating were selected for RSEs during the demonstration project based on the interest of the Remedial Project Managers and estimated potential savings as determined by screening calculations. Ott/Story/Cordova was selected for an RSE as part of the nationwide project based on its high operational costs relative to other Fund-lead P&T systems and the relatively high potential savings from optimization as indicated by the screening process.

Region 5, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**15**
Number that are EPA lead	**7 of 15**
Number that are State lead	**7 of 15**
System Status	
Number that are operational	**12**
Number that are pre-operational	**3**
Number where restoration is a goal	**14 of 15**
Number where the plume is controlled*	**6 of 12**
Number that are estimated to be more than 80% complete*	**3 of 12**
Number previously evaluated and effectiveness found sufficient*	**7 of 12**
Number previously evaluated and effectiveness found not sufficient*	**0 of 12**
Extent of Contamination	
Number where NAPLs are observed	**3 of 15**
Number with more than 1 major contaminant identified	**13 of 15**
Number with 3 or more treatment processes	**4 of 15**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$378,714**
Average estimated annual monitoring cost	**$42,929**
Average number of years until turnover to the States	**5.9**
Average number of years until completion	**15.8**

*Operational sites only

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 5, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Arrowhead Refinery	$70,000	State with Fund Money	Final	Operational	Containment & Restoration	Yes	more than 80%	Sufficient
Better Brite Plating Co. Chrome and Zinc Shops	$36,000	State with Fund Money		Operational	Containment & Restoration	Yes	less than 20%	Sufficient
Douglass Road	$120,000	EPA	Final	Installed	Containment & Restoration	N/A	N/A	Not evaluated
Duell and Gardner	Unknown	EPA	Interim	Installed	Restoration	N/A	N/A	Not evaluated
Eau Claire Municipal Well Field	$175,000	State with Fund Money		Operational	Unknown	Unknown	Unknown	Sufficient
La Salle Electrical Utilities	$230,000	State with Fund Money	Final	Operational	Containment & Restoration	Yes	20% - 80%	Sufficient
Long Prairie	$300,000	State with Fund Money	Final	Operational	Restoration	Yes	20% - 80%	Not evaluated
MacGillis and Gibbs/Bell Lumber & Pole	$300,000	EPA	Final	Operational	Restoration	Unknown	less than 20%	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 5, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Oconomowoc Electroplating	$471,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Sufficient
Onalaska Municipal Landfill	$200,000	EPA	Final	Operational	Containment & Restoration	Yes	more than 80%	Sufficient
Ott/Story/Cordova Chem Co.	$2,400,000	EPA	Final	Operational	Containment & Restoration	Unknown	20% - 80%	Not evaluated
Peerless Plating	$400,000	Unknown	Final	Installed	Restoration	N/A	N/A	Sufficient
U.S. Aviex	$300,000	State with Fund Money	Final	Operational	Restoration	No	20% - 80%	Sufficient
Verona Well Field	$225,000	EPA	Final	Operational	Containment & Restoration	Yes	more than 80%	Not evaluated
Wash King Laundry	$75,000	State with Fund Money	Final	Operational	Restoration	Unknown	less than 20%	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 5, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
Arrowhead Refinery	9/30/86	2/9/94	6/1993	7/1993	7/2003	2.0	4/2004	2.7
Better Brite Plating Co. Chrome and Zinc Shops	9/24/96		8/2000	4/1993	6/2006	4.9	4/2030	28.8
Douglass Road	5/3/96		9/2000	7/2001	9/2010	9.2	10/2030	29.3
Duell and Gardner	9/30/93	5/31/01	7/2001	7/2001	7/2011	10.0	7/2007	6.0
Eau Claire Municipal Well Field	3/31/88	8/1/90	6/1987	3/1991	unknown	unknown	unknown	unknown
La Salle Electrical Utilities	8/29/86	3/30/88	2/1998	3/1994	3/2004	2.7	3/2005	3.7
Long Prairie	6/14/88		11/1996	8/1996	10/2007	6.2	10/2015	14.3
MacGillis and Gibbs/Bell Lumber & Pole	9/30/91	9/22/94	10/1999	10/1999	10/2009	8.3	10/2029	28.3
Oconomowoc Electroplating	9/20/90		9/1996	9/1996	9/2006	5.2	9/2026	25.2
Onalaska Municipal Landfill	8/14/90		7/1994	8/1995	6/2004	2.9	7/2002	1.0

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.

Region 5, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
Ott/Story/Cordova Chem Co.	9/29/89	9/29/90	2/1996	2/1996	8/2010	9.1	8/2030	29.1
Peerless Plating	9/21/92		11/2000	unknown	unknown	unknown	unknown	unknown
U.S. Aviex	9/7/88		9/1993	9/1993	9/2003	2.2	9/2003	2.2
Verona Well Field	8/12/85		6/1996	6/1996	6/2006	4.9	Indefinite	Indefinite
Wash King Laundry	3/31/93	7/31/96	4/2001	4/2001	4/2011	9.8	4/2021	19.8

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.

Region 5, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Arrowhead Refinery	Darryl Owens EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-7089 owens.darryl@epa.gov	Maureen Johnson MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-7353 maureen.johnson@pca.state.mn.us	Gary Schroeher Delta Environmental 2770 Cleveland Ave Roseville, MN 55113-1127 651-639-9449
Better Brite Plating Co. Chrome and Zinc Shops	John Peterson EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-353-1264 peterson.john@epa.gov	Keld Lauredsen WDNR 1125 Military Ave. Box 10448 Green Bay, WI 54307 920-492-5921 920-492-5913 (fax) lauredsenk@dnr.state.wi.us	
Douglass Road	Dion Novak EPA Region 5 77 West Jackson Blvd. Chicago, IL 60604-3507 312-886-4737 Novak.Dion@epa.gov	Kevin Herron IN 317-234-0354	Dan Plomb CH2MHILL 135 S. 84th Street Suite 325 Milwaukee, WI 53214 414-272-2426
Duell and Gardner	Kyle Rogers EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-1995 rogers.kyle@epa.gov	Walelign Wagaw MDEQ P.O. Box 30426 Lansing, MI 48909 517-373-9896	Tim Gouger USACE, Rapid Response 12565 West Center Road Omaha, NE 68144-3869 402-293-2514 402-291-8177 (fax) Timothy.P.Gouger@nwo02.usace.army.mil

Region 5, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Eau Claire Municipal Well Field	Sheri Bianchin EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4745 bianchin.sheri@epa.gov		
La Salle Electrical Utilities	Steve Padovani EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-353-6755 padovani.steven@epa.gov	Rich Lang IEPA P.O. Box 1515 La Salle, IL 61301 815-223-6836 epa4137@epa.state.il.us	Neil Brown Ecology and Environment 33 N. Deerborne St. Chicago, IL 60602 312-578-9243
Long Prairie	Sheila Sullivan EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-5251 sullivan.sheila@epa.gov	Mariam Horneff MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-7228	Bill Bangsund Barr Engineering 612-832-2738
MacGillis and Gibbs/Bell Lumber & Pole	Darryl Owens EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-7089 owens.darryl@epa.gov	Nile Fellows MPCA 520 Lafayette Road St. Paul, MN 55155-4194 651-296-6300	Larry Campbell Black and Veatch Chicago, IL

Region 5, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Oconomowoc Electroplating	Steve Padovani EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-353-6755 padovani.steven@epa.gov	Paul Kozol WDNR 3911 Fish Hatchery Road Fitchburg, WI 53711 608-275-3301 608-275-3338 (fax) kozolp@dnr.state.wi.us	Craig Evans USACE, St. Paul District 190 Fifth Street East St. Paul, MN 55101-1638 651-290-5594 651-290-5800 (fax) Craig.O.Evans@mvp02.usace.army.mil
Onalaska Municipal Landfill	Timothy Prendiville EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-5122 prendiville.timothy@epa.gov	Dave Carper WDNR 3550 Mormon Coulee Road La Crosse, WI 54601 608-785-9973 608-785-9990 (fax) carped@dnr.state.wi.us	Jim Fisher CH2MHill Milwaukee, WI 414-272-1052 jfisher1@ch2m.com
Ott/Story/Cordova Chem Co.	John Fagiolo EPA Region 5 77 West Jackson Blvd. Chicago, IL 60604-3507 312-886-0800 fagiolo.john@epa.gov	Lisa Summerfield Michigan Dept. of Environmental P.O. Box 30426 Lansing, MI 48909 517-335-3388 summerfl@state.mi.us	Brain Bouwhuis USACE-Detroit District PO Box 629 Grand Haven, MI 49417 231-766-2007 231-766-3287 (fax) Brian.j.Bouwhuis@usace.army.mil
Peerless Plating	Mike Ribordy EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4592 ribordy.mike@epa.gov		Mike Johnson Tetra Tech 312-856-8796

Region 5, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
U.S. Aviex	Ken Glatz EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-1434 glatz.ken@epa.gov	Judy Gapp MDEQ P.O. Box 30426 Lansing, MI 48909 517-335-3391 517-335-4887 (fax) gappj@state.mi.us	Jack Brunner Tetra Tech 312-856-8788
Verona Well Field	Richard Boice EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4740 boice.richard@epa.gov	Beth O'Brien MDEQ P.O. Box 30426 Lansing, MI 48909 517-335-3908 obrienea@state.mi.us	
Wash King Laundry	Russell Hart EPA Region 5 77 West Jackson Boulevard Chicago, IL 60604-3507 312-886-4844 hart.russell@epa.gov	Sally Beebe MDEQ-ERD P.O. Box 30426 Lansing, MI 48909 517-373-4110 517-335-4887 (fax) beebes@state.mi.us	Malcolm Pirnie 517-337-0111

Region 5, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Arrowhead Refinery	Not present	4	Pentachlorophenol (PCP) VOCs PNAs VC	Other/Not Sure
Better Brite Plating Co. Chrome and Zinc Shops	Not present	1	Chromium	Metals Precipitation
Douglass Road	Not present	4	Arsenic TCE and Vinyl chloride Tetrahydrofuran Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Other/Not Sure
Duell and Gardner	Not present	5	Anthracene Carbozol Chloromethane N-N dimethylanaline Gentin Violet	Carbon Adsorption
Eau Claire Municipal Well Field	Don't know	2	Trans 1,2-Dichloroethylene Vernolate	Air Stripping
La Salle Electrical Utilities	Not present	3	Transuranic wastes PCB TCA	Carbon Adsorption Other/Not Sure
Long Prairie	Observed	3	Dichloroethylene Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) VC	Carbon Adsorption
MacGillis and Gibbs/Bell Lumber & Pole	Observed	3	Chromium Pentachlorophenol (PCP) carcinogenic PAHs	Biological Treatment Carbon Adsorption Filtration Off-Gas Treatment
Oconomowoc Electroplating	Not present	3	Cadmium Cyanide Volatile organic compounds (VOCs)	Metals Precipitation Air Stripping Carbon Adsorption
Onalaska Municipal Landfill	Not present	3	Benzo(a)anthracene Trans 1,2-Dichloroethylene Volatile chlorinated organics	Metals Precipitation Air Stripping

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 5, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Ott/Story/Cordova Chem Co.	Observed	5	1,2-Dichloroethane 1,2-Dichloroethylene (DCE) Organophosphorus pesticides (4,4'-DDT, lindane) Vapona vinyl chloride	Biological Treatment Carbon Adsorption Other/Not Sure
Peerless Plating	Don't know	2	Cadmium Trichloroethylene (TCE)	Metals Precipitation Air Stripping Off-Gas Treatment
U.S. Aviex	Not present	4	1,1,1-Trichloroethane 1,1-Dichloroethane 1,2-Dichloroethane diethylether	Air Stripping
Verona Well Field	Not present	4	1,2-Dichloropropane Tin Trans 1,2-Dichloroethylene Volatile chlorinated organics	Air Stripping Off-Gas Treatment
Wash King Laundry	Don't know	1	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping Off-Gas Treatment

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 5, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Arrowhead Refinery	5.0%	($17,724)	2.7	Sufficient	25	0	1	36	Minor Moderate
Better Brite Plating Co. Chrome and Zinc Shops	12.0%	$39,644	28.8	Sufficient	0	0	1	28	Minor Severe
Eau Claire Municipal Well Field	unknown	unknown	unknown	Sufficient	4500	14	1	0	Severe Severe
La Salle Electrical Utilities	12.5%	$57,261	3.7	Sufficient	20	0	2	100	Minor Minor
Long Prairie	15.5%	$429,665	14.3	Not evaluated	227	9	1	22	Minor Moderate
MacGillis and Gibbs/Bell Lumber & Pole	32.0%	$1,399,624	28.3	Not evaluated	60	14	4	60	Minor Severe
Oconomowoc Electroplating	24.5%	$1,590,721	25.2	Sufficient	30	5	3	40	Minor Severe
Onalaska Municipal Landfill	5.0%	($20,219)	1.0	Sufficient	560	5	2	20	Minor Minor

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 5, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Ott/Story/Cordova Chem Co.	40.0%	$14,418,502	29.1	Not evaluated	700	10	3	120	Minor Minor
U.S. Aviex	5.0%	($1,583)	2.2	Sufficient	170	6	1	120	Minor Minor
Verona Well Field	25.5%	$856,994	Indefinite	Not evaluated	250	6	2	10	Minor Moderate
Wash King Laundry	23.0%	$185,195	19.8	Not evaluated	250	5	2	46	Minor Moderate
Pre-Operational									
Douglass Road	32.5%	$563,336	29.3	Not evaluated	1000	5	1	72	Minor Minor
Duell and Gardner	unknown	unknown	6.0	Not evaluated	80	2	1	50	Minor Minor
Peerless Plating	unknown	unknown	unknown	Sufficient	165	6	3	24	Minor Minor

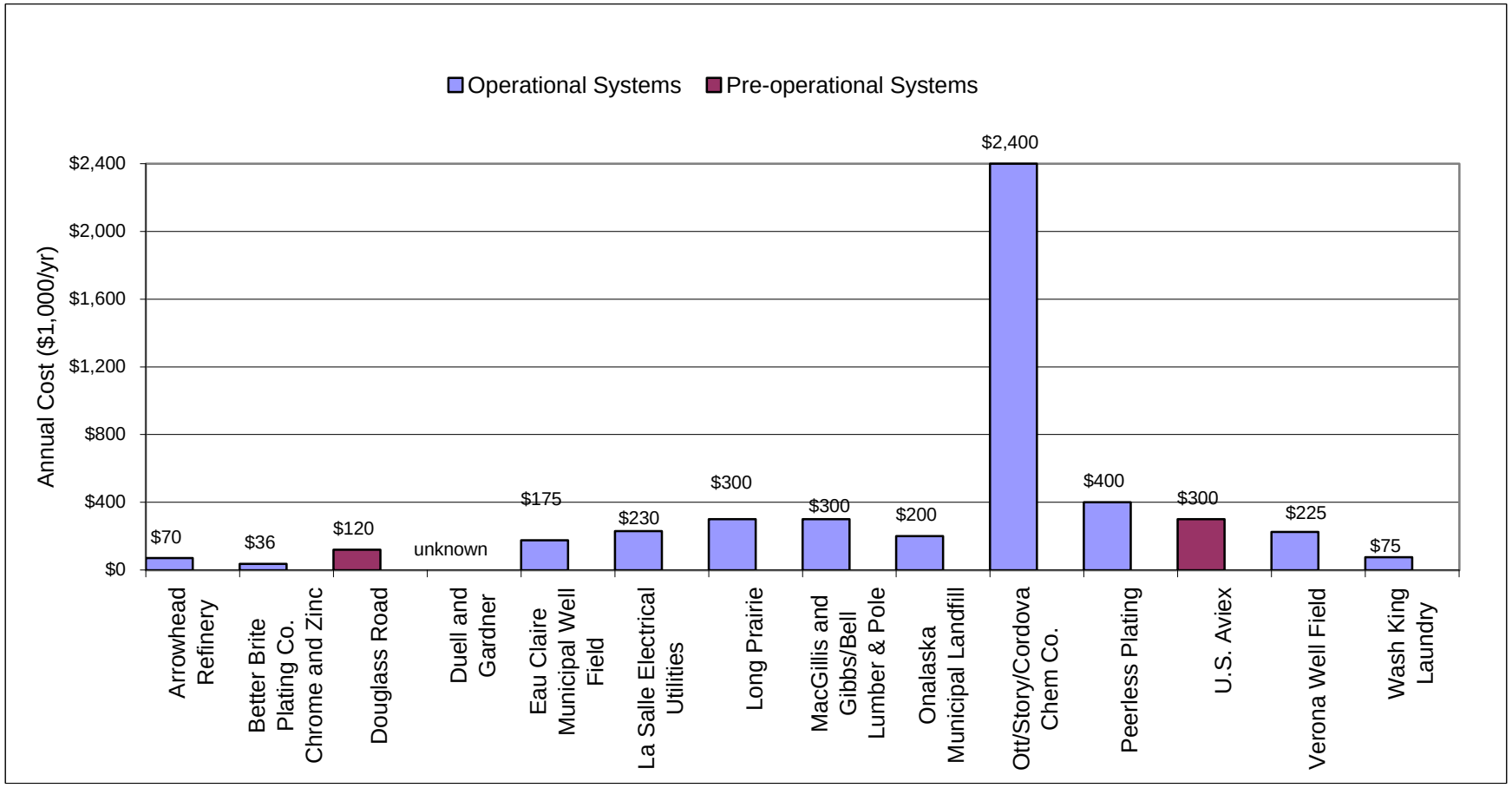
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 5, Figure 1 -- Estimated Annual Costs of Systems

July 3, 2001



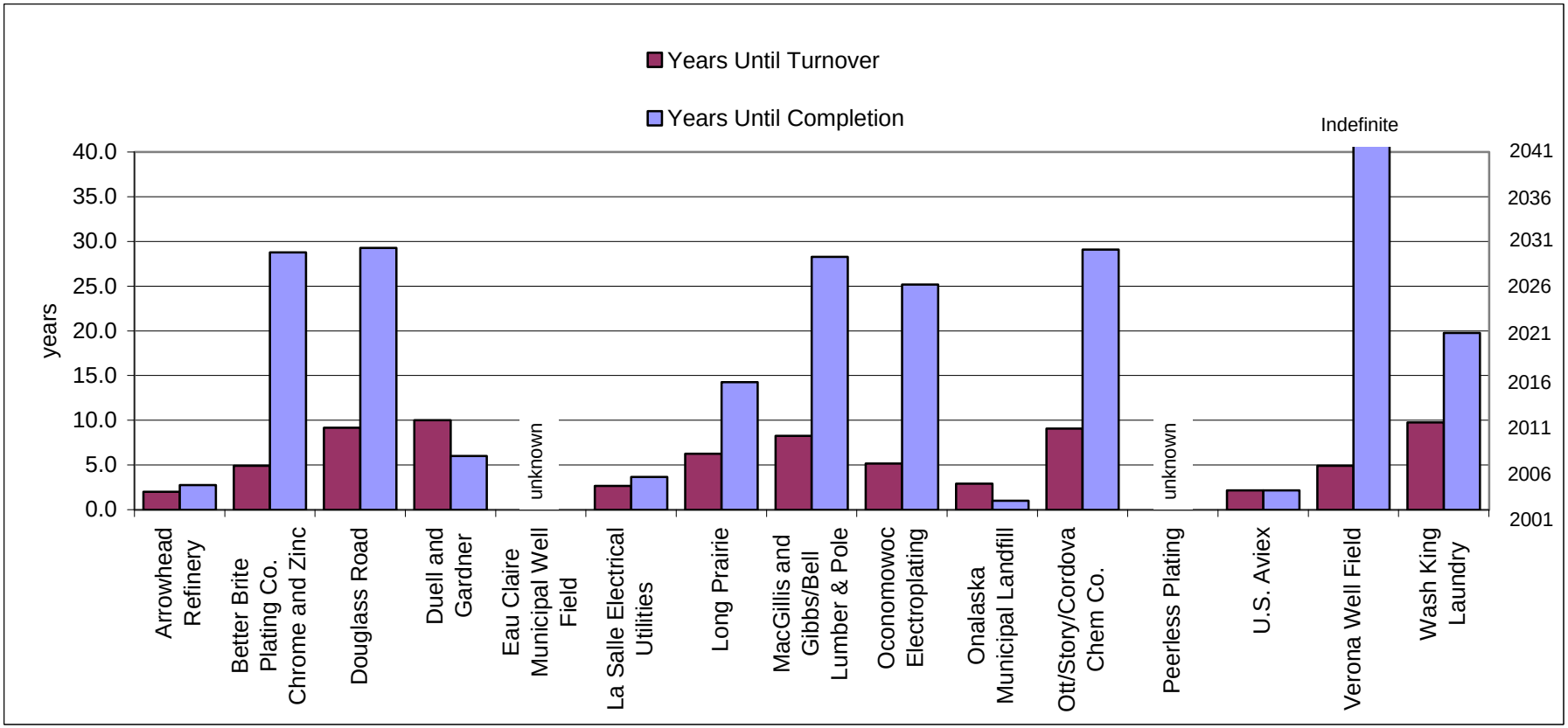
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.

Region 5, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Douglass Road, Duell and Gardner, and Peerless Plating are pre-operational systems; therefore, the associated data are estimates and some items are unknown.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 6

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 6 which was conducted during January 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Eleven Fund-lead P&T systems were identified in Region 6. Of this eleven,

- six are operational,
- three are pre-operational,
- one is complete, and
- one has returned to remedial-investigation status.

One of the operational P&T systems is a component of a more comprehensive strategy that primarily relies on *in situ* bioremediation. In addition, another one of the operational systems and the completed system utilize *in situ* chemical treatment to enhance the P&T remediation.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Two Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 6 classified as completed, operational, planned, and no-longer operating. Those in bold were selected for RSEs.

Completed
- *Odessa Chromium #2

Operational
- **American Creosote Works
- **Bayou Bonfouca**
- Cimarron Mining
- Geneva Industries
- **Midland Products**
- *Odessa Chromium #1

Planned
- City of Perryton Well #2
- North Cavalcade Superfund Site
- Sprague Road Ground Water Plume

No longer operating
- Sol Lynn/Industrial Transformers

** Remediation was significantly enhanced through in situ treatment with ferrous sulfate.*
*** In-situ bioremediation is the primary remedial action.*

Only operational systems that are not temporarily shutdown (Geneva Industries) and not within a year of completion (Odessa Chromium #1) were considered in selecting the two systems for RSEs. Because American Creosote Works had recently completed an intensive 5-year review with an outside party, its P&T system was removed from consideration as other systems would likely benefit more from an RSE. While Cimarron Mining exhibited high estimated potential savings, it is a relatively simple system with a pumping rate of 1 gpm, three wells, and direct discharge of the extracted water. Furthermore, for Cimarron Mining moderate social and political obstacles for minor system modifications and severe social and political obstacles for major system modifications discourage an RSE since suggested modifications likely would not be implemented.

Thus, the selection of the P&T systems at Bayou Bonfouca and Midland Products for RSEs arose not from a quantitative analysis of the potential cost savings but rather from feasibility and practicality of conducting and RSE and implementing the suggested modifications.

Region 6, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems
Odessa Chromium #2

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**9**
Number that are EPA lead	**5 of 9**
Number that are State lead	**4 of 9**
System Status	
Number that are operational	**6**
Number that are pre-operational	**3**
Number where cleanup is a goal	**6 of 9**
Number where the plume is controlled*	**4 of 6**
Number that are estimated to be more than 80% complete*	**1 of 6**
Number previously evaluated and effectiveness found sufficient*	**5 of 6**
Number previously evaluated and effectiveness found not sufficient*	**1 of 6**
Extent of Contamination	
Number where NAPLs are observed	**3 of 9**
Number with more than 1 major contaminant identified	**6 of 9**
Number with 3 or more treatment processes	**4 of 9**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$489,875**
Average estimated annual monitoring cost	**$63,111**
Average number of years until turnover to the States	**7.2**
Average number of years until completion	**17.5**

*Operational sites only

No-Longer-Operating Fund-lead P&T Systems
Sol Lynn/Industrial Transformers

**** Note: Remediation for the completed system and 80%-complete system was significantly enhanced by in situ treatment.*

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 6, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
American Creosote Works	$360,000	EPA	Final	Operational	Containment	Yes	Restoration is not a goal	Sufficient
Bayou Bonfouca	$402,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Sufficient
Cimarron Mining	$1,000,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Not Sufficient
City of Perryton Well #2	$37,000	EPA	Interim	Design	Containment	N/A	N/A	Not evaluated
Geneva Industries	$240,000	State with Fund Money	Final	Operational (shutdown)	Containment & Restoration	Yes	Unknown	Sufficient
Midland Products	$180,000	State with Fund Money	Final	Operational	Restoration	Yes	less than 20%	Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. The City of Perryton Well #2, North Cavalcade, and Sprague Road systems are pre-operational; therefore, the associated data are estimates
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.
4. In-situ bioremediation is the primary remedial strategy at the American Creosote Works site.
5. The Geneva Industries system is shutdown due to issues with the contractor. Operation is expected to resume in 2004.
6. The remediation has been significantly enhanced by in situ treatment with ferrous sulfate.

Region 6, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
North Cavalcade Superfund Site	unknown	State with Fund Money	Final	Installed	Restoration	N/A	N/A	Not evaluated
Odessa Chromium #1	$500,000	State with Fund Money	Final	Operational	Restoration	Yes	more than 80%	Sufficient
Sprague Road Ground Water Plume	$1,200,000	EPA	Final	Design	Restoration	N/A	N/A	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. The City of Perryton Well #2, North Cavalcade, and Sprague Road systems are pre-operational; therefore, the associated data are estimates
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.
4. In-situ bioremediation is the primary remedial strategy at the American Creosote Works site.
5. The Geneva Industries system is shutdown due to issues with the contractor. Operation is expected to resume in 2004.
6. The remediation has been significantly enhanced by in situ treatment with ferrous sulfate.

Region 6, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
American Creosote Works	4/28/93		2/1997	2/1997	2/2027	25.6	2/2027	25.6
Bayou Bonfouca	3/31/87	7/20/95	7/2000	3/2001	7/2003	2.0	7/2021	20.0
Cimarron Mining	9/21/90		4/1991	12/1991	10/2004	3.2	Indefinite	Indefinite
City of Perryton Well #2	9/29/99		8/2001	8/2003	8/2013	12.1	8/2023	22.1
Geneva Industries	9/18/86		4/1993	7/1993	1/2004	2.5	1/2004	2.5
Midland Products	3/24/88		11/1993	1/1994	1/2004	2.5	1/2034	32.5
North Cavalcade Superfund Site	6/28/88		3/2001	12/2005	12/2005	4.4	12/2010	9.4
Odessa Chromium #1	3/18/88	11/23/99	11/1993	11/1/93	12/2001	0.4	12/2001	0.4
Sprague Road Ground Water Plume	9/29/00		9/2002	9/2003	9/2013	12.2	9/2028	27.2

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. For Cimarron Mining an indefinite completion date was provided by the RPM.
2. The Geneva Industries system is currently shutdown due to issues with the contractor. Operation is expected to resume in 2004.

Region 6, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
American Creosote Works	Stacey Bennett EPA Region 6 1445 Ross Avenue Dallas, TX 75202-2733 214-665-6729 214-665-6660 (fax) bennett.stacey@epa.gov (fax)	Janaye Danage Louisiana Dept. of Environmental Quality P.O. Box 82178 Baton Rouge, LA 70884-2178 225-765-0475 225-765-0484 (fax) janaye_d@deq.state.la.us	Bill Faught CH2MHill 7600 W. Tidwell, Suite 400 Houston, TX 77040-5719 713-462-0161 713-462-0165 (fax) bfaught@ch2m.com
Bayou Bonfouca	Katrina Coltrain EPA Region 6 1445 Ross Avenue Dallas, TX 75202 214-665-8143 214-665-6660 (fax) coltrain.katrina@epa.gov (fax)	Rich Johnson Louisiana Dept. of Environmental Quality P.O. Box 82282 Baton Rouge, LA 70884-2282 225-765-0487 225-765-0435 (fax) rich_j@deq.state.la.us	Lee Guillory USACE-New Orleans District P.O. Box 60267 New Orleans, LA 70160-0267 504-862-2934 504-862-2896 (fax) lee.a.guillory@mvn02.usace.army.mil
Cimarron Mining	Petra Sanchez EPA Region 6 1445 Ross Ave. Suite 1200 Dallas, TX 75202-2733 214-665-6686 214-665-6660 (fax) sanchez.petra@epa.gov	David Henry New Mexico Environment Dept. PO Box 26110 1190 St. Francis Drive Santa Fe, NM 87505 214-827-0037 214-827-2965 (fax) david_henry@nmev.state.nm.us	Brian D. Jordan USACE 4101 Jefferson Plaza NE Albuquerque, NM 87109 505-342-3472 505-342-3208 (fax) brian.D.Joran@spao2.usace.army.mil
City of Perryton Well #2	Vincent Malott EPA Region 6 1445 Ross Avenue Dallas, TX 75202 214-665-8313 214-665-6660 (fax) malott.vincent@epa.gov	Diane Poteet Texas Natural Resource Conserv. Comm. P.O. Box 13087 Austin, TX 78711 512-239-2502 512-239-2450 (fax) dpoteet@tnrcc.state.tx.us	Peter van Noort CH2M Hill 5339 Alpha Road, Suite 300 Dallas, TX 75240 972-980-2170 972-385-0846 (fax) pvannoor@ch2m.com

Region 6, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Geneva Industries	Ruben Moya EPA Region 6 1445 Ross Ave., Suite 1200 Dallas, TX 75202 214-665-2755 214-665-6660 (fax) moya.ruben@epa.gov	James Sher Texas Natural Resource Conserv. Comm. P.O.Box 13087 Austin, TX 78711-3087 512-239-2444 512-239-2450 (fax) JSher@tnrcc.state.tx.us	Sanjay Ramabhadran Lockwood, Andrews & Newman Inc. 1500 Citywest Houston, TX 77042 713-266-6900 713-266-8971 (fax) sanjay@lan-inc.com
Midland Products	Carlos Sanchez EPA Region 6 1445 Ross Avenue Dallas, TX 75202 214-665-8507 214-665-6660 (fax) sanchez.carlos@epa.gov	Clark McWilliams Arkansas Dept. of Environmental Quality P.O. Box 8913 Little Rock, AR 72219 501-682-0850 501-682-0565 (fax) clarkm@adeq.state.ar.us	Russell Perry IT Corp. 13111 NW Highway, Suite 310 Houston, TX 77040-6392 713-996-4400 713-939-9546 (fax) rperry@theitgroup.com
North Cavalcade Superfund	Camille Hueni EPA Region 6 U.S. EPA Region 6, 1445 Dallas, TX 75202-7233 214-665-2231 214-665-6660 (fax) hueni.camille@epa.gov	Uche Ikemba Texas Natural Resource Conserv. Comm. P.O. Box 13087; Mail Code 143 Austin, TX 78711-3087 512-239-2595 512-239-2449 (fax) uikemba@tnrcc.state.tx.us	Frank Frey Foster Wheeler Environmental Corporation 1001 S. Dairy Ashford Street, Ste. 210 Houston, TX 77077 281-597-4821 281-596-0308 (fax) ffrey@fwenc.com
Odessa Chromium #1	Ernest Franke EPA Region 6 1445 Ross Avenue Dallas, TX 75202 214-665-8521 214-665-6660 (fax) franke,ernest@epa.gov	Uche Ikemba Texas Natural Resource Conserv. Comm. 12100 Park Circle Bldg. D , P.O. Box Austin, TX 78711 512-239-2595 512-239-2449 (fax) uikemba@tnrcc.state.tx.us>	William Brown Pacific Western Technologies, Ltd. 575 Oak Ridge Turnpike,Suite B-4 Oak Ridge, TN 37830 865-483-0554 865-483-8838 (fax) pwtitd@usit.net

Region 6, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Sprague Road Ground	Vincent Malott EPA Region 6 1445 Ross Avenue Dallas, TX 75202 214-665-8313 214-665-6660 (fax) malott.vincent@epa.gov	Diane Poteet Texas Natural Resource Conserv. Comm. P.O. Box 13087 Austin, TX 78711 512-239-2502 512-239-2450 (fax) dpoteet@tnrcc.state.tx.us	Cristina Radu Tetra Tech EMI 6121 Indian School Road NE, Suite 205 Albuquerque, TX 87110 505-881-3188 505-881-3283 (fax) raduc@ttemi.com

Region 6, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
American Creosote Works	Observed	2	Chlorinated polyaromatic hydrocarbons (CPAHs) Creosote and petroleum hydrocarbons	Bio. Treatment Carbon Adsorption Filtration
Bayou Bonfouca	Observed	6	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Chrysene	Carbon Adsorption Filtration Other/Not Sure
Cimarron Mining	Not present	1	Nitrate	Other/Not Sure
City of Perryton Well #2	Not present	2	Carbon tetrachloride Chloroform	Air Stripping
Geneva Industries	Not present	5	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) PCB Benzene Toluene Chlorobenzene	Carbon Adsorption Other/Not Sure
Midland Products	Suspected	4	Anthracene Fluoranthene Naphthalene Pentachlorophenol (PCP)	Carbon Adsorption Filtration Other/Not Sure
North Cavalcade Superfund Site	Observed	15	Acenaphthene Acenaphthylene Anthracene Arsenic Benzene and Toluene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene BTEX Chrysene Creosote and petroleum hydrocarbons Dibenzofuran DNAPL Ethylbenzene	Carbon Adsorption Filtration Other/Not Sure
Odessa Chromium #1	Not present	1	Chromium	Other/Not Sure
Sprague Road Ground Water	Not present	1	Chromium	Ion Exchange

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 6, Table 6 -- Screening Summary

July 3, 2001

	System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational	American Creosote Works	22.0%	$1,093,548	25.6	Sufficient	5	18	3 or more	72	Minor Severe
	Bayou Bonfouca	25.5%	$1,233,790	20.0	Sufficient	22.5	44	3 or more	132	Minor Moderate
	Cimarron Mining	15.0%	$2,280,868	Indefinite	Not Sufficient	1	3	1	12	Moderate Severe
	Geneva Industries	8.0%	$10,701	2.5	Sufficient	5	13	2	26	Minor Moderate
	Midland Products	20.0%	$528,408	32.5	Sufficient	3	8	3 or more	40	Minor Minor
	Odessa Chromium #1	5.0%	($25,000)	0.4	Sufficient	60	6	1	14	Minor Minor
Pre-operational	City of Perryton Well #2	17.5%	$59,346	22.1	Not evaluated	150	1	1	20	Minor Minor
	North Cavalcade Superfund Site	27.5%	($25,000)	9.4	Not evaluated	19	19	3 or more	0	Minor Minor
	Sprague Road Ground Water Plume	32.5%	$5,653,419	27.2	Not evaluated	200	22	1	200	Minor Minor

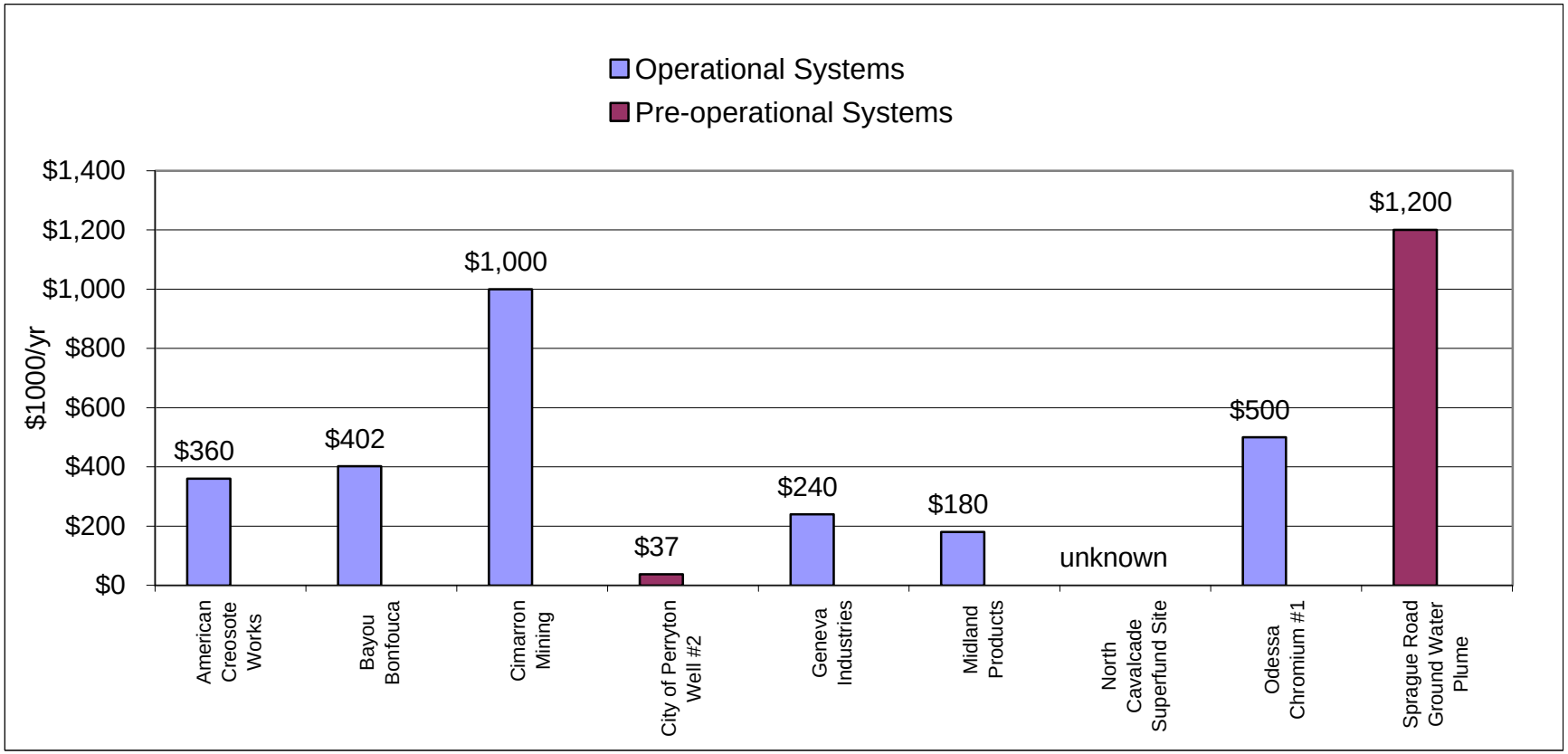
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data--including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.
5. In situ bioremediation is the primary remedial strategy at the American Creosote Works site.
6. The remediation at the Odessa Chromium #1 site has been signficantly enhanced by in situ treatment with ferrous sulfate.
7. The North Cavalcade system is pre-operational, and no cost estimates for were provided.

Region 6, Figure 1 -- Estimated Annual Costs of Systems

July 3, 2001



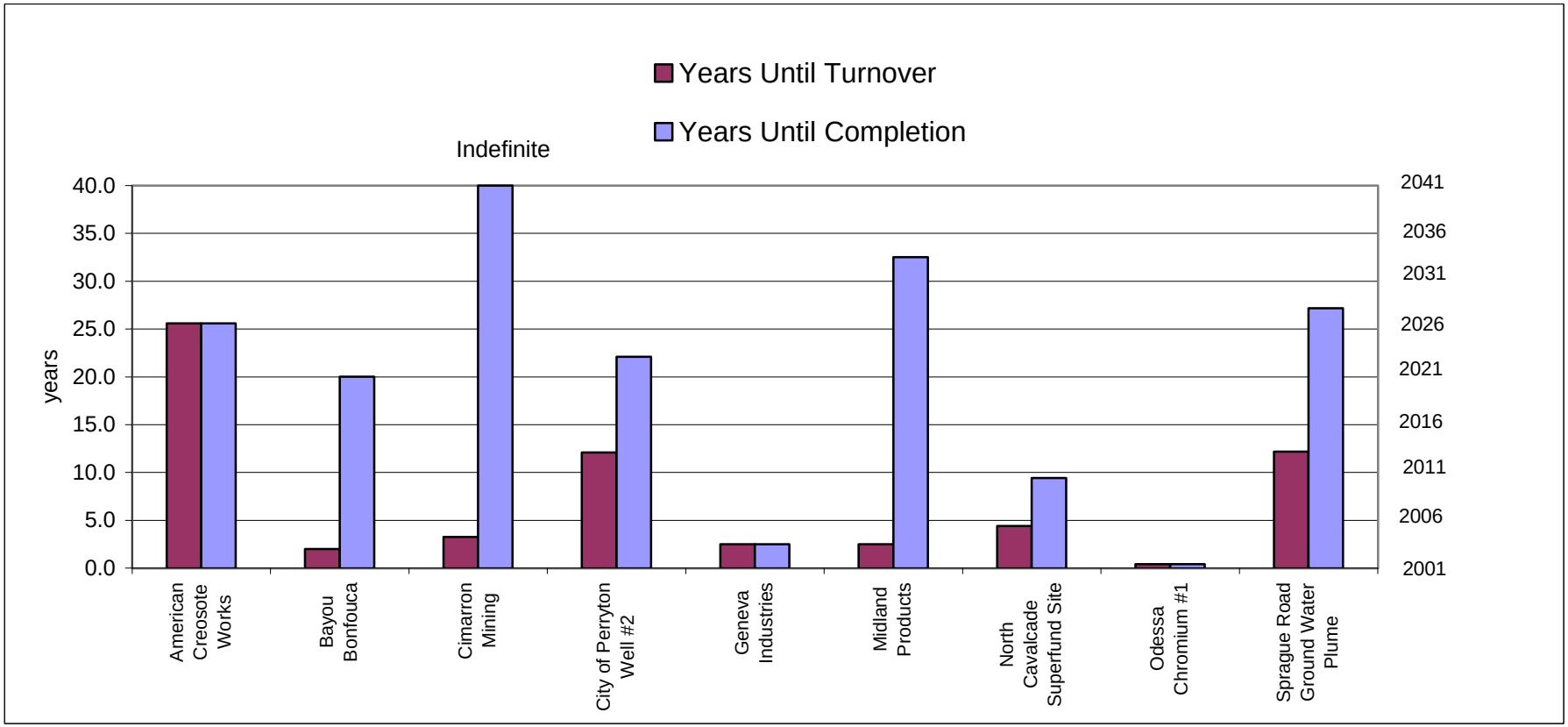
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. The City of Perryton Well #2, North Cavalcade, and Sprague Road systems are pre-operational; therefore, the associated data are estimates
2. The Geneva Industries system is currently shutdown. These are estimated costs for O&M when system resumes operation.

Region 6, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. For Cimarron Mining an indefinite completion date was provided by the RPM.
2. The Geneva Industries system currently shutdown due to issues with the contractor.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 7

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 7 which was conducted during February 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Four Fund-lead P&T systems were identified in Region 7. Of this four,

- one is operational,
- two are pre-operational, and
- one is complete.

In addition, two sites are still in the investigation stage and have potential to be pump-and-treat. Because a remediation strategy has not yet been selected, these two sites are not discussed further in this report.

The site that is undergoing completion, Hastings Groundwater Contamination, has reached the MCL after approximately 10 years of operation.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Sites for RSEs

The following is a list of the identified planned and operating Fund-lead P&T systems and potential Fund-lead P&T systems in Region 7 classified as completed, operational, pre-operational, potential, and no longer operating. As indicated, only one system is operational. By default, it was selected for an RSE and is shown in bold.

Completed
- Hastings Groundwater Contamination

Operational
- **Cleburn Street Well**

Pre-operational
- Ace Services
- Valley Park TCE

Potential
- Ogallala
- 10th Street Site

Because it is the only operating Fund-lead P&T system in Region 7, Cleburn Street Well, will be the sole recipient of a RSE in this Region.

The Record of Decision (ROD) for the Ogallala site is scheduled for 2002 and may involve P&T. The ROD for the 10th Street site indicated monitoring with a contingency plan for P&T; however, during site activities an additional source was discovered and the site is has returned to the remedial-investigation status.

Region 7, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems
Hastings Groundwater Contamination

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**3**
Number that are EPA lead	**2 of 3**
Number that are State lead	**1 of 3**
System Status	
Number that are operational	**1**
Number that are pre-operational	**2**
Number where restoration is a goal	**3 of 3**
Number where the plume is controlled*	**0 of 1**
Number that are estimated to be more than 80% complete*	**0 of 1**
Number previously evaluated and effectiveness found sufficient*	**0 of 1**
Number previously evaluated and effectiveness found not sufficient*	**0 of 1**
Extent of Contamination	
Number where NAPLs are observed	**1 of 3**
Number with more than 1 major contaminant identified	**1 of 3**
Number with 3 or more treatment processes	**0 of 3**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$300,000**
Average estimated annual monitoring cost	**$25,000**
Average number of years until turnover to the States	**8.4**
Average number of years until completion	**15.7**

*Operational sites only

No-Longer-Operating Fund-lead P&T Systems
10th Street Site (back in Remedial Investigation)

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 7, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Ace Services	$500,000	EPA	Final	Design	Containment & Restoration	N/A	N/A	Not evaluated
Cleburn Street Well Site/OU2	$100,000	EPA	Final	Operational	Containment & Restoration	Unknown	Unknown	Not evaluated
Valley Park TCE Site - OU2	unknown	State with Fund Money	Final	Predesign	Containment & Restoration	N/A	N/A	Not evaluated

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Ace Services and Valley Park TCE are pre-operational systems; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 7, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
Ace Services	5/5/99		9/2002	9/2003	9/2013	12.2	9/2015	14.2
Cleburn Street Well Site/OU2	6/7/96		9/1998	10/1999	12/2009	8.4	12/2019	18.4
Valley Park TCE Site - OU2	8/15/01		1/2005	1/2006	1/2006	4.5	1/2016	14.5

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 7, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Ace Services	Bob Stewart EPA Region 7 901 N. 5th St Kansas City, KS 66101 913-551-7654 913-551-9654 (fax) stewart.robert@epa.gov	Cynthia Randall Kansas Dept of Health and Environment Forbes Field, Bldg 20 Topeka, KS 66620 785-291-3245 785-296-4823 (fax) CRandal@kdhe.state.ks.us	Gary Felkner Black & Veatch Special Projects Corp 8400 Ward Parkway Kansas City, MO 64114 913-458-6583 913-458-9391 (fax) felknerg@bv.com
Cleburn Street Well Site/OU2	Mary Peterson EPA Region 7 901 North 5th Street Kansas City, KS 66101 913-551-7882 913-551-7063 (fax) peterson.mary@epa.gov	Ralph Martin Nebraska Department of Environmental 1200 N Street, Suite 400 The Atrium Lincoln, NE 68509-8922 402-471-3120 402-471-2909 (fax) ralph.martin@ndeq.state.ne.us	David Sanders Black and Veatch Special Projects Corp. 6601 College Boulevard Overland Park, KS 66211 913-458-6605 913-458-0000 (fax) SandersHD@bv.com
Valley Park TCE Site - OU2	Steve Auchterlonie EPA Region 7 901 N. 5th St. Kansas City, KS 66101 913-551-7778 913-551-7437 (fax) auchterlonie.steve@epa.gov	Dave Mosby MDNR - Superfund Unit P.O. Box 176 Jefferson City, MO 65102-0176 573-751-1288 573-751-7869 (fax) nrmosbd@mail.dnr.state.mo.us	

Region 7, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Ace Services	Observed	1	Chromium	Ion Exchange
Cleburn Street Well Site/OU2	Don't know	1	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping
Valley Park TCE Site - OU2	Not present	2	1,1,1-Trichloroethane Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Air Stripping

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 7, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Cleburn Street Well Site/OU2	17.5%	$179,042	18.4	Not evaluated	90	3	1	32	Minor Minor
Pre-Operational									
Ace Services	32.5%	$1,557,210	14.2	Not evaluated	800	12	1	124	Minor Minor
Valley Park TCE Site - OU2	unknown	unknown	14.5	Not evaluated	unknown	unknown	1	unknown	Minor Minor

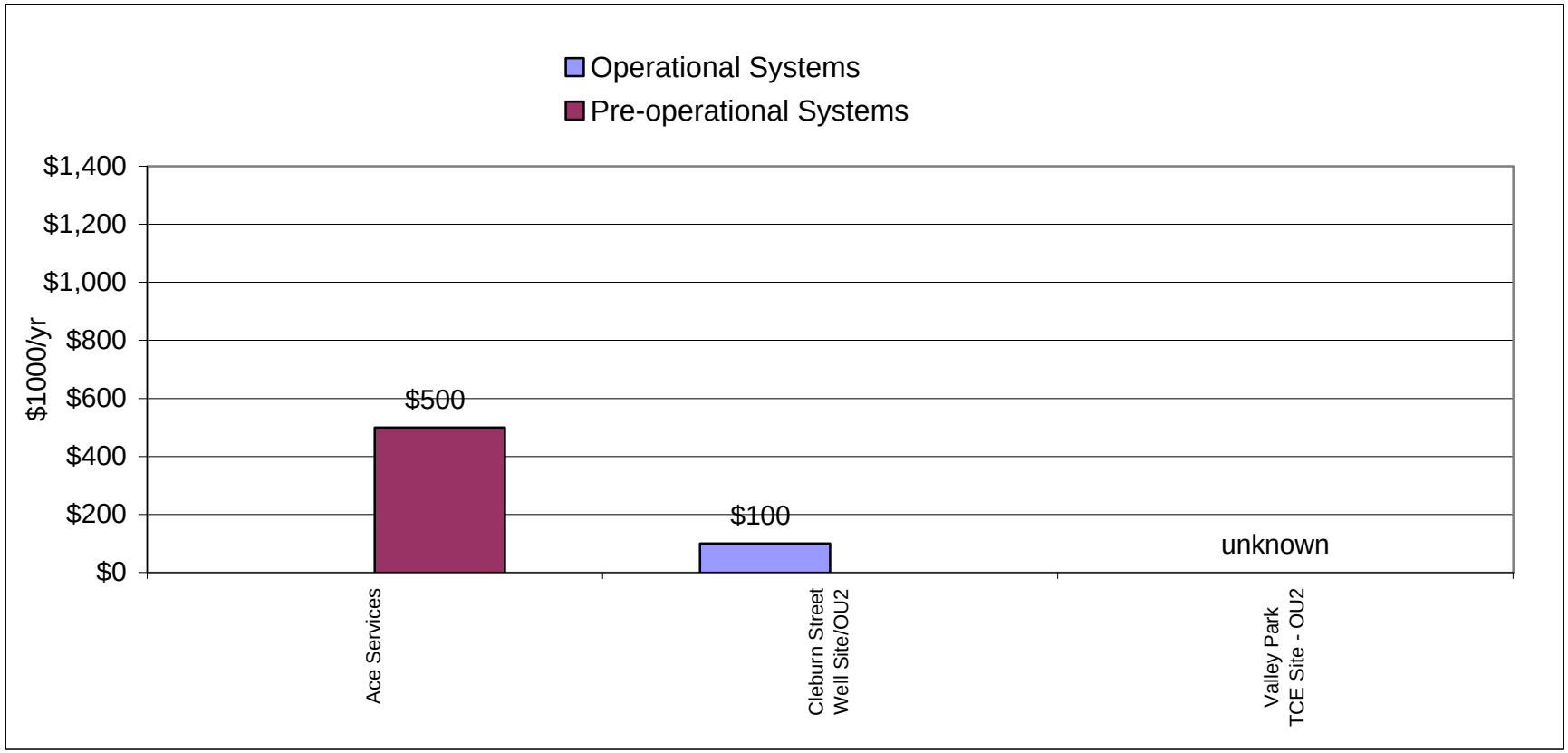
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 7, Figure 1 -- Estimated Annual Costs of Systems

July 3, 2001



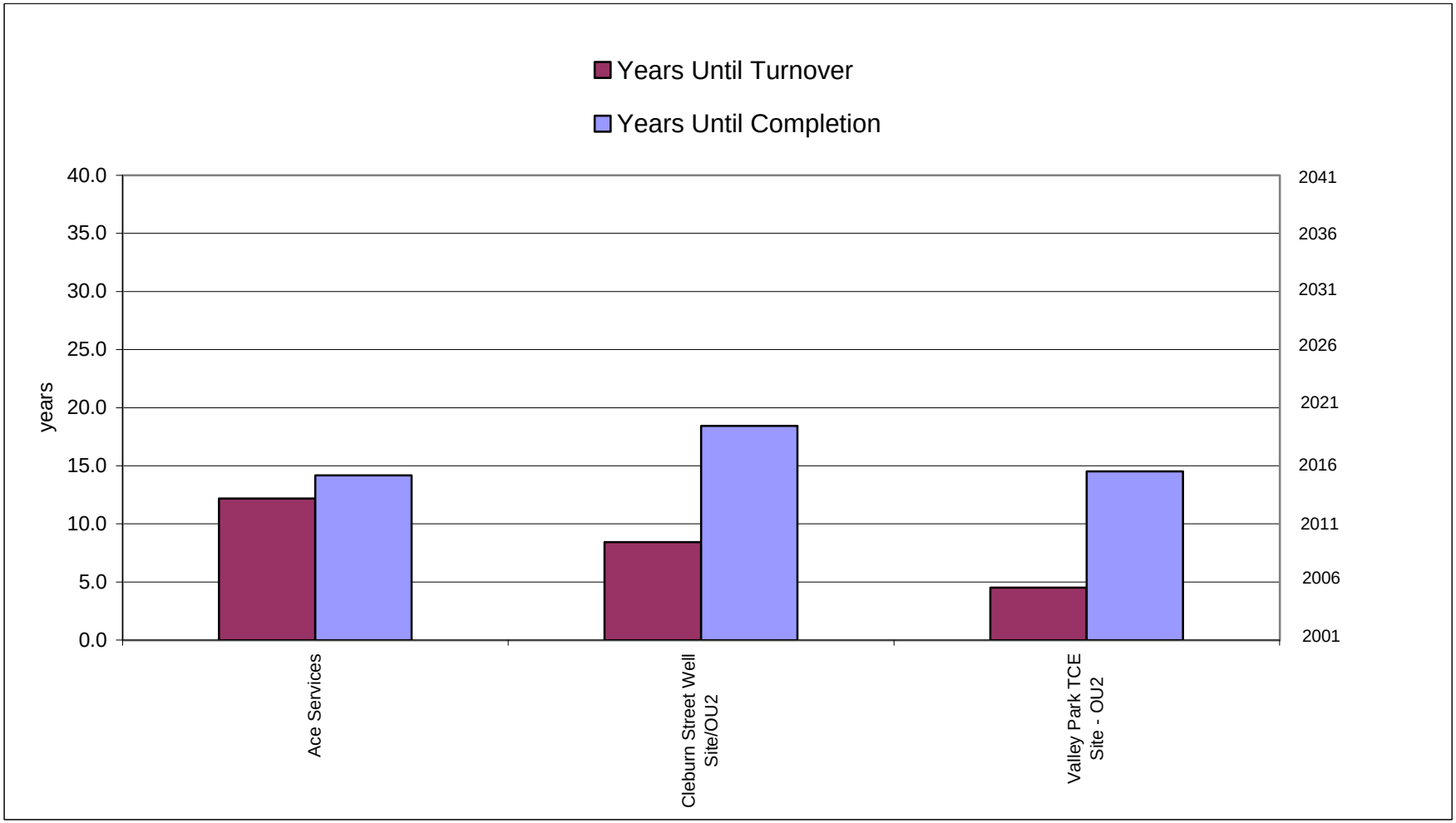
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Ace Services and Valley Park TCE are pre-operational systems; therefore, the associated data are estimates and some items are unknown.

Region 7, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 9

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 9 which was conducted from January through April 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Four Fund-lead P&T systems were identified in Region 9. Of this four, two are classified as operational and two are classified as pre-operational (i.e., pre-design, design, being installed, or installed but not operating). Region 9 has a number of other Fund-lead sites; however, these sites are classified as well-head treatment projects rather than P&T systems and are not considered in this project.

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational system) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.

- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.

- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Two Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 9 classified as operational and pre-operational. Those in bold were selected for RSEs.

Operational
- Newmark
- **Selma Pressure Treating**

Pre-operational
- **Modesto**
- Muscoy

Selma Pressure Treating and Modesto were selected for RSEs. Despite its operational status and high operating costs, Newmark was not selected for an RSE due to political complications. Modesto, although classified as pre-operational, is scheduled to be operational and funcational in May 2001, which is approximately two months before an RSE would be conducted. Due to the lack of other operating Fund-lead P&T systems in the Region, and the existing (although minimal) operational history, Modesto was selected as the second site in Region 9 to receive an RSE.

Region 9, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**4**
Number that are EPA lead	**4 of 4**
Number that are State lead	**0 of 4**
System Status	
Number that are operational	**2**
Number that are pre-operational	**2**
Number where restoration is a goal	**1 of 4**
Number where the plume is controlled*	**2 of 2**
Number that are estimated to be more than 80% complete*	**0 of 2**
Number previously evaluated and effectiveness found sufficient*	**1 of 2**
Number previously evaluated and effectiveness found not sufficient*	**0 of 2**
Extent of Contamination	
Number where NAPLs are observed	**1 of 4**
Number with more than 1 major contaminant identified	**3 of 4**
Number with 3 or more treatment processes	**0 of 4**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$650,000**
Average estimated annual monitoring cost	**$65,000**
Average number of years until turnover to the States	**9.6**
Average number of years until completion	**19.7**

*Operational sites only

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 9, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Modesto Superfund Site	$300,000	EPA	Interim	Installed	Containment	N/A	N/A	Not evaluated
Muscoy	$1,100,000	EPA	Interim	Installed	Containment	N/A	N/A	Not evaluated
Newmark	$900,000	EPA	Interim	Operational	Containment	Yes	Unknown	Not evaluated
Selma Treating Co.	$300,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Modesto and Muscoy are pre-operational systems; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation Systems Evaluations.

Region 9, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
Modesto Superfund Site	9/26/97		7/2000	5/2002	5/2012	10.8	5/2022	20.8
Muscoy	3/24/95		10/2003	10/2004	10/2014	13.3	10/2024	23.3
Newmark	8/4/93		10/1998	10/1998	10/2008	7.3	10/2028	27.3
Selma Treating Co.	9/24/88	6/30/01	9/1998	10/1998	10/2008	7.3	10/2008	7.3

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 9, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Modesto Superfund Site	David Seter EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 415-744-2212 seter.david@epa.gov	Emanuel Mensah State of California, DTSC 5796 Corporate Avenue Cypress, CA 90630 916-255-3704	Chris Lichens Ecology and Environment 415-981-2811
Muscoy	Kim Hoang EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 415-744-2370 hoang.kim@epa.gov	Yasser Aref CalEPA Department of Toxic Substances 5796 Corporate Avenue Cypress, CA 90630 714-484-5349	Dwayne Duetcher URS
Newmark	Kim Hoang EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 415-744-2370 hoang.kim@epa.gov	Yasser Aref CalEPA Dept Toxic Substances Control 5796 Corporate Ave. Cypress, CA 90630 714-484-5349	Dwayne Duetcher URS
Selma Treating Co.	Michelle Lau EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 415-744-2227 415-744-2180 (fax) lau.michelle@epa.gov	Chris Sherman DPES 10151 Croyden Way, Suite 3 Sacramento, CA 95827 916-255-3706 916-255-3697 (fax)	John Kirschbaum Army Corps of Engineers, Omaha District 12565 West Center Road Omaha, NE 68144-3869 402-293-2525 402-221-7838 (fax)

Region 9, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Modesto Superfund Site	Don't know	2	perchloroethylene	Air Stripping Carbon Adsorption
Muscoy	Don't know	1	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Carbon Adsorption
Newmark	Don't know	1	Trichlorethylene (TCE)/Tetrachloroelthylene (PCE)	Carbon Adsorption
Selma Treating Co.	Not present	1	Chromium	Filtration

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 9, Table 6 -- Screening Summary

July 3, 2001

System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational									
Newmark	25.5%	$3,321,528	27.3	Not evaluated	12000	8	1	30	Minor Moderate
Selma Treating Co.	17.0%	$261,332	7.3	Sufficient	150	6	1	80	Minor Severe
Pre-Operational									
Modesto Superfund Site	20.0%	$730,227	20.8	Not evaluated	50	1	2	40	Minor Minor
Muscoy	27.0%	$3,958,747	23.3	Not evaluated	9000	5	1	60	Minor Severe

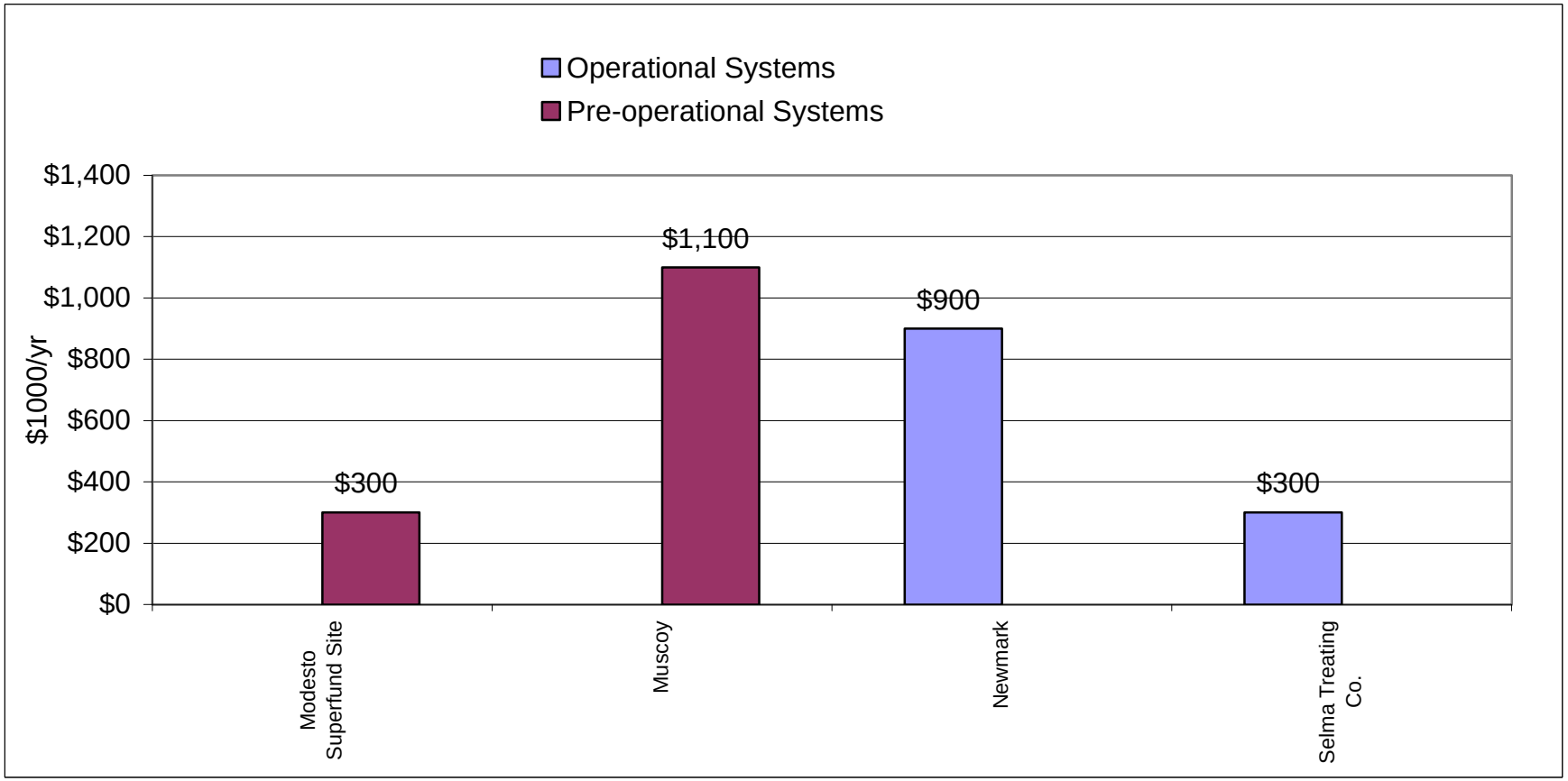
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
2. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
3. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
4. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 9, Figure 1 -- Estimated Annual Costs of Systems

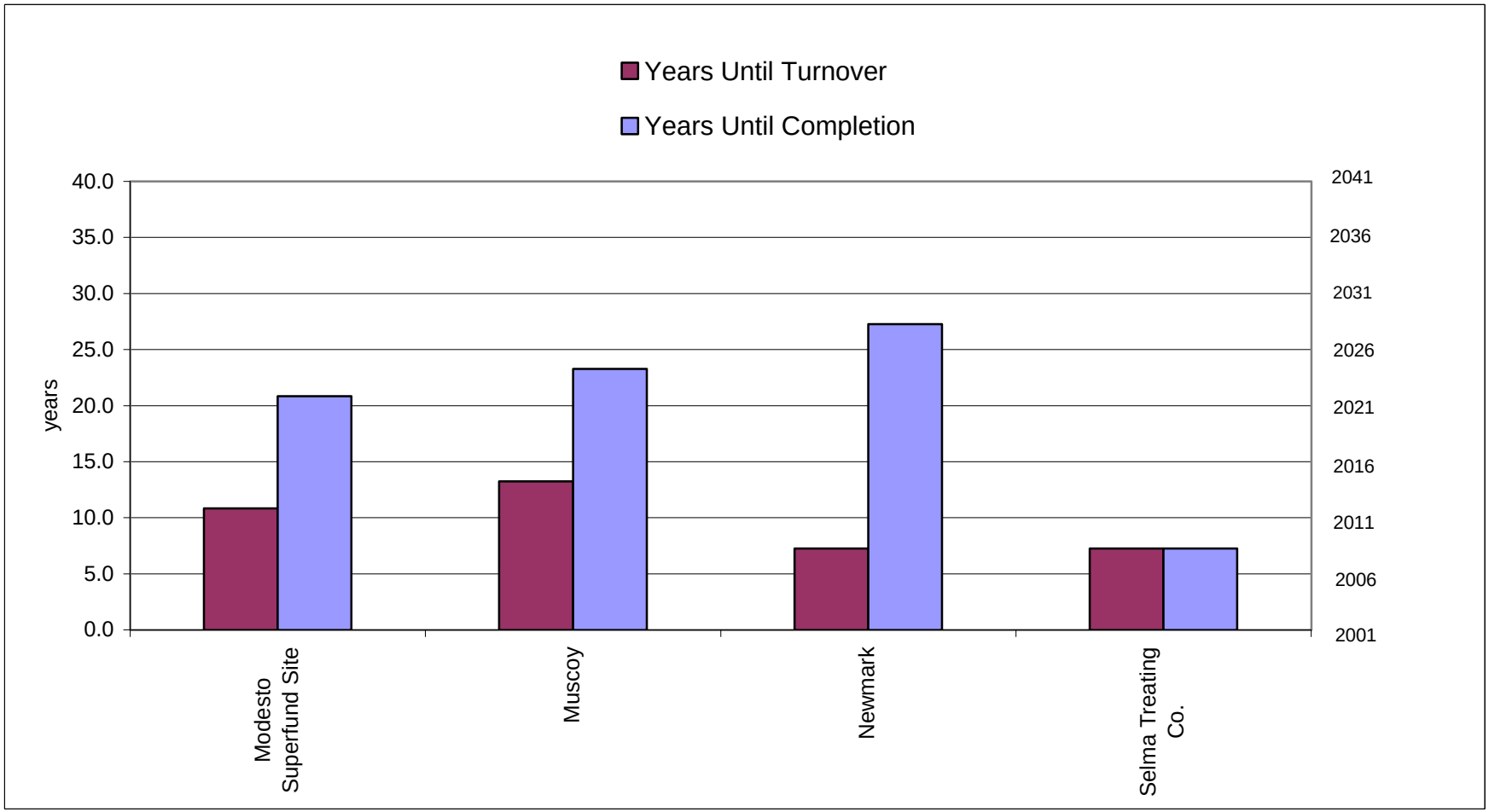
July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 9, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and System Screening
Region 10

July 3, 2001

In the *OSWER Directive No. 9200.0-33, Transmittal of Final FY00 - FY01 Superfund Reforms Strategy, dated July 7,2000*, the Office of Solid Waste and Emergency Response outlined a commitment to optimize our Fund-lead, pump-and-treat (P&T) systems. To fulfill this commitment, Headquarters is assisting Regions in evaluating their Fund-lead operating P&T systems. Phase 1 of this initiative involves identifying all Fund-lead P&T system, collecting baseline cost and performance data on them, and selecting up to two sites in each Region for a Remediation System Evaluation (RSE).

This report summarizes the screening process for Region 10 which was conducted during January through March 2001. The first section of this report presents the cost and performance data for the Region while the second describes the screening process and system selection.

The data presented in this report reflect estimates provided by the site Remedial Project Managers between January and May 2001. These estimates may vary from actuality. The data– including the number, status, cost, specifications, and projections of systems– may change over time.

Cost and Performance Data

Five Fund-lead P&T systems were identified in Region 10. Of this five, four are operational and one is pre-operational (i.e., pre-design, design, being installed, or installed but not operating).

Cost and performance data and other information pertaining to the identified Fund-lead P&T systems (estimates for the pre-operational systems) were collected with a web-based questionnaire accessed from http://www.cluin.org/optimization and stored in a database. This information is summarized in Table 1 and provided in detail in five additional tables:

- Table 2 provides overviews of the systems by providing items such as annual costs, lead, status, goals, and progress of each system.
- Table 3 includes the dates marking the signing of the ROD, construction completion, system operation and function, turnover to the state, and expected close-out.
- Table 4 lists for each system the contact information for the site Remedial Project Manager, the State Regulator, and the Contractor.

- Table 5 notes for each system and the associated site if NAPLS are present, the top contaminants of concern, and the above-ground treatment processes.

- Table 6 lists system specifications such as the pumping rate, number of wells, number of monitoring events per year, and other items used to determine the complexity of a system and its potential for optimization.

Projected dates for turnover to the States and for system completion are depicted in Figure 1, and annual costs for each system are depicted in Figure 2.

RSE Site Selection

Evaluation of Sites for Optimization Potential

Once the information is gathered from each of the Fund-lead P&T systems in a given Region, it becomes input for a screening methodology that attempts to determine the optimization potential for each system. This, in turn, provides a basis for selecting two systems where RSEs will be performed.

The factors affecting the optimization potential of a system are

- the overall cost of a given system,
- the expected duration of the system,
- the number of above-ground treatment processes,
- the number of extraction wells,
- the number of monitoring events per year,
- the system downtime per year,
- the pumping rate,
- the results (if any) of a previous performance and effectiveness evaluation, and
- any social or political obstacles to implementing modifications to the system.

To estimate potential life-cycle savings from optimization, a default reduction in life-cycle costs of 20% is assumed and is adjusted based on the above factors. For example, according to the screening methodology, a system with many above-ground treatment processes and a high pumping rate may exhibit greater than a 20% reduction in life-cycle costs whereas a system with few extraction wells and one treatment process may exhibit less than a 20% reduction in life-cycle costs.

Table 6 summarizes the results of the screening process including the estimated life-cycle cost savings that may result from performing an RSE.

Selecting Two Sites for RSEs

The following is a list of the identified Fund-lead P&T systems in Region 10 classified as operational and pre-operational. Those in bold were selected for RSEs.

Operational
- **McCormick and Baxter Creosoting**
- Boomsnub/Airco
- **Commencement Bay/South Tacoma Channel 12A**
- Wyckoff Co./Eagle Harbor

Pre-operational
- Bunker Hill

Only operational systems were considered for RSEs in this Region. Because Boomsnub/Airco is anticipating transition to the responsible party, substantial cost savings to the Superfund program would not be realized by optimizing this site. Because a pilot study to determine the effectiveness of steam injection at Wyckoff Co./Eagle Harbor is planned for the summer of 2001 and the site managers are already investigating alternative technologies, this site was not selected for an RSE. Thus, Commencement Bay/South Tacoma Channel 12A and McCormick and Baxter are the two sites selected to receive RSEs in Region 10.

Region 10, Table 1 -- Summary

July 3, 2001

Completed Fund-lead P&T Systems

Operational and Pre-operational Fund-lead P&T Systems	
Number of systems	**5**
Number that are EPA lead	**4 of 5**
Number that are State lead	**1 of 5**
System Status	
Number that are operational	**4**
Number that are pre-operational	**1**
Number where restoration is a goal	**3 of 5**
Number where the plume is controlled*	**3 of 4**
Number that are estimated to be more than 80% complete*	**0 of 4**
Number previously evaluated and effectiveness found sufficient*	**2 of 4**
Number previously evaluated and effectiveness found not sufficient*	**2 of 4**
Extent of Contamination	
Number where NAPLs are observed	**3 of 5**
Number with more than 1 major contaminant identified	**5 of 5**
Number with 3 or more treatment processes	**3 of 5**
Average Costs and Time Frames	
Average estimated annual O&M cost (including monitoring)	**$512,500**
Average estimated annual monitoring cost	**$57,800**
Average number of years until turnover to the States	**13.9**
Average number of years until completion	**29.4**

*Operational sites only

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 10, Table 2 -- System Overviews

July 3, 2001

System	Estimated Annual Cost	Lead	Type of ROD	System Status	System Goals	Plume Under Control?	Estimated Progress of Restoration	Previous Evaluation of Effectiveness
Boomsnub/Airco / Site-Wide Ground Water OU	$1,000,000	EPA	Final	Operational	Containment & Restoration	Yes	Unknown	Sufficient
Bunker Hill Superfund Site	unknown	EPA	Final	Predesign	Restoration	N/A	N/A	Not evaluated
Commencement Bay, South Tacoma Channel, Well 12A	$300,000	EPA	Final	Operational	Containment & Restoration	Yes	less than 20%	Not Sufficient
McCormick & Baxter Creosoting Co.	$250,000	State with Fund Money	Final	Operational	Containment	No	Restoration is not a goal	Sufficient
Wyckoff/Eagle Harbor Superfund Site	$500,000	EPA	Interim	Operational	Containment	Yes	Restoration is not a goal	Not Sufficient

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Bunker Hill Superfund Site is pre-operational; therefore, the associated data are estimates and some items are unknown.
2. "Estimated Progress of Restoration" refers to the estimated portion of the plume that has been restored to cleanup levels.
3. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 10, Table 3 -- P&T System Histories and Projections

July 3, 2001

System	Date							
	Original ROD	Last ROD Modification	Construction Completed	Operational and Functional	Turnover to State	Years Until Turnover	Expected Completion	Years Until Completion
Boomsnub/Airco / Site-Wide Ground Water OU	2/3/00		10/2000	12/2001	12/2011	10.4	10/2030	29.3
Bunker Hill Superfund Site	9/1/92		12/2010	12/2020	12/2030	29.4	12/2050	49.4
Commencement Bay, South Tacoma Channel, Well 12A	1/1/85	1/1/87	6/1988	5/1988	1/2004	2.5	1/2011	9.5
McCormick & Baxter Creosoting Co.	3/1/96	3/1/98	3/1996	3/1996	3/2006	4.7	Indefinite	Indefinite
Wyckoff/Eagle Harbor Superfund Site	9/29/94		2/1990	2/1990	1/2024	22.5	Indefinite	Indefinite

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Region 10, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
Boomsnub/Airco / Site-Wide Ground Water OU	Debra Yamamoto EPA Region 10 1200 Sixth Avenue - ECL-113 Seattle, WA 98101 206-553-7216 206-553-0124 (fax) yamamoto.debbie@epa.gov	Dan Alexanian Department of Ecology - SWRO P.0. Box 47775 Olympia, WA 98504 360-407-6249 360-407-6305 (fax) dale461@ecy.wa.gov	Jerry DeMuro URS, Inc. 1500 Century Square, 1501 4th Ave, Suite 1500 Seattle, WA 98101 206-674-1800 206-674-1801 (fax) Jerry_DeMuro@urscop.com
Bunker Hill Superfund Site	Carmella Grandinetti EPA Region 10 1200 Sixth Avenue Seattle, WA 98101 206-553-8696 206-553-0124 (fax) grandinetti.cami@epa.gov	Nick Zilka Idaho Department of Environmental Quality 1005 W. McKinley Avenue Kellog, ID 83837 208-783-5781 208-783-4561 (fax) nzilka@nidlink.com	
Commencement Bay, South Tacoma Channel, Well 12A	Kevin Rochlin EPA Region 10 ECL-112, 1200 6th Avenue Seattle, WA 98101 206-553-2106 206-553-0124 (fax) rochlin.kevin@epa.gov		Tom Abbott URS 2401 4th Avenue, Suite 1000 Seattle, WA 98121 206-674-1800 206-674-1801 (fax) abbot.thomas@urs.com

Region 10, Table 4 -- System Contact Information

July 3, 2001

System	RPM	State Regulator	Primary Contractor
McCormick & Baxter Creosoting Co.	Alan Goodman EPA Region 10 811 SW 6th Avenue, 3rd Floor Portland, OR 97204 503-326-3685 503-326-3399 (fax) goodman.al@epa.gov	William Dana Oregon Dept. Env. Quality 811 SW 6th Avenue Portland, OR 97204 503-229-6530 503-229-5830 (fax) Dana.William.H@DEQ.State.OR.	John Montgomery Ecology and Environment 333 SW Fifth Portland, OR 97204 503-248-5600 503-248-5577 (fax) JMontgomery@ene.com
Wyckoff/Eagle Harbor Superfund Site	Hanh Gold EPA Region 10 1200 Sixth Avenue, ECL-115 Seattle, WA 98101 206-553-0171 206-553-0124 (fax) gold.hanh@epa.gov	Guy Barrett State of Washington Department of Ecology P.O. Box 47600 Olympia, WA 98504-7600 360-407-7244 360-407-7154 (fax) gbar461@ecy.wa.gov	Ken Scheffler CH2M HILL P.O. Box 91500 Bellevue, WA 98009-2050 425-453-5000 425-462-5957 (fax) kscheffl@ch2m.com

Region 10, Table 5 -- Top Contaminants Identified by RPMs

July 3, 2001

System	NAPLS Present?	# of Identified Contam.	Contaminants	Treatment Processes
Boomsnub/Airco / Site-Wide Ground Water OU	Suspected	6	1,1,1-Trichloroethane 1,1-Dichloroethylene (DCE) 1,2-Dichloroethane Trichlorethylene (TCE)/Tetrachloroelthylene (PCE) Hexavalent Chromium Total Chromium	Air Stripping Carbon Adsorption Ion Exchange
Bunker Hill Superfund Site	Not present	7	Asbestos Creosote Lindane Merphos RDX (cyclonite) Selenium Volatile organic compounds (VOCs)	Other/Not Sure
Commencement Bay, South Tacoma Channel, Well 12A	Observed	5	1,1,2,2-Tetrachloroethane 1,2-Dichloroethene Cis-1,2-dichloroethene TCE and Vinyl chloride Trans 1,2-Dichloroethylene	Carbon Adsorption
McCormick & Baxter Creosoting Co.	Observed	4	Arsenic Chlorinated polyaromatic hydrocarbons (CPAHs) Creosote/Pentachlorophenol (PCP) Pentachlorophenol (PCP)	Carbon Adsorption Filtration Ion Exchange Other/Not Sure
Wyckoff/Eagle Harbor Superfund Site	Observed	6	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Pentachlorophenol (PCP) Polynuclear Aromatic Hydrocarbons	Biological Carbon Adsorption Filtration

Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Bunker Hill Superfund Site is pre-operational, and treatment processes are not yet determined.
2. Other treatment processes at the McCormick and Baxter Creosoting Co. include dissolved air flotation (DAF) and NAPL separation.

Region 10, Table 6 -- Screening Summary

July 3, 2001

	System	Potential Reduction in Life-Cycle Costs	Potential Life-Cycle Savings	Expected Duration	Previous Evaluation of Effectiveness	Approximate Pumping Rate (gpm)	Number of Extraction Wells	Number of Treatment Processes	Groundwater Samples per Year	Obstacles to making (minor/major) changes
Operational	Boomsnub/Airco / Site-Wide Ground Water OU	27.5%	$4,123,527	29.3	Sufficient	135	22	3	160	Moderate Severe
Operational	Commencement Bay, South Tacoma Channel, Well 12A	23.0%	$465,677	9.5	Not Sufficient	150	5	1	40	Minor Moderate
Operational	McCormick & Baxter Creosoting Co.	30.0%	$1,127,934	Indefinite	Sufficient	3	6	4	50	Minor Minor
Operational	Wyckoff/Eagle Harbor Superfund Site	25.5%	$1,934,988	Indefinite	Not Sufficient	80	8	3	20	Minor Moderate
Pre-operational	Bunker Hill Superfund Site	unknown	unknown	49.4	Not evaluated	0	0	Unknown	232	Minor Minor

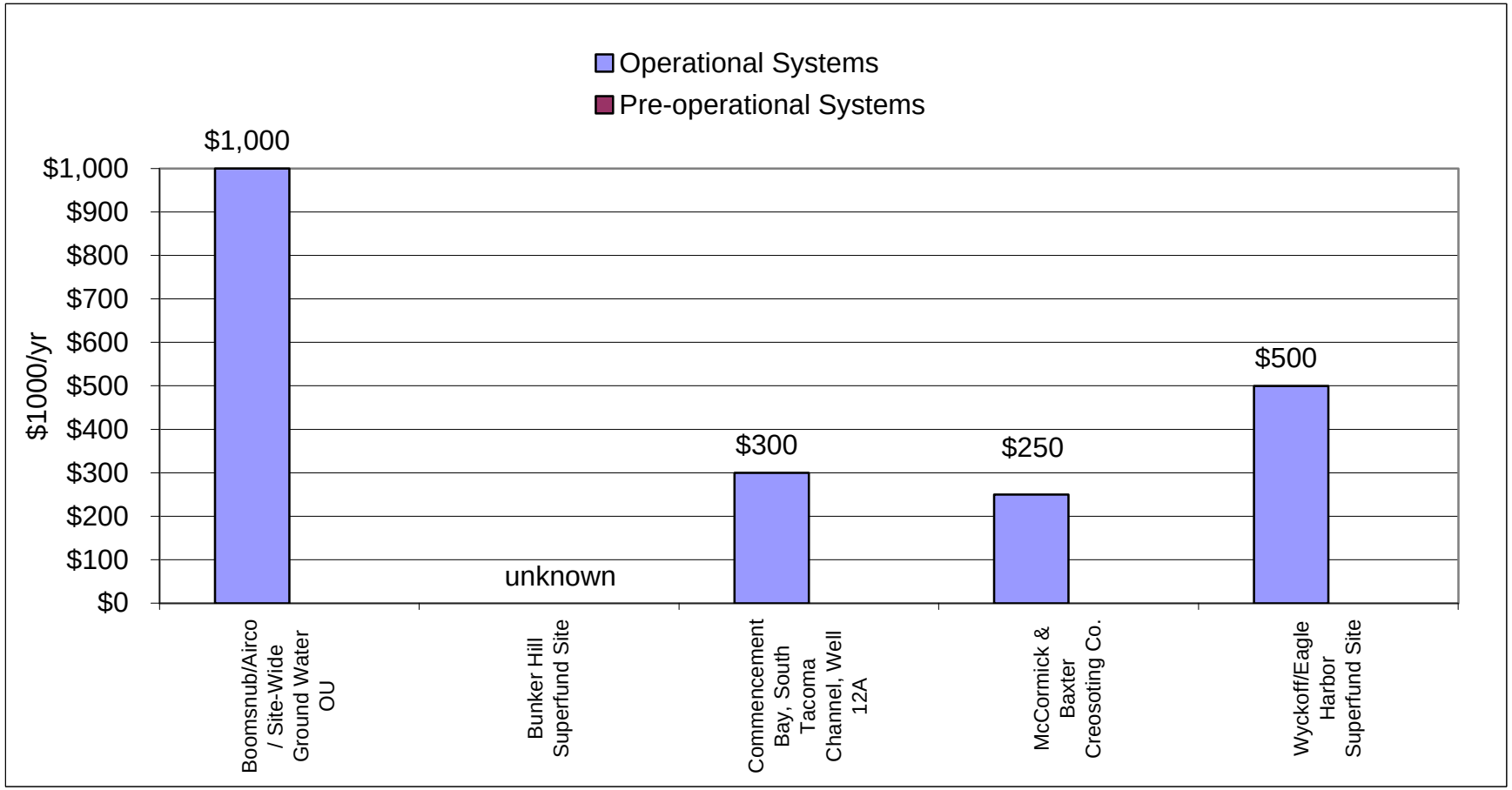
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Annual O&M costs and system specifications have not been determined for the Bunker Hill Superfund Site.
2. "Potential Reduction in Life-cycle Costs" result from a screening methodology that incorporates system-specific information. The reductions do not include the cost of an RSE.
3. "Potential Life-cycle Savings" were estimated using using system-specific information and incorporate the cost of the RSE. Values in parentheses denote costs (negative savings).
4. "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
5. Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.

Region 10, Figure 1 -- Estimated Annual Costs of Systems

July 3, 2001



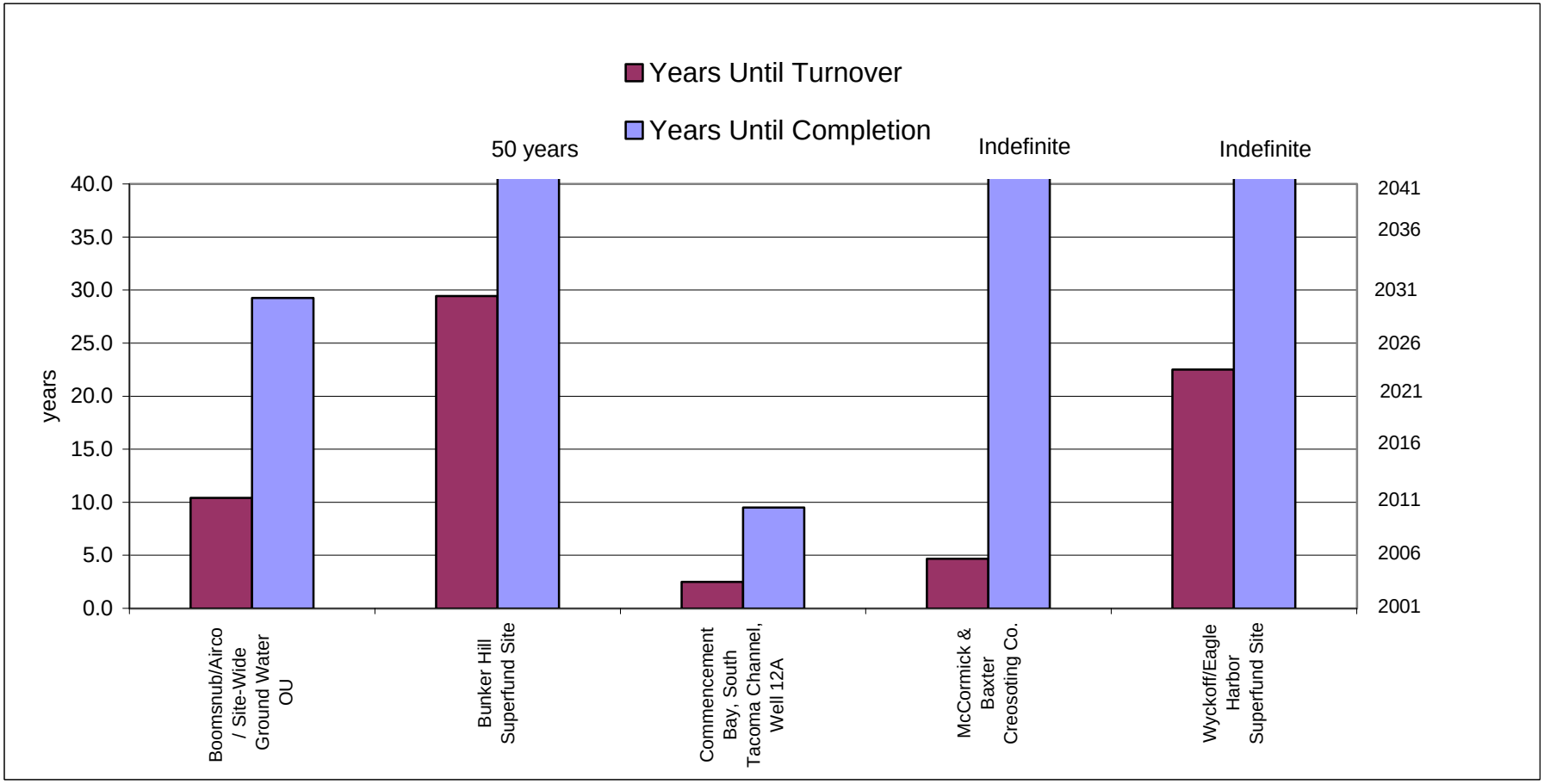
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

1. Bunker Hill Superfund Site is pre-operational, and O&M costs have not been estimated.

Region 10, Figure 2 -- System Projections

July 3, 2001



Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

APPENDIX C

REGION 1 SCREENING CALCULATIONS

RPM First Name:	Melissa	**Date of implementation:**	January 1, 2002
RPM Last Name:	Taylor		
RPM phone:	617-918-1310		
RPM fax:	617-918-1291		
RPM email:	Taylor.MelissaG@epa.gov		

Name of Site:	Baird & McGuire Superfund Site
Site City:	Holbrook
Site State:	MA
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$3,500,000	
Expected duration	yrs	21.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$45,191,087***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	7	0.0%	5 to 9 wells
Pumping rate	gpm	150	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	80	5.0%	75 or more
Expected system duration	yrs	21.3	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	E	-2.5%	moderate difficulty for minor changes, severe for major changes
		Summation (%) ->	27.5%	
	Estimated potential savings (%) ->		**27.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$45,191,087**	
Estimated potential savings (%):	**- 27.5%**	
Subtotal	**$12,427,549**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$12,402,549	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Elaine	**Date of implementation:**	January 1, 2002
RPM Last Name:	Stanley		
RPM phone:	617-918-1332		
RPM fax:	617-918-1291		
RPM email:	stanley.elainet@epa.gov		

Name of Site:	Charles George Landfill Superfund Site
Site City:	Tyngsboro
Site State:	MA
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$450,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$6,552,022***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	9	0.0%	5 to 9 wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	E	-2.5%	moderate difficulty for minor changes, severe for major changes
		Summation (%) ->	17.5%	
	Estimated potential savings (%) ->		**17.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$6,552,022**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$1,146,604**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,121,604	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Edward	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hathaway		
RPM phone:	617-918-1372		
RPM fax:	617-918-1291		
RPM email:	hathaway.ed@epa.gov		

Name of Site:	Eastern Surplus Company Superfund Site
Site City:	Meddybemps
Site State:	ME
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$200,000	
Expected duration	yrs	5.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$966,468***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	12	2.5%	10 or more wells
Pumping rate	gpm	20	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	60	2.5%	50.00 to 74.99
Expected system duration	yrs	5.7	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	28.0%	
	Estimated potential savings (%) ->		**28.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$966,468**	
Estimated potential savings (%):	**- 28.0%**	
Subtotal	**$270,611**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$245,611	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Derrick	**Date of implementation:**	January 1, 2002
RPM Last Name:	Golden		
RPM phone:	617-918-1448		
RPM fax:	617-918-1291		
RPM email:	golden.derrick@epa.gov		

Name of Site:	Groveland Wells Superfund Site
Site City:	Groveland
Site State:	MA
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	29.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$7,601,834***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	10	2.5%	10 or more wells
Pumping rate	gpm	140	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	21	-2.5%	<25
Expected system duration	yrs	29.3	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	27.5%	
		Estimated potential savings (%) ->	**27.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$7,601,834**	
Estimated potential savings (%):	**- 27.5%**	
Subtotal	**$2,090,504**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$2,065,504	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Dick	**Date of implementation:**	January 1, 2002
RPM Last Name:	Goehlert		
RPM phone:	617-918-1335		
RPM fax:	617-918-1291		
RPM email:	goehlert.dick@epa.gov		

Name of Site:	Kearsarge Metallurgical Corp.
Site City:	Conway
Site State:	NH
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$250,000	
Expected duration	yrs	3.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$819,414***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	14	2.5%	10 or more wells
Pumping rate	gpm	42	-2.5%	10 to 99.99 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	60	2.5%	50.00 to 74.99
Expected system duration	yrs	3.7	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	D	0.0%	moderate difficulty for minor changes or major changes
		Summation (%) ->	10.0%	
	Estimated potential savings (%) ->		**10.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$819,414**	
Estimated potential savings (%):	**- 10.0%**	
Subtotal	**$81,941**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$56,941	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Cheryl	**Date of implementation:**	January 1, 2002
RPM Last Name:	Sprague		
RPM phone:	617 918-1244		
RPM fax:	617 918-1291		
RPM email:	Sprague.cheryl@epa.gov		

Name of Site:	Keefe Environmental Systems
Site City:	Epping
Site State:	NH
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$200,000	
Expected duration	yrs	1.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$312,230***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	4	-2.5%	3 to 4 wells
Pumping rate	gpm	20	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	82	5.0%	75 or more
Expected system duration	yrs	1.7	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	7.5%	
	Estimated potential savings (%) ->		**7.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$312,230**	
Estimated potential savings (%):	**- 7.5%**	
Subtotal	**$23,417**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$1,583	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	RICHARD	**Date of implementation:**	January 1, 2002
RPM Last Name:	GOEHLERT		
RPM phone:	617-918-1335		
RPM fax:	617-918-1291		
RPM email:	GOEHLERT.DICK@EPA.GOV		

Name of Site:	Savage Well Municipal Water System
Site City:	Milford
Site State:	NH
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	7.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,950,900***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	4	-2.5%	3 to 4 wells
Pumping rate	gpm	100	0.0%	100 to 500 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	114	5.0%	75 or more
Expected system duration	yrs	7.2	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
	Estimated potential savings (%) ->		**32.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,950,900**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$959,042**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$934,042	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

RPM First Name:	Chester	**Date of implementation:**	January 1, 2002
RPM Last Name:	Janowski		
RPM phone:	617-918-1324		
RPM fax:	617-918-1291		
RPM email:	janowski.chet@epa.gov		

Name of Site:	Silresim Chemical Corp.
Site City:	Lowell
Site State:	MA
Site Region:	1

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,400,000	
Expected duration	yrs	15.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$15,126,499***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	31	2.5%	10 or more wells
Pumping rate	gpm	25	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	94	5.0%	75 or more
Expected system duration	yrs	15.9	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	40.0%	
	Estimated potential savings (%) ->		**40.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$15,126,499**	
Estimated potential savings (%):	**- 40.0%**	
Subtotal	**$6,050,600**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$6,025,600	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 2 SCREENING CALCULATIONS

1

RPM First Name:	Christos	**Date of implementation:**	January 1, 2002
RPM Last Name:	Tsiamis		
RPM phone:	212-637-4257		
RPM fax:	212-637-3966		
RPM email:	tsiamis.christos@epa.gov		

Name of Site:	American Thermostat
Site City:	South Cairo
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,175,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$17,108,057***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	14	2.5%	10 or more wells
Pumping rate	gpm	70	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	228	5.0%	75 or more
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	29.5%	
	Estimated potential savings (%) ->		**29.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$17,108,057**	
Estimated potential savings (%):	**- 29.5%**	
Subtotal	**$5,046,877**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$5,021,877	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Edward	**Date of implementation:**	January 1, 2002
RPM Last Name:	Finnerty		
RPM phone:	212 637 4367		
RPM fax:	212-637-4393		
RPM email:	Finnerty.Ed@EPA.GOV		

Name of Site:	Bog Creek Farm LTRA
Site City:	Howell
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$460,000	
Expected duration	yrs	22.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$6,194,718***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	33	2.5%	10 or more wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	9	-2.5%	<25
Expected system duration	yrs	22.9	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	30.0%	
	Estimated potential savings (%) ->		**30.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:		**$6,194,718**	
Estimated potential savings (%):	-	**30.0%**	
Subtotal		**$1,858,415**	
Estimated RSE cost (Tier 3):	-	**$25,000**	
		$1,833,415	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Lisa	**Date of implementation:**	January 1, 2002
RPM Last Name:	Wong		
RPM phone:	212-637-4267		
RPM fax:	212-637-3966		
RPM email:	wong.lisa@epa.gov		

Name of Site:	Brewster Wellfield
Site City:	Brewster
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$400,000	
Expected duration	yrs	5.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,957,217***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	4	-2.5%	3 to 4 wells
Pumping rate	gpm	50	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	64	2.5%	50.00 to 74.99
Expected system duration	yrs	5.8	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
	Estimated potential savings (%) ->		**17.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$1,957,217**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$342,513**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$317,513	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Sharon	**Date of implementation:**	January 1, 2002
RPM Last Name:	Trocher		
RPM phone:	212-637-3965		
RPM fax:	212-637-3966		
RPM email:	trocher.sharon@epa.gov		

Name of Site:	Circuitron
Site City:	East Farmingdale
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$480,000	
Expected duration	yrs	1.4	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$639,836***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	80	-2.5%	10 to 99.99 gpm
Down time per year	wks	6	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	76	5.0%	75 or more
Expected system duration	yrs	1.4	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	8.0%	
	Estimated potential savings (%) ->		**8.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$639,836**	
Estimated potential savings (%):	**- 8.0%**	
Subtotal	**$51,187**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$26,187	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Maria	**Date of implementation:**	January 1, 2002
RPM Last Name:	Jon		
RPM phone:	212-637-3967		
RPM fax:	212-637-4284		
RPM email:	Jon.Maria@epamail.epa.gov		

Name of Site:	Claremont Polychemical
Site City:	Town of Oyster Bay
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$740,000	
Expected duration	yrs	18.1	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$8,678,999***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	420	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	56	2.5%	50.00 to 74.99
Expected system duration	yrs	18.1	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	30.0%	
	Estimated potential savings (%) ->		**30.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$8,678,999**	
Estimated potential savings (%):	**- 30.0%**	
Subtotal	**$2,603,700**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$2,578,700	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

6

RPM First Name:	Pamela J.	**Date of implementation:**	January 1, 2002
RPM Last Name:	Baxter		
RPM phone:	212-637-4416		
RPM fax:	212-637-4393		
RPM email:	baxter.pam@epamail.gov		

Name of Site:	Combe Fill South Landfill
Site City:	Chester Township
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$920,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$13,395,245***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	19	2.5%	10 or more wells
Pumping rate	gpm	121	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	72	2.5%	50.00 to 74.99
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	38.0%	
	Estimated potential savings (%) ->		**38.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$13,395,245**	
Estimated potential savings (%):	**- 38.0%**	
Subtotal	**$5,090,193**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$5,065,193	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

7

RPM First Name:	Diego	**Date of implementation:**	January 1, 2002
RPM Last Name:	Garcia		
RPM phone:	212-637-4947		
RPM fax:			
RPM email:	garcia.diego@epa.gov		

Name of Site:	Dover Municipal Well 4
Site City:	Dover
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	0.0	#N/A	#N/A
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	0	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	#N/A	
	Estimated potential savings (%) ->		**#N/A**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- #N/A**	
Subtotal	**#N/A**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	#N/A	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

8

RPM First Name:	Brian	**Date of implementation:**	January 1, 2002
RPM Last Name:	Quinn		
RPM phone:	212-637-4381		
RPM fax:	212-637-4393		
RPM email:	quinn.brian@epa.gov		

Name of Site:	Garden State Cleaners/South Jersey Clothing Company
Site City:	Minotola
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	27.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$7,409,547***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	15	2.5%	10 or more wells
Pumping rate	gpm	300	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	54	2.5%	50.00 to 74.99
Expected system duration	yrs	27.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
	Estimated potential savings (%) ->		**32.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$7,409,547**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$2,408,103**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$2,383,103	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

9

RPM First Name:	Pamela J.	**Date of implementation:**	January 1, 2002
RPM Last Name:	Baxter		
RPM phone:	212-637-4416		
RPM fax:	212-637-4393		
RPM email:	baxter.pam@epamail.gov		

Name of Site:	Higgins Farm
Site City:	Franklin Township
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,000,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$14,560,049***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	20	2.5%	10 or more wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	102	5.0%	75 or more
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	40.5%	
	Estimated potential savings (%) ->		**40.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$14,560,049**	
Estimated potential savings (%):	**- 40.0%**	
Subtotal	**$5,824,020**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$5,799,020	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

10

RPM First Name:	Mark	**Date of implementation:**	January 1, 2002
RPM Last Name:	Dannenberg		
RPM phone:	212-637-4251		
RPM fax:	212-637-3966		
RPM email:	dannenberg.mark@epa.gov		

Name of Site:	Islip Municipal Landfill
Site City:	Islip
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$225,000	
Expected duration	yrs	1.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$214,286***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	300	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	96	5.0%	75 or more
Expected system duration	yrs	1.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	7.5%	
	Estimated potential savings (%) ->		**7.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$214,286**	
Estimated potential savings (%):	**- 7.5%**	
Subtotal	**$16,071**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$8,929	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

11

RPM First Name:	Lawrence	**Date of implementation:**	January 1, 2002
RPM Last Name:	Granite		
RPM phone:	212-637-4423		
RPM fax:	212-637-4393		
RPM email:	granite.larry@epamail.epa.gov		

Name of Site:	Lang Property
Site City:	Pemberton Township, NJ
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$700,000	
Expected duration	yrs	3.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,907,890***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	32	0.0%	25.00 to 49.99
Expected system duration	yrs	3.0	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	2.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$1,907,890**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$95,395**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$70,395	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

12

RPM First Name:	Ferdinand	**Date of implementation:**	January 1, 2002
RPM Last Name:	Cataneo		
RPM phone:	212-637-4428		
RPM fax:	212-637-4393		
RPM email:	cataneo.fred@epa.gov		

Name of Site:	Lipari Landfill site
Site City:	Mantua Township
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$2,500,000	
Expected duration	yrs	2.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$6,634,566***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	25	2.5%	10 or more wells
Pumping rate	gpm	125	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	39	0.0%	25.00 to 49.99
Expected system duration	yrs	2.9	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
	Estimated potential savings (%) ->		**17.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$6,634,566**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$1,161,049**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,136,049	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

13

RPM First Name:	Edward	**Date of implementation:**	January 1, 2002
RPM Last Name:	Als		
RPM phone:	212-637-4272		
RPM fax:	212-637-3966		
RPM email:	als.ed@epa.gov		

Name of Site:	Mattiace Petrochemical
Site City:	Glen Cove, Nassau County
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$700,000	
Expected duration	yrs	27.6	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$10,358,307***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	9	0.0%	5 to 9 wells
Pumping rate	gpm	10	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	5	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	15	-2.5%	<25
Expected system duration	yrs	27.6	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	23.0%	
	Estimated potential savings (%) ->		**23.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$10,358,307**	
Estimated potential savings (%):	**- 23.0%**	
Subtotal	**$2,382,411**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$2,357,411	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

14

RPM First Name:	Dan	**Date of implementation:**	January 1, 2002
RPM Last Name:	Weissman		
RPM phone:	212-637-4384		
RPM fax:	0.0%		
RPM email:	weissman.dan@epa.gov		

Name of Site:	Metal TEC/Aerosystems
Site City:	Franklin
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	0.0	#N/A	#N/A
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	0	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	0.0	#N/A	#N/A
		Summation (%) ->	#N/A	
	Estimated potential savings (%) ->		**#N/A**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- #N/A**	
Subtotal	**#N/A**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	#N/A	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

15

RPM First Name:	Patrick	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hamblin		
RPM phone:	212-637-3314		
RPM fax:	212-637-3966		
RPM email:	hamblin.patrick@epa.gov		

Name of Site:	Mohonk Road Industrial Plant
Site City:	High Falls
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	29.5	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	40	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	34	0.0%	25.00 to 49.99
Expected system duration	yrs	29.5	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

16

RPM First Name:	Monica	**Date of implementation:**	January 1, 2002
RPM Last Name:	Mahar		
RPM phone:	212-637-3942		
RPM fax:			
RPM email:	mahar.monica@epa.gov		

Name of Site:	Montgomery Township/Rocky Hill
Site City:	Montgomery Township
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$400,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$6,148,980***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	250	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	80	5.0%	75 or more
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	28.0%	
	Estimated potential savings (%) ->		**28.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$6,148,980**	
Estimated potential savings (%):	**- 28.0%**	
Subtotal	**$1,721,715**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,696,715	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

17

RPM First Name:	Mark	**Date of implementation:**	January 1, 2002
RPM Last Name:	Dannenberg		
RPM phone:	212-637-4251		
RPM fax:	212-637-3966		
RPM email:	dannenberg.mark@epa.gov		

Name of Site:	SMS Instruments
Site City:	Deer Park
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$400,000	
Expected duration	yrs	2.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$801,729***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	2	-5.0%	1 to 2 wells
Pumping rate	gpm	100	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	72	2.5%	50.00 to 74.99
Expected system duration	yrs	2.2	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	7.5%	
	Estimated potential savings (%) ->		**7.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$801,729**	
Estimated potential savings (%):	**- 7.5%**	
Subtotal	**$60,130**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$35,130	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

18

RPM First Name:	Damian	**Date of implementation:**	January 1, 2002
RPM Last Name:	Duda		
RPM phone:	212-637-4269		
RPM fax:	212-637-3966		
RPM email:	duda.damian@epa.gov		

Name of Site:	Stanton Cleaners Area Groundwater Contamination Site
Site City:	Great Neck
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$270,000	
Expected duration	yrs	19.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$3,332,717***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	90	-2.5%	10 to 99.99 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	5	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	120	5.0%	75 or more
Expected system duration	yrs	19.7	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	28.0%	
	Estimated potential savings (%) ->		**28.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$3,332,717**	
Estimated potential savings (%):	**- 28.0%**	
Subtotal	**$933,161**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$908,161	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

19

RPM First Name:	Pamela J.	**Date of implementation:**	January 1, 2002
RPM Last Name:	Baxter		
RPM phone:	212-637-4416		
RPM fax:	212-637-4393		
RPM email:	baxter.pam@epamail.gov		

Name of Site:	Syncon Resins
Site City:	Kearny
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$350,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$5,096,017***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	20	-2.5%	10 to 99.99 gpm
Down time per year	wks	3	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	6	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	28.0%	
	Estimated potential savings (%) ->		**28.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$5,096,017**	
Estimated potential savings (%):	**- 28.0%**	
Subtotal	**$1,426,885**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,401,885	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

20

RPM First Name:	Sharon	**Date of implementation:**	January 1, 2002
RPM Last Name:	Trocher		
RPM phone:	212-637-3965		
RPM fax:	212-637-3966		
RPM email:	trocher.sharon@epa.gov		

Name of Site:	Vestal Water Supply Well 1-1
Site City:	Vestal
Site State:	NY
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$180,000	
Expected duration	yrs	13.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,706,600***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	450	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	12	-2.5%	<25
Expected system duration	yrs	13.2	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	10.0%	
	Estimated potential savings (%) ->		**10.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$1,706,600**	
Estimated potential savings (%):	**- 10.0%**	
Subtotal	**$170,660**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$145,660	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

21

RPM First Name:	Matthew	**Date of implementation:**	January 1, 2002
RPM Last Name:	Westgate		
RPM phone:	212 637-4422		
RPM fax:	212 637-4429		
RPM email:	westgate.matthew@epamail.epa.gov		

Name of Site:	Vineland Chemical Co. Groundwater Treatment
Site City:	Vineland
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$4,000,000	
Expected duration	yrs	29.4	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$60,970,474***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	13	2.5%	10 or more wells
Pumping rate	gpm	1400	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	2080	5.0%	75 or more
Expected system duration	yrs	29.4	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	E	-2.5%	moderate difficulty for minor changes, severe for major changes
		Summation (%) ->	30.0%	
	Estimated potential savings (%) ->		**30.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$60,970,474**	
Estimated potential savings (%):	**- 30.0%**	
Subtotal	**$18,291,142**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$18,266,142	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

22

RPM First Name:	Ferdinand	**Date of implementation:**	January 1, 2002
RPM Last Name:	Cataneo		
RPM phone:	212-637-4428		
RPM fax:	212-637-4393		
RPM email:	cataneo.fred@epa.gov		

Name of Site:	Williams Property
Site City:	Swainton, Middle Township
Site State:	NJ
Site Region:	2

Cost Item	Units	Value	
Annual O&M cost	$/yr	$350,000	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	2	-5.0%	1 to 2 wells
Pumping rate	gpm	80	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	36	0.0%	25.00 to 49.99
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	0.0%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 3 SCREENING CALCULATIONS

1

RPM First Name:	Charlie	**Date of implementation:**	January 1, 2002
RPM Last Name:	Root		
RPM phone:	215-814-3193		
RPM fax:	215-814-3002		
RPM email:	root.charlie@epa.gov		

Name of Site:	AIW Frank/Mid-County Mustang Site, OU#1
Site City:	Exton
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$180,000	
Expected duration	yrs	29.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,754,138***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	118	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	60	2.5%	50.00 to 74.99
Expected system duration	yrs	29.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	28.0%	
	Estimated potential savings (%) ->		**28.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,754,138**	
Estimated potential savings (%):	**- 28.0%**	
Subtotal	**$771,159**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$746,159	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Bruce	**Date of implementation:**	January 1, 2002
RPM Last Name:	Rundell		
RPM phone:	215-814-3317		
RPM fax:	215-814-3015		
RPM email:	rundell.bruce@epa.gov		

Name of Site:	Berks Sand Pit
Site City:	Huffs Church
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$150,000	
Expected duration	yrs	1.1	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$154,672***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	90	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	48	0.0%	25.00 to 49.99
Expected system duration	yrs	1.1	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	-7.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$154,672**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$7,734**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$17,266	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Rom	**Date of implementation:**	January 1, 2002
RPM Last Name:	Roman		
RPM phone:	215-814-3212		
RPM fax:	215-814-3015		
RPM email:	roman.romuald@epa.gov		

Name of Site:	Butz Landfill
Site City:	Monroe Township
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$250,000	
Expected duration	yrs	29.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$3,800,917***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	90	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	68	2.5%	50.00 to 74.99
Expected system duration	yrs	29.3	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	25.0%	
		Estimated potential savings (%) ->	**25.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$3,800,917**	
Estimated potential savings (%):	**- 25.0%**	
Subtotal	**$950,229**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$925,229	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Cesar	**Date of implementation:**	January 1, 2002
RPM Last Name:	Lee		
RPM phone:	215-814-3205		
RPM fax:	215-814-3205		
RPM email:	lee.cesar@epa.gov		

Name of Site:	Croydon TCE
Site City:	Bristol Township
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$200,000	
Expected duration	yrs	23.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,708,981***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	25	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	28	0.0%	25.00 to 49.99
Expected system duration	yrs	23.2	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	20.0%	
	Estimated potential savings (%) ->		**20.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,708,981**	
Estimated potential savings (%):	**- 20.0%**	
Subtotal	**$541,796**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$516,796	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Joseph	**Date of implementation:**	January 1, 2002
RPM Last Name:	McDowell		
RPM phone:	215-814-3192		
RPM fax:	215-814-3002		
RPM email:	mcdowell.joseph@epa.gov		

Name of Site:	CryoChem
Site City:	Earl Township
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$125,000	
Expected duration	yrs	8.4	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$842,157***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	9	0.0%	5 to 9 wells
Pumping rate	gpm	60	-2.5%	10 to 99.99 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	4	-2.5%	<25
Expected system duration	yrs	8.4	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	8.0%	
	Estimated potential savings (%) ->		**8.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$842,157**	
Estimated potential savings (%):	**- 8.0%**	
Subtotal	**$67,373**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$42,373	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

6

RPM First Name:	Philip	**Date of implementation:**	January 1, 2002
RPM Last Name:	Rotstein		
RPM phone:	215-814-3232		
RPM fax:	215-814-3002		
RPM email:	rotstein.phil@epa.gov		

Name of Site:	Greenwood Chemical Site
Site City:	Greenwood
Site State:	VA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$400,000	
Expected duration	yrs	18.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$4,810,341***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	45	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	5	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	136	5.0%	75 or more
Expected system duration	yrs	18.8	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
		Estimated potential savings (%) ->	**32.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$4,810,341**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$1,563,361**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,538,361	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

7

RPM First Name:	Gregory	**Date of implementation:**	January 1, 2002
RPM Last Name:	Ham		
RPM phone:	215-814-3194		
RPM fax:	215-814-3002		
RPM email:	ham.greg@epa.gov		

Name of Site:	Havertown PCP OU2
Site City:	Havertown
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,000,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$15,372,451***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	4	-2.5%	3 to 4 wells
Pumping rate	gpm	45	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	30	0.0%	25.00 to 49.99
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$15,372,451**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$3,919,975**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$3,894,975	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

8

RPM First Name:	Cesar	**Date of implementation:**	January 1, 2002
RPM Last Name:	Lee		
RPM phone:	215-814-3205		
RPM fax:	215-814-3205		
RPM email:	lee.cesar@epa.gov		

Name of Site:	Hellertown Manufacturing
Site City:	Bethlehem
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$350,000	
Expected duration	yrs	24.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$4,900,578***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	50	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	48	0.0%	25.00 to 49.99
Expected system duration	yrs	24.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	20.5%	
	Estimated potential savings (%) ->		**20.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$4,900,578**	
Estimated potential savings (%):	**- 20.5%**	
Subtotal	**$1,004,619**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$979,619	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

9

RPM First Name:	Maria de los A.	**Date of implementation:**	January 1, 2002
RPM Last Name:	Garcia		
RPM phone:	215-814-3199		
RPM fax:	215-814-3002		
RPM email:	garcia.maria@epa.gov		

Name of Site:	North Penn Area 1
Site City:	Souderton, Montgomery County
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$100,000	
Expected duration	yrs	16.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,113,534***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	2	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	8	-2.5%	<25
Expected system duration	yrs	16.7	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	10.0%	
	Estimated potential savings (%) ->		**10.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$1,113,534**	
Estimated potential savings (%):	**- 10.0%**	
Subtotal	**$111,353**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$86,353	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

10

RPM First Name:	Gregory	**Date of implementation:**	January 1, 2002
RPM Last Name:	Ham		
RPM phone:	215-814-3194		
RPM fax:	215-814-3002		
RPM email:	ham.greg@epa.gov		

Name of Site:	North Penn Area 6
Site City:	Lansdale
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$592,900	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$9,114,326***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	10	2.5%	10 or more wells
Pumping rate	gpm	300	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	120	5.0%	75 or more
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	35.5%	
	Estimated potential savings (%) ->		**35.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$9,114,326**	
Estimated potential savings (%):	**- 35.5%**	
Subtotal	**$3,235,586**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$3,210,586	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

11

RPM First Name:	Deanna	**Date of implementation:**	January 1, 2002
RPM Last Name:	Moultrie		
RPM phone:	215-814-5125		
RPM fax:	215-814-3002		
RPM email:	moultrie.deanna@epa.gov		

Name of Site:	Raymark
Site City:	Hatboro
Site State:	PA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$155,711	
Expected duration	yrs	12.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,380,802***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	2	-5.0%	1 to 2 wells
Pumping rate	gpm	62	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	12.0	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
		Estimated potential savings (%) ->	**17.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$1,380,802**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$241,640**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$216,640	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

12

RPM First Name:	Andrew	**Date of implementation:**	January 1, 2002
RPM Last Name:	Palestini		
RPM phone:	215-814-3233		
RPM fax:	215-814-3002		
RPM email:	palestini.andy@epa.gov		

Name of Site:	Saunders Supply Company
Site City:	Chuckatuck
Site State:	VA
Site Region:	3

Cost Item	Units	Value	
Annual O&M cost	$/yr	$80,000	
Expected duration	yrs	6.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$420,648***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	4	-2.5%	3 to 4 wells
Pumping rate	gpm	2	-5.0%	<10 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	6.3	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	17.0%	
	Estimated potential savings (%) ->		**17.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$420,648**	
Estimated potential savings (%):	**- 17.0%**	
Subtotal	**$71,510**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$46,510	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 4 SCREENING CALCULATIONS

1

RPM First Name:	Luis	**Date of implementation:**	January 1, 2002
RPM Last Name:	Flores		
RPM phone:	404-562-8807		
RPM fax:			
RPM email:	flores.luis@epa.gov		

Name of Site:	ABC Cleaners
Site City:	Jacksonville
Site State:	NC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	0.0	#N/A	#N/A
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	0.0	#N/A	#N/A
		Summation (%) ->	#N/A	
	Estimated potential savings (%) ->		**#N/A**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- #N/A**	
Subtotal	**#N/A**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	#N/A	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Mark	**Date of implementation:**	January 1, 2002
RPM Last Name:	Fite		
RPM phone:	404-562-8927		
RPM fax:			
RPM email:	fite.mark@epa.gov		

Name of Site:	American Creosote Works (DNAPL)
Site City:	Pensacola
Site State:	FL
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	1.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$376,644***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	8	0.0%	5 to 9 wells
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	8	-2.5%	<25
Expected system duration	yrs	1.3	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	7.5%	
	Estimated potential savings (%) ->		**7.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$376,644**	
Estimated potential savings (%):	**- 7.5%**	
Subtotal	**$28,248**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$3,248	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Mark	**Date of implementation:**	January 1, 2002
RPM Last Name:	Fite		
RPM phone:	404-562-8927		
RPM fax:	0.0%		
RPM email:	fite.mark@epa.gov		

Name of Site:	American Creosote Works (solute)
Site City:	Pensacola
Site State:	FL
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$452,000	
Expected duration	yrs	7.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,822,434***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	105	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	20	-2.5%	<25
Expected system duration	yrs	7.7	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
	Estimated potential savings (%) ->		**17.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,822,434**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$493,926**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$468,926	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Jon	**Date of implementation:**	January 1, 2002
RPM Last Name:	Bornholm		
RPM phone:	404-562-8820		
RPM fax:	0.0%		
RPM email:	bornholm.jon@epa.gov		

Name of Site:	Benfield Industries
Site City:	Hazelwood
Site State:	NC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$30,000	
Expected duration	yrs	19.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$366,494***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	2	-5.0%	1 to 2 wells
Pumping rate	gpm	16	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	32	0.0%	25.00 to 49.99
Expected system duration	yrs	19.3	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	15.0%	
		Estimated potential savings (%) ->	**15.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$366,494**	
Estimated potential savings (%):	**- 15.0%**	
Subtotal	**$54,974**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$29,974	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Jon	**Date of implementation:**	January 1, 2002
RPM Last Name:	Bornholm		
RPM phone:	404-562-8820		
RPM fax:	404-562-8788		
RPM email:	bornholm.jon@epa.gov		

Name of Site:	Cape Fear Wood Preserving
Site City:	Fayetteville
Site State:	NC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$40,000	
Expected duration	yrs	7.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$256,425***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	7	0.0%	5 to 9 wells
Pumping rate	gpm	43	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	100	5.0%	75 or more
Expected system duration	yrs	7.9	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	22.5%	
	Estimated potential savings (%) ->		**22.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$256,425**	
Estimated potential savings (%):	**- 22.5%**	
Subtotal	**$57,696**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$32,696	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

6

RPM First Name:	Randall	**Date of implementation:**	January 1, 2002
RPM Last Name:	Chaffins		
RPM phone:	404-562-8929		
RPM fax:	0.0%		
RPM email:	chaffins.randall@epa.gov		

Name of Site:	Coleman Evans Wood Preserving
Site City:	Whitehouse
Site State:	FL
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	0.0	#N/A	#N/A
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	0	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	0.0	#N/A	#N/A
		Summation (%) ->	#N/A	
	Estimated potential savings (%) ->		**#N/A**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- #N/A**	
Subtotal	**#N/A**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	#N/A	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

7

RPM First Name:	Ralph	**Date of implementation:**	January 1, 2002
RPM Last Name:	Howard		
RPM phone:	404-562-8829		
RPM fax:	0.0%		
RPM email:	howard.ralph@epa.gov		

Name of Site:	Elmore Waste Disposal
Site City:	Greer
Site State:	SC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$180,000	
Expected duration	yrs	16.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,004,361***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	9	0.0%	5 to 9 wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	68	2.5%	50.00 to 74.99
Expected system duration	yrs	16.7	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	20.0%	
	Estimated potential savings (%) ->		**20.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,004,361**	
Estimated potential savings (%):	**- 20.0%**	
Subtotal	**$400,872**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$375,872	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

8

RPM First Name:	Ken	**Date of implementation:**	January 1, 2002
RPM Last Name:	Mallory		
RPM phone:	404-562-8802		
RPM fax:	0.0%		
RPM email:	mallory.ken@epa.gov		

Name of Site:	FCX Statesville
Site City:	Statesville
Site State:	NC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$150,000	
Expected duration	yrs	6.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$797,565***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	10	2.5%	10 or more wells
Pumping rate	gpm	20	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	72	2.5%	50.00 to 74.99
Expected system duration	yrs	6.3	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	20.0%	
	Estimated potential savings (%) ->		**20.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$797,565**	
Estimated potential savings (%):	**- 20.0%**	
Subtotal	**$159,513**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$134,513	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

9

RPM First Name:	Jim	**Date of implementation:**	January 1, 2002
RPM Last Name:	McGuire		
RPM phone:	404-562-8911		
RPM fax:	0.0%		
RPM email:	mcguire.jim@epa.gov		

Name of Site:	Miami Drum
Site City:	Hialeah
Site State:	FL
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,000,000	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	0.0	#N/A	#N/A
Number of pumping wells	#	40	2.5%	10 or more wells
Pumping rate	gpm	104000	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	0.0	#N/A	#N/A
		Summation (%) ->	#N/A	
	Estimated potential savings (%) ->		**#N/A**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- #N/A**	
Subtotal	**#N/A**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	#N/A	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

10

RPM First Name:	Al	**Date of implementation:**	January 1, 2002
RPM Last Name:	Cherry		
RPM phone:	404-562-8807		
RPM fax:	0.0%		
RPM email:	cherry.al@epa.gov		

Name of Site:	Palmetto Wood
Site City:	Lexington
Site State:	SC
Site Region:	4

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	6.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,595,131***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	10	2.5%	10 or more wells
Pumping rate	gpm	130	0.0%	100 to 500 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	16	-2.5%	<25
Expected system duration	yrs	6.3	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	18.0%	
	Estimated potential savings (%) ->		**18.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$1,595,131**	
Estimated potential savings (%):	**- 18.0%**	
Subtotal	**$287,124**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$262,124	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 5 SCREENING CALCULATIONS

1

RPM First Name:	Darryl	**Date of implementation:**	January 1, 2002
RPM Last Name:	Owens		
RPM phone:	312-886-7089		
RPM fax:	0.0%		
RPM email:	owens.darryl@epa.gov		

Name of Site:	Arrowhead Refinery
Site City:	Hermantown
Site State:	MN
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$70,000	
Expected duration	yrs	2.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$145,512***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	25	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	36	0.0%	25.00 to 49.99
Expected system duration	yrs	2.2	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	0.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$145,512**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$7,276**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$17,724	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	John	**Date of implementation:**	January 1, 2002
RPM Last Name:	Peterson		
RPM phone:	312-353-1264		
RPM fax:	0.0%		
RPM email:	peterson.john@epa.gov		

Name of Site:	Better Brite Plating Co. Chrome and Zinc Shops
Site City:	Depere
Site State:	WI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$36,000	
Expected duration	yrs	28.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$538,699***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	28	0.0%	25.00 to 49.99
Expected system duration	yrs	28.3	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	12.0%	
	Estimated potential savings (%) ->		**12.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$538,699**	
Estimated potential savings (%):	**- 12.0%**	
Subtotal	**$64,644**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$39,644	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Dion	**Date of implementation:**	January 1, 2002
RPM Last Name:	Novak		
RPM phone:	312-886-4737		
RPM fax:	0.0%		
RPM email:	Novak.Dion@epa.gov		

Name of Site:	Douglass Road
Site City:	Mishawaka
Site State:	IN
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$120,000	
Expected duration	yrs	28.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,810,266***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	1000	2.5%	>500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	72	2.5%	50.00 to 74.99
Expected system duration	yrs	28.8	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
	Estimated potential savings (%) ->		**32.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$1,810,266**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$588,336**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$563,336	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Kyle	**Date of implementation:**	January 1, 2002
RPM Last Name:	Rogers		
RPM phone:	312-886-1995		
RPM fax:	0.0%		
RPM email:	rogers.kyle@epa.gov		

Name of Site:	Duell and Gardner
Site City:	Dalton Township
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	5.5	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	2	-5.0%	1 to 2 wells
Pumping rate	gpm	80	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	50	2.5%	50.00 to 74.99
Expected system duration	yrs	5.5	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	15.0%	
	Estimated potential savings (%) ->		**15.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 15.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Sheri	**Date of implementation:**	January 1, 2002
RPM Last Name:	Bianchin		
RPM phone:	312-886-4745		
RPM fax:	0.0%		
RPM email:	bianchin.sheri@epa.gov		

Name of Site:	Eau Claire Municipal Well Field
Site City:	Eau Claire
Site State:	WI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$175,000	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	14	2.5%	10 or more wells
Pumping rate	gpm	4500	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	F	-5.0%	severe difficulty for minor changes or major changes
		Summation (%) ->	-7.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

6

RPM First Name:	Steve	**Date of implementation:**	January 1, 2002
RPM Last Name:	Padovani		
RPM phone:	312-353-6755		
RPM fax:	0.0%		
RPM email:	padovani.steven@epa.gov		

Name of Site:	La Salle Electrical Utilities
Site City:	La Salle
Site State:	IL
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$230,000	
Expected duration	yrs	3.2	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$658,089***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	20	-2.5%	10 to 99.99 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	100	5.0%	75 or more
Expected system duration	yrs	3.2	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	12.5%	
	Estimated potential savings (%) ->		**12.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$658,089**	
Estimated potential savings (%):	**- 12.5%**	
Subtotal	**$82,261**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$57,261	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

7

RPM First Name:	Sheila	**Date of implementation:**	January 1, 2002
RPM Last Name:	Sullivan		
RPM phone:	312-886-5251		
RPM fax:	0.0%		
RPM email:	sullivan.sheila@epa.gov		

Name of Site:	Long Prairie
Site City:	Long Prairie
Site State:	MN
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	13.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,933,325***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	9	0.0%	5 to 9 wells
Pumping rate	gpm	227	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	22	-2.5%	<25
Expected system duration	yrs	13.8	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	15.5%	
	Estimated potential savings (%) ->		**15.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$2,933,325**	
Estimated potential savings (%):	**- 15.5%**	
Subtotal	**$454,665**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$429,665	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

8

RPM First Name:	Darryl	**Date of implementation:**	January 1, 2002
RPM Last Name:	Owens		
RPM phone:	312-886-7089		
RPM fax:	0.0%		
RPM email:	owens.darryl@epa.gov		

Name of Site:	MacGillis and Gibbs/Bell Lumber & Pole
Site City:	New Brighton
Site State:	MN
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	27.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$4,451,949***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	14	2.5%	10 or more wells
Pumping rate	gpm	60	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	60	2.5%	50.00 to 74.99
Expected system duration	yrs	27.8	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	32.0%	
	Estimated potential savings (%) ->		**32.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$4,451,949**	
Estimated potential savings (%):	**- 32.0%**	
Subtotal	**$1,424,624**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,399,624	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

9

RPM First Name:	Steve	**Date of implementation:**	January 1, 2002
RPM Last Name:	Padovani		
RPM phone:	312-353-6755		
RPM fax:	0.0%		
RPM email:	padovani.steven@epa.gov		

Name of Site:	Oconomowoc Electroplating
Site City:	Ashippun
Site State:	WI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$471,000	
Expected duration	yrs	24.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$6,594,778***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	30	-2.5%	10 to 99.99 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	24.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	24.5%	
	Estimated potential savings (%) ->		**24.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$6,594,778**	
Estimated potential savings (%):	**- 24.5%**	
Subtotal	**$1,615,721**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,590,721	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

10

RPM First Name:	Timothy	**Date of implementation:**	January 1, 2002
RPM Last Name:	Prendiville		
RPM phone:	312-886-5122		
RPM fax:	0.0%		
RPM email:	prendiville.timothy@epa.gov		

Name of Site:	Onalaska Municipal Landfill
Site City:	Onalaska
Site State:	WI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$200,000	
Expected duration	yrs	0.5	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$95,617***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	560	2.5%	>500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	20	-2.5%	<25
Expected system duration	yrs	0.5	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	2.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$95,617**	
Estimated potential savings (%):	- **5.0%**	
Subtotal	**$4,781**	
Estimated RSE cost (Tier 3):	- **$25,000**	
	-$20,219	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

11

RPM First Name:	John	**Date of implementation:**	January 1, 2002
RPM Last Name:	Fagiolo		
RPM phone:	312-886-0800		
RPM fax:	0.0%		
RPM email:	fagiolo.john@epa.gov		

Name of Site:	Ott/Story/Cordova Chem Co.
Site City:	Dalton Township
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$2,400,000	
Expected duration	yrs	28.6	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$36,108,756***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	10	2.5%	10 or more wells
Pumping rate	gpm	700	2.5%	>500 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	120	5.0%	75 or more
Expected system duration	yrs	28.6	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	45.0%	
	Estimated potential savings (%) ->		**40.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$36,108,756**	
Estimated potential savings (%):	**- 40.0%**	
Subtotal	**$14,443,502**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$14,418,502	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

12

RPM First Name:	Mike	**Date of implementation:**	January 1, 2002
RPM Last Name:	Ribordy		
RPM phone:	312-886-4592		
RPM fax:	0.0%		
RPM email:	ribordy.mike@epa.gov		

Name of Site:	Peerless Plating
Site City:	Muskegon Township
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$400,000	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	165	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	24	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	2.5%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

13

RPM First Name:	Ken	**Date of implementation:**	January 1, 2002
RPM Last Name:	Glatz		
RPM phone:	312-886-1434		
RPM fax:	0.0%		
RPM email:	glatz.ken@epa.gov		

Name of Site:	U.S. Aviex
Site City:	Howard Township
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	1.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$468,345***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	170	0.0%	100 to 500 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	120	5.0%	75 or more
Expected system duration	yrs	1.7	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	5.0%	
	Estimated potential savings (%) ->		**5.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$468,345**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$23,417**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$1,583	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

14

RPM First Name:	Richard	**Date of implementation:**	January 1, 2002
RPM Last Name:	Boice		
RPM phone:	312-886-4740		
RPM fax:	0.0%		
RPM email:	boice.richard@epa.gov		

Name of Site:	Verona Well Field
Site City:	Battle Creek
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$225,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$3,458,801***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	250	0.0%	100 to 500 gpm
Down time per year	wks	2	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	10	-2.5%	<25
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$3,458,801**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$881,994**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$856,994	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

15

RPM First Name:	Russell	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hart		
RPM phone:	312-886-4844		
RPM fax:	0.0%		
RPM email:	hart.russell@epa.gov		

Name of Site:	Wash King Laundry
Site City:	Pleasant Plains Township
Site State:	MI
Site Region:	5

Cost Item	Units	Value	
Annual O&M cost	$/yr	$75,000	
Expected duration	yrs	19.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$913,889***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	250	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	46	0.0%	25.00 to 49.99
Expected system duration	yrs	19.3	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	23.0%	
	Estimated potential savings (%) ->		**23.0%**	(must be between 5% and 40%)

Summary 0

Baseline present value:	**$913,889**	
Estimated potential savings (%):	**- 23.0%**	
Subtotal	**$210,195**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$185,195	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 6 SCREENING CALCULATIONS

1

RPM First Name:	Stacey	**Date of implementation:**	January 1, 2002
RPM Last Name:	Bennett		
RPM phone:	214-665-6729		
RPM fax:	214-665-6660		
RPM email:	bennett.stacey@epa.gov		

Name of Site:	American Creosote Works
Site City:	Winnfield
Site State:	LA
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$360,000	
Expected duration	yrs	25.1	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$5,084,310***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	18	2.5%	10 or more wells
Pumping rate	gpm	5.0	-5.0%	<10 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	72	2.5%	50.00 to 74.99
Expected system duration	yrs	25.1	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	22.0%	
	Estimated potential savings (%) ->		**22.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$5,084,310**	
Estimated potential savings (%):	**- 22.0%**	
Subtotal	**$1,118,548**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,093,548	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Katrina	**Date of implementation:**	January 1, 2002
RPM Last Name:	Coltrain		
RPM phone:	214-665-8143		
RPM fax:	214-665-6660		
RPM email:	coltrain.katrina@epa.gov		

Name of Site:	Bayou Bonfouca
Site City:	Slidell
Site State:	LA
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$402,000	
Expected duration	yrs	19.5	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$4,936,430***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	44	2.5%	10 or more wells
Pumping rate	gpm	22.5	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	132	5.0%	75 or more
Expected system duration	yrs	19.5	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$4,936,430**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$1,258,790**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,233,790	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Petra	**Date of implementation:**	January 1, 2002
RPM Last Name:	Sanchez		
RPM phone:	214-665-6686		
RPM fax:	214-665-6660		
RPM email:	sanchez.petra@epa.gov		

Name of Site:	Cimarron Mining
Site City:	Carizozo
Site State:	NM
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,000,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$15,372,451***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	1.0	-5.0%	<10 gpm
Down time per year	wks	4	5.0%	4 wks or more
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	12	-2.5%	<25
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	E	-2.5%	moderate difficulty for minor changes, severe for major changes
		Summation (%) ->	15.0%	
	Estimated potential savings (%) ->		**15.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$15,372,451**	
Estimated potential savings (%):	**- 15.0%**	
Subtotal	**$2,305,868**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$2,280,868	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Vincent	**Date of implementation:**	January 1, 2002
RPM Last Name:	Malott		
RPM phone:	214-665-8313		
RPM fax:	214-665-6660		
RPM email:	malott.vincent@epa.gov		

Name of Site:	City of Perryton Well #2
Site City:	Perryton
Site State:	TX
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$37,000	
Expected duration	yrs	21.6	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$481,977***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	150.0	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	20	-2.5%	<25
Expected system duration	yrs	21.6	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
	Estimated potential savings (%) ->		**17.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$481,977**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$84,346**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$59,346	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Ruben	**Date of implementation:**	January 1, 2002
RPM Last Name:	Moya		
RPM phone:	214-665-2755		
RPM fax:	214-665-6660		
RPM email:	moya.ruben@epa.gov		

Name of Site:	Geneva Industries
Site City:	Houston
Site State:	TX
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$240,000	
Expected duration	yrs	2.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$446,259***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	13	2.5%	10 or more wells
Pumping rate	gpm	5.0	-5.0%	<10 gpm
Down time per year	wks	52	5.0%	4 wks or more
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	26	0.0%	25.00 to 49.99
Expected system duration	yrs	2.0	-15.0%	2.00 - 4.99yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	8.0%	
	Estimated potential savings (%) ->		**8.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$446,259**	
Estimated potential savings (%):	**- 8.0%**	
Subtotal	**$35,701**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$10,701	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

6

RPM First Name:	Carlos	**Date of implementation:**	January 1, 2002
RPM Last Name:	Sanchez		
RPM phone:	214-665-8507		
RPM fax:	214-665-6660		
RPM email:	sanchez.carlos@epa.gov		

Name of Site:	Midland Products
Site City:	Ola
Site State:	AR
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$180,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,767,041***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	8	0.0%	5 to 9 wells
Pumping rate	gpm	3.0	-5.0%	<10 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	20.0%	
	Estimated potential savings (%) ->		**20.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,767,041**	
Estimated potential savings (%):	**- 20.0%**	
Subtotal	**$553,408**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$528,408	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

7

RPM First Name:	Camille	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hueni		
RPM phone:	214-665-2231		
RPM fax:	214-665-6660		
RPM email:	hueni.camille@epa.gov		

Name of Site:	North Cavalcade Superfund Site
Site City:	Houston
Site State:	TX
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	8.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	19	2.5%	10 or more wells
Pumping rate	gpm	19.0	-2.5%	10 to 99.99 gpm
Down time per year	wks	52	5.0%	4 wks or more
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	8.9	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	27.5%	
	Estimated potential savings (%) ->		**27.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 27.5%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

8

RPM First Name:	Ernest	**Date of implementation:**	January 1, 2002
RPM Last Name:	Franke		
RPM phone:	214-665-8521		
RPM fax:	214-665-6660		
RPM email:	franke,ernest@epamail.epa.gov		

Name of Site:	Odessa Chromium #1
Site City:	Odessa
Site State:	TX
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	0.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	60.0	-2.5%	10 to 99.99 gpm
Down time per year	wks	15	5.0%	4 wks or more
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	14	-2.5%	<25
Expected system duration	yrs	0.0	-20.0%	<2 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	0.0%	
		Estimated potential savings (%) ->	**5.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 5.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

9

RPM First Name:	Vincent	**Date of implementation:**	January 1, 2002
RPM Last Name:	Malott		
RPM phone:	214-665-8313		
RPM fax:	214-665-6660		
RPM email:	malott.vincent@epa.gov		

Name of Site:	Sprague Road Ground Water Plume
Site City:	Odessa
Site State:	TX
Site Region:	6

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,200,000	
Expected duration	yrs	26.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$17,472,059***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	22	2.5%	10 or more wells
Pumping rate	gpm	200.0	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	200	5.0%	75 or more
Expected system duration	yrs	26.7	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
	Estimated potential savings (%) ->		**32.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$17,472,059**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$5,678,419**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$5,653,419	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 7 SCREENING CALCULATIONS

1

RPM First Name:	Bob	**Date of implementation:**	January 1, 2002
RPM Last Name:	Stewart		
RPM phone:	913-551-7654		
RPM fax:	913-551-9654		
RPM email:	stewart.robert@epa.gov		

Name of Site:	Ace Services
Site City:	Colby
Site State:	KS
Site Region:	7

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	13.7	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$4,868,337***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	12	2.5%	10 or more wells
Pumping rate	gpm	800	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	124	5.0%	75 or more
Expected system duration	yrs	13.7	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	32.5%	
	Estimated potential savings (%) ->		**32.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$4,868,337**	
Estimated potential savings (%):	**- 32.5%**	
Subtotal	**$1,582,210**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,557,210	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Mary	**Date of implementation:**	January 1, 2002
RPM Last Name:	Peterson		
RPM phone:	913-551-7882		
RPM fax:	913-551-7063		
RPM email:	peterson.mary@epa.gov		

Name of Site:	Cleburn Street Well Site/OU2
Site City:	Grand Island
Site State:	NE
Site Region:	7

Cost Item	Units	Value	
Annual O&M cost	$/yr	$100,000	
Expected duration	yrs	17.9	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,165,954***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	3	-2.5%	3 to 4 wells
Pumping rate	gpm	90	-2.5%	10 to 99.99 gpm
Down time per year	wks	1	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	32	0.0%	25.00 to 49.99
Expected system duration	yrs	17.9	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	17.5%	
		Estimated potential savings (%) ->	**17.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$1,165,954**	
Estimated potential savings (%):	**- 17.5%**	
Subtotal	**$204,042**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$179,042	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Steve	**Date of implementation:**	January 1, 2002
RPM Last Name:	Auchterlonie		
RPM phone:	913-551-7778		
RPM fax:	913-551-7437		
RPM email:	auchterlonie.steve@epa.gov		

Name of Site:	Valley Park TCE Site - OU2
Site City:	Valley Park
Site State:	MO
Site Region:	7

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	14.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	0	-2.5%	<25
Expected system duration	yrs	14.0	-2.5%	10.00 - 19.99 yrs
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	15.0%	
	Estimated potential savings (%) ->		**15.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 15.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 9 SCREENING CALCULATIONS

1

RPM First Name:	David	**Date of implementation:**	January 1, 2002
RPM Last Name:	Seter		
RPM phone:	415-744-2212		
RPM fax:	111-111-1111		
RPM email:	seter.david@epa.gov		

Name of Site:	Modesto Superfund Site
Site City:	Modesto
Site State:	CA
Site Region:	9

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	20.3	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$3,776,134***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	1	-5.0%	1 to 2 wells
Pumping rate	gpm	50	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	2	0.0%	2 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	20.3	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	20.0%	
	Estimated potential savings (%) ->		**20.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$3,776,134**	
Estimated potential savings (%):	**- 20.0%**	
Subtotal	**$755,227**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$730,227	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Kim	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hoang		
RPM phone:	415-744-2370		
RPM fax:	999-999-9999		
RPM email:	hoang.kim@epa.gov		

Name of Site:	Muscoy
Site City:	San Bernadino
Site State:	CA
Site Region:	9

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,100,000	
Expected duration	yrs	22.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$14,754,617***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	9000	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	60	2.5%	50.00 to 74.99
Expected system duration	yrs	22.8	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	27.0%	
	Estimated potential savings (%) ->		**27.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$14,754,617**	
Estimated potential savings (%):	**- 27.0%**	
Subtotal	**$3,983,747**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$3,958,747	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Kim	**Date of implementation:**	January 1, 2002
RPM Last Name:	Hoang		
RPM phone:	415-744-2370		
RPM fax:	999-999-9999		
RPM email:	hoang.kim@epa.gov		

Name of Site:	Newmark
Site City:	San Bernadino
Site State:	CA
Site Region:	9

Cost Item	Units	Value	
Annual O&M cost	$/yr	$900,000	
Expected duration	yrs	26.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$13,123,638***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	8	0.0%	5 to 9 wells
Pumping rate	gpm	12000	2.5%	>500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	30	0.0%	25.00 to 49.99
Expected system duration	yrs	26.8	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$13,123,638**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$3,346,528**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$3,321,528	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Michelle	**Date of implementation:**	January 1, 2002
RPM Last Name:	Lau		
RPM phone:	415-744-2227		
RPM fax:	415-744-2180		
RPM email:	lau.michelle@epa.gov		

Name of Site:	Selma Treating Co.
Site City:	Selma
Site State:	CA
Site Region:	9

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	6.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$1,684,303***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	150	0.0%	100 to 500 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	80	5.0%	75 or more
Expected system duration	yrs	6.8	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	C	2.0%	little difficulty for minor changes, severe for major changes
		Summation (%) ->	17.0%	
	Estimated potential savings (%) ->		**17.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$1,684,303**	
Estimated potential savings (%):	**- 17.0%**	
Subtotal	**$286,332**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$261,332	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

REGION 10 SCREENING CALCULATIONS

1

RPM First Name:	Debra	**Date of implementation:**	January 1, 2002
RPM Last Name:	Yamamoto		
RPM phone:	206-553-7216		
RPM fax:	206-553-0124		
RPM email:	yamamoto.debbie@epa.gov		

Name of Site:	Boomsnub/Airco / Site-Wide Ground Water OU
Site City:	Hazel Dell
Site State:	WA
Site Region:	10

Cost Item	Units	Value	
Annual O&M cost	$/yr	$1,000,000	
Expected duration	yrs	28.8	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$15,085,551***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	22	2.5%	10 or more wells
Pumping rate	gpm	135	0.0%	100 to 500 gpm
Down time per year	wks	3	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	160	5.0%	75 or more
Expected system duration	yrs	28.8	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	E	-2.5%	moderate difficulty for minor changes, severe for major changes
		Summation (%) ->	27.5%	
	Estimated potential savings (%) ->		**27.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$15,085,551**	
Estimated potential savings (%):	**- 27.5%**	
Subtotal	**$4,148,527**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$4,123,527	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

2

RPM First Name:	Carmella	**Date of implementation:**	January 1, 2002
RPM Last Name:	Grandinetti		
RPM phone:	206-553-8696		
RPM fax:	206-553-0124		
RPM email:	grandinetti.cami@epa.gov		

Name of Site:	Bunker Hill Superfund Site
Site City:	Kellogg
Site State:	ID
Site Region:	10

Cost Item	Units	Value	
Annual O&M cost	$/yr	$0	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$0***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	A	2.5%	Performance not evaluated
Number of pumping wells	#	0	0.0%	no wells (e.g., drains, etc.)
Pumping rate	gpm	0	-5.0%	<10 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	232	5.0%	75 or more
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	25.0%	
	Estimated potential savings (%) ->		**25.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$0**	
Estimated potential savings (%):	**- 25.0%**	
Subtotal	**$0**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	-$25,000	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

3

RPM First Name:	Kevin	**Date of implementation:**	January 1, 2002
RPM Last Name:	Rochlin		
RPM phone:	206-553-2106		
RPM fax:	206-553-0124		
RPM email:	rochlin.kevin@epa.gov		

Name of Site:	Commencement Bay, South Tacoma Channel, Well 12A
Site City:	Tacoma
Site State:	WA
Site Region:	10

Cost Item	Units	Value	
Annual O&M cost	$/yr	$300,000	
Expected duration	yrs	9.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$2,133,380***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	5	0.0%	5 to 9 wells
Pumping rate	gpm	150	0.0%	100 to 500 gpm
Down time per year	wks	3	2.5%	2.00 - 3.99 wks
# of above-ground water treatment processes	#	1	-2.5%	0 or 1 processes
GW monitoring (number wells * events-per-yr)	#	40	0.0%	25.00 to 49.99
Expected system duration	yrs	9.0	-5.0%	5.00 - 9.99 yrs
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	23.0%	
	Estimated potential savings (%) ->		**23.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$2,133,380**	
Estimated potential savings (%):	**- 23.0%**	
Subtotal	**$490,677**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$465,677	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

4

RPM First Name:	Alan	**Date of implementation:**	January 1, 2002
RPM Last Name:	Goodman		
RPM phone:	503-326-3685		
RPM fax:	503-326-3399		
RPM email:	goodman.al@epa.gov		

Name of Site:	McCormick & Baxter Creosoting Co.
Site City:	Portland
Site State:	OR
Site Region:	10

Cost Item	Units	Value	
Annual O&M cost	$/yr	$250,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$3,843,113***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	C	-2.5%	Performance evaluated and found sufficient
Number of pumping wells	#	6	0.0%	5 to 9 wells
Pumping rate	gpm	3	-5.0%	<10 gpm
Down time per year	wks	5	5.0%	4 wks or more
# of above-ground water treatment processes	#	4	5.0%	4 or more processes
GW monitoring (number wells * events-per-yr)	#	50	2.5%	50.00 to 74.99
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	A	5.0%	little difficulty for minor changes or major changes
		Summation (%) ->	30.0%	
		Estimated potential savings (%) ->	**30.0%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$3,843,113**	
Estimated potential savings (%):	**- 30.0%**	
Subtotal	**$1,152,934**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,127,934	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***

5

RPM First Name:	Hanh	**Date of implementation:**	January 1, 2002
RPM Last Name:	Gold		
RPM phone:	206-553-0171		
RPM fax:	206-553-0124		
RPM email:	gold.hanh@epa.gov		

Name of Site:	Wyckoff/Eagle Harbor Superfund Site
Site City:	Bainbridge Island
Site State:	WA
Site Region:	10

Cost Item	Units	Value	
Annual O&M cost	$/yr	$500,000	
Expected duration	yrs	30.0	<-max of 30 yrs
Discount rate	%	5.00%	
Baseline present value ->	$	***$7,686,226***	

Optimization Factor	Units	Answer	Potential Savings (%)	Range in Lookup Table
Potential savings (initial estimate)	%		20.0%	
Performance evaluation?	A-C	B	5.0%	Performance evaluated and found insufficient
Number of pumping wells	#	8	0.0%	5 to 9 wells
Pumping rate	gpm	80	-2.5%	10 to 99.99 gpm
Down time per year	wks	0	0.0%	<2 wks
# of above-ground water treatment processes	#	3	2.5%	3 processes
GW monitoring (number wells * events-per-yr)	#	20	-2.5%	<25
Expected system duration	yrs	30.0	0.0%	20 yrs or more
Political/Social factors (minor changes)	A-F	B	3.0%	little difficulty for minor changes, moderate for major changes
		Summation (%) ->	25.5%	
	Estimated potential savings (%) ->		**25.5%**	(must be between 5% and 40%)

Summary

Baseline present value:	**$7,686,226**	
Estimated potential savings (%):	**- 25.5%**	
Subtotal	**$1,959,988**	
Estimated RSE cost (Tier 3):	**- $25,000**	
	$1,934,988	***<------ Estimated potential savings ($)***

*****Note:Estimated potential savings do not include costs associated with implementing actual system modifications***