

APPENDIX B

Nationwide Superfund Reform Initiative Phase 1 - Data Collection and System Screening
(Regions 6 - 7 and 9- 10)

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 an 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)/Tetrachloroethylene (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

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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

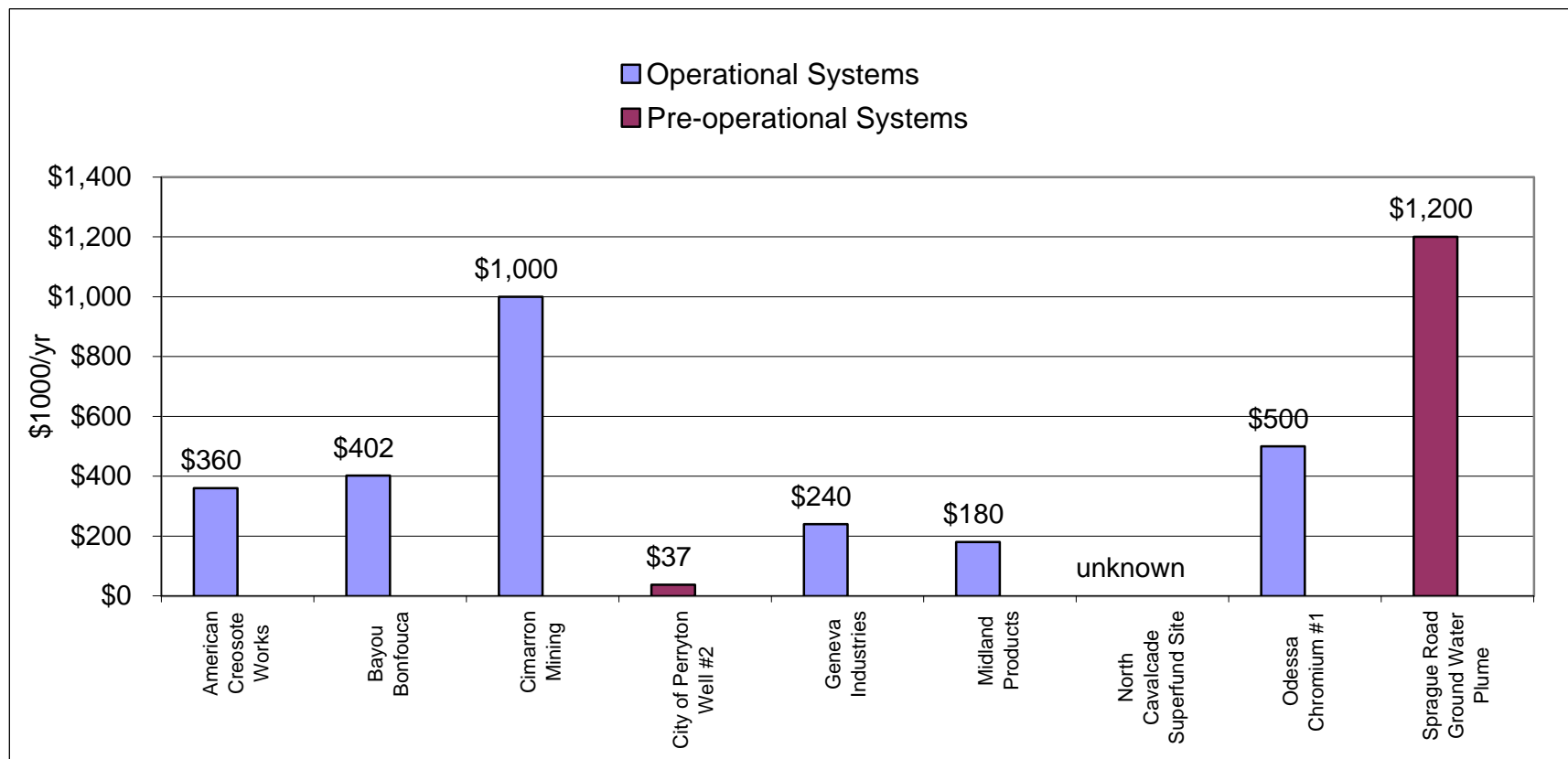
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

- "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.
- "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).
- "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
- Previous evaluations of effectiveness may include 5-year reviews but do not include Remediation System Evaluations.
- In situ bioremediation is the primary remedial strategy at the American Creosote Works site.
- The remediation at the Odessa Chromium #1 site has been significantly enhanced by in situ treatment with ferrous sulfate.
- 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



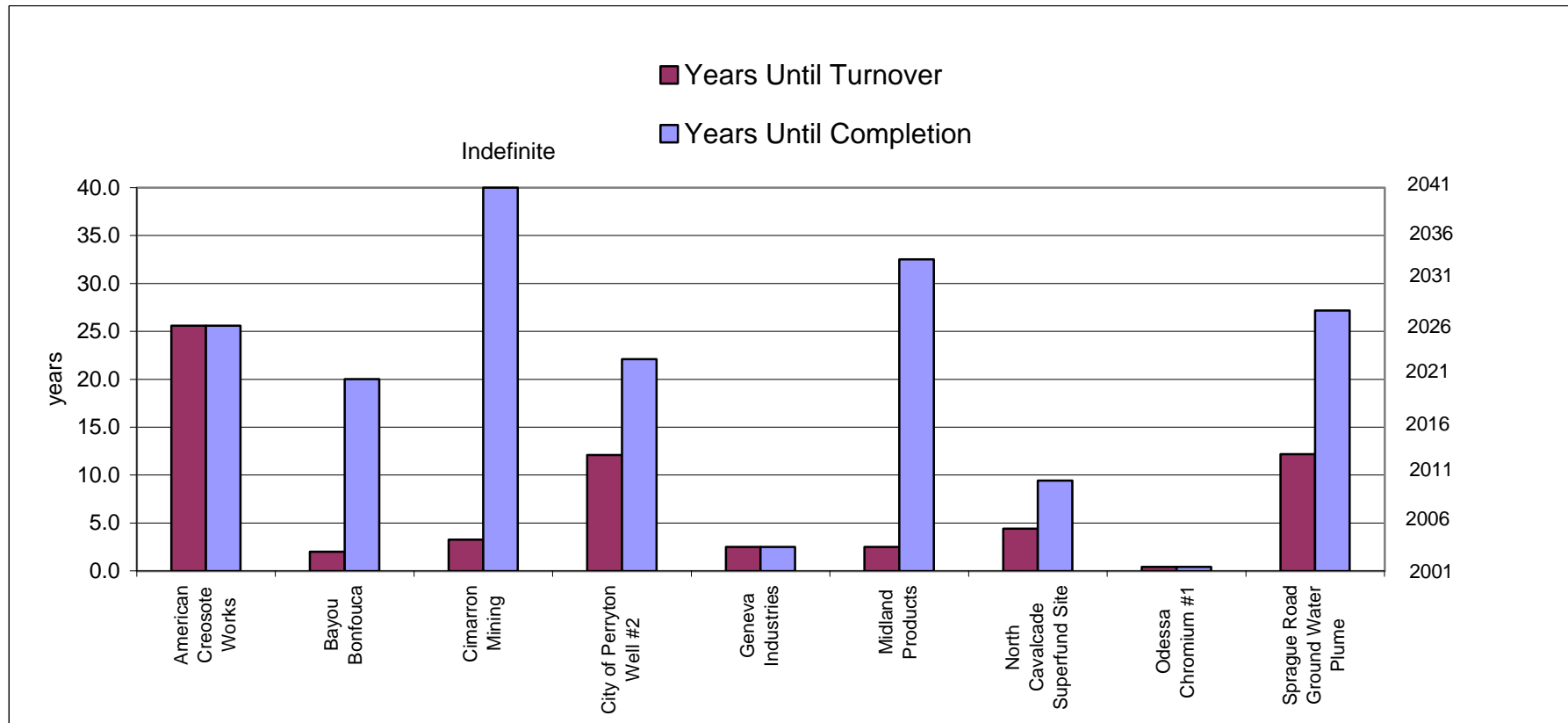
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Notes:

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

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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.

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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.
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- [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)/Tetrachloroethylene (PCE)	Air Stripping
Valley Park TCE Site - OU2	Not present	2	1,1,1-Trichloroethane Trichlorethylene (TCE)/Tetrachloroethylene (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

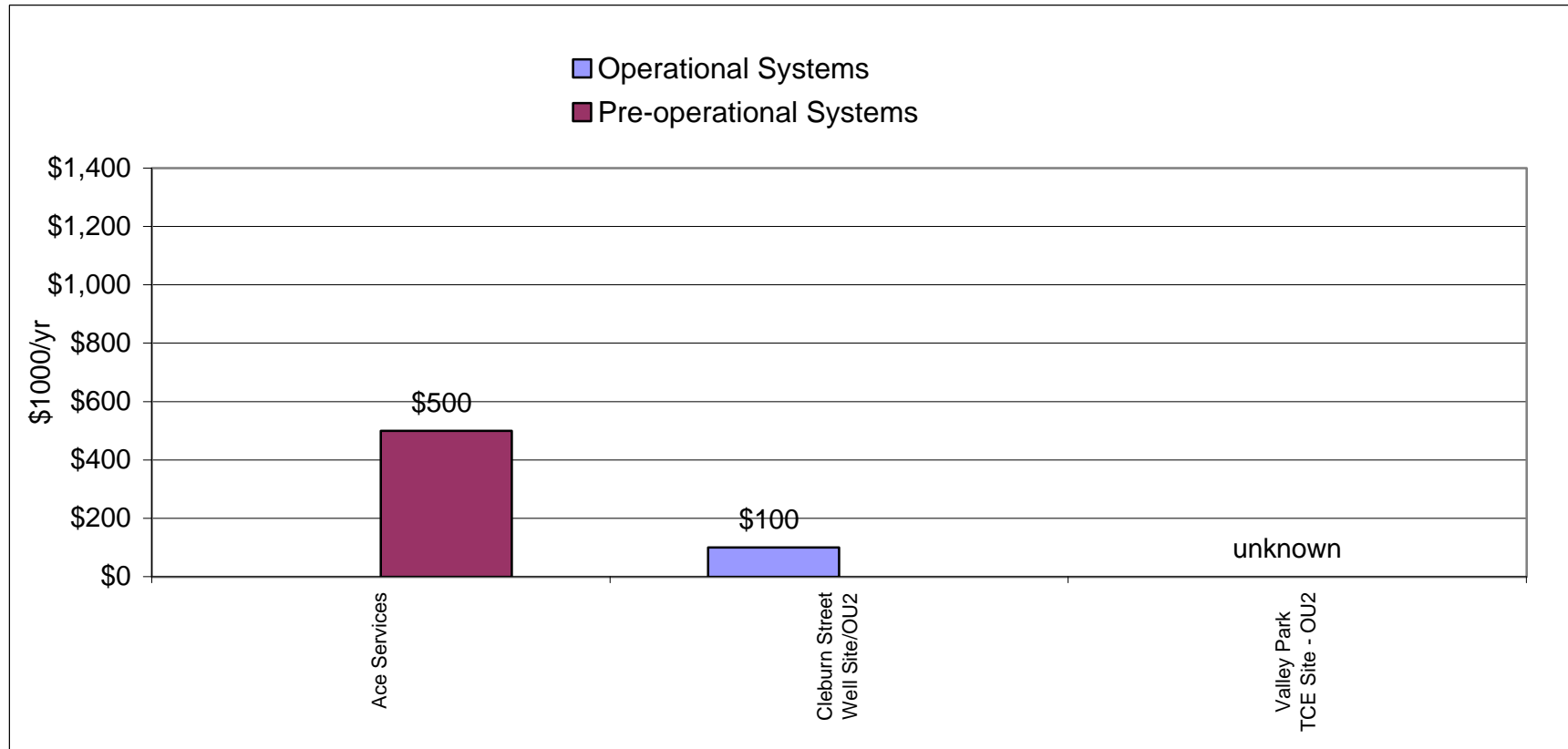
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

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



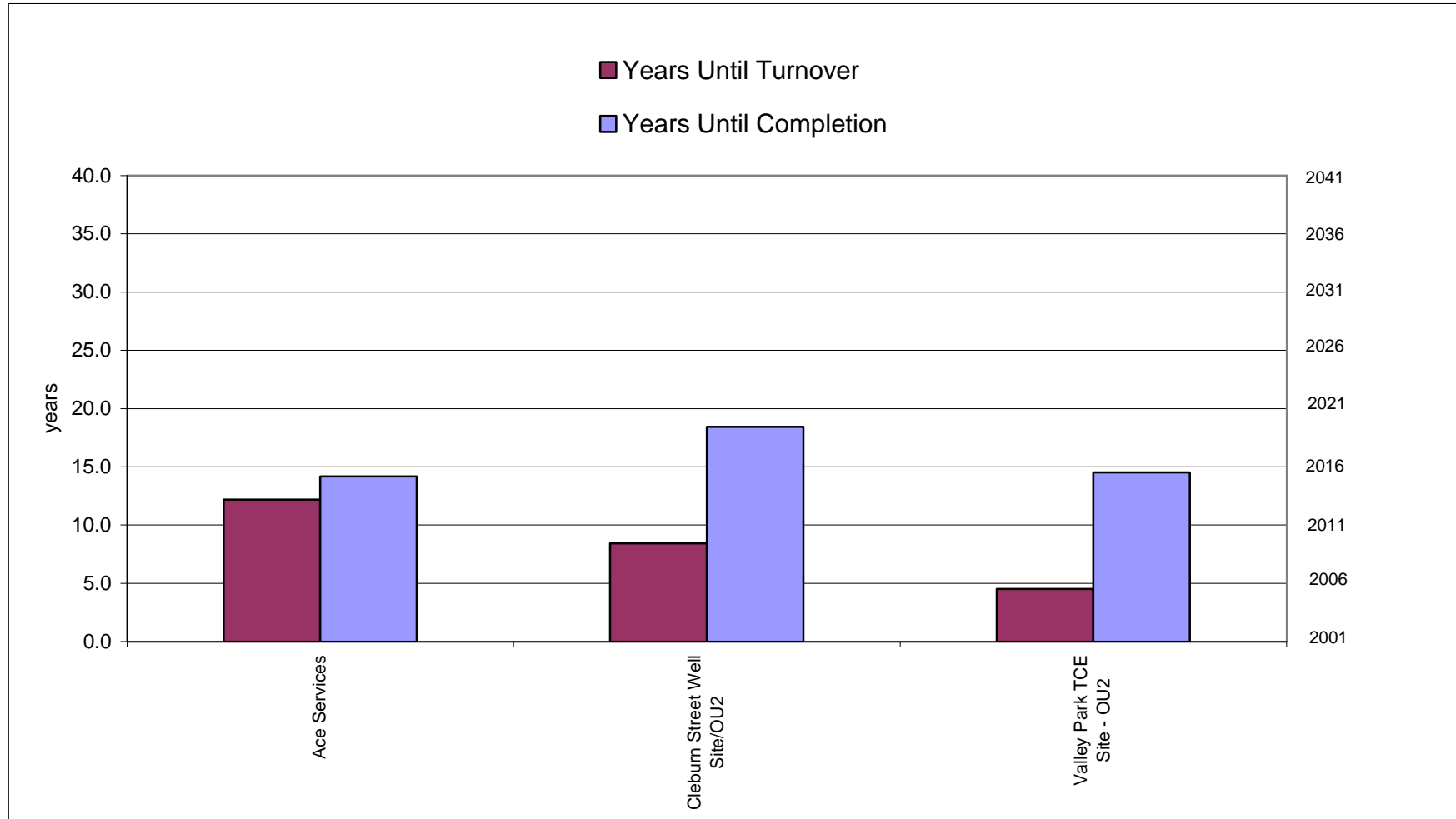
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

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.

July 3, 2001

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and Site Screening, Region 9

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 functional 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

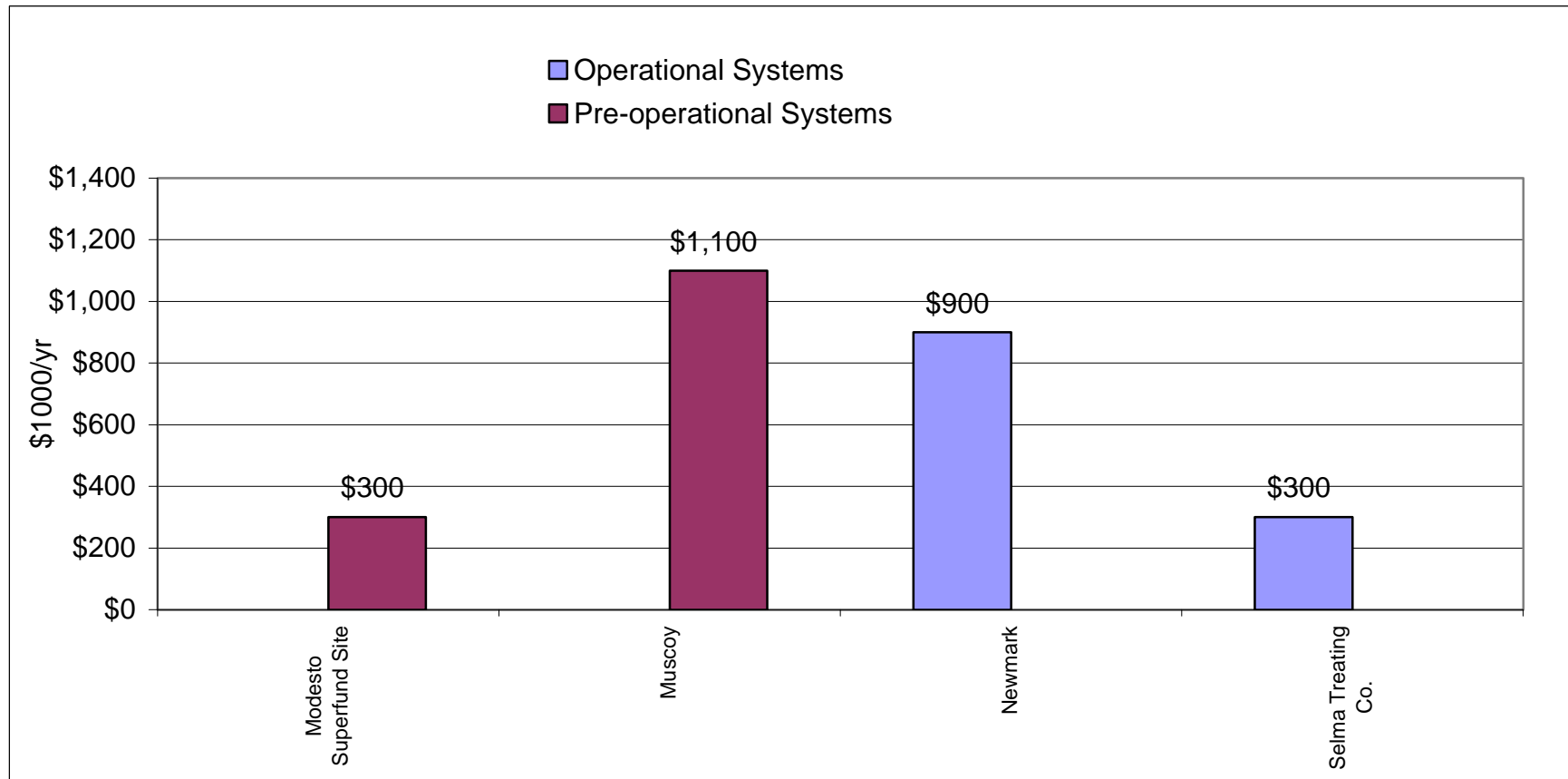
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

Notes:

- "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.
- "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).
- "Groundwater Samples per Year" is calculated by multiplying the number of monitoring wells sampled by the number of monitoring events per year.
- 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

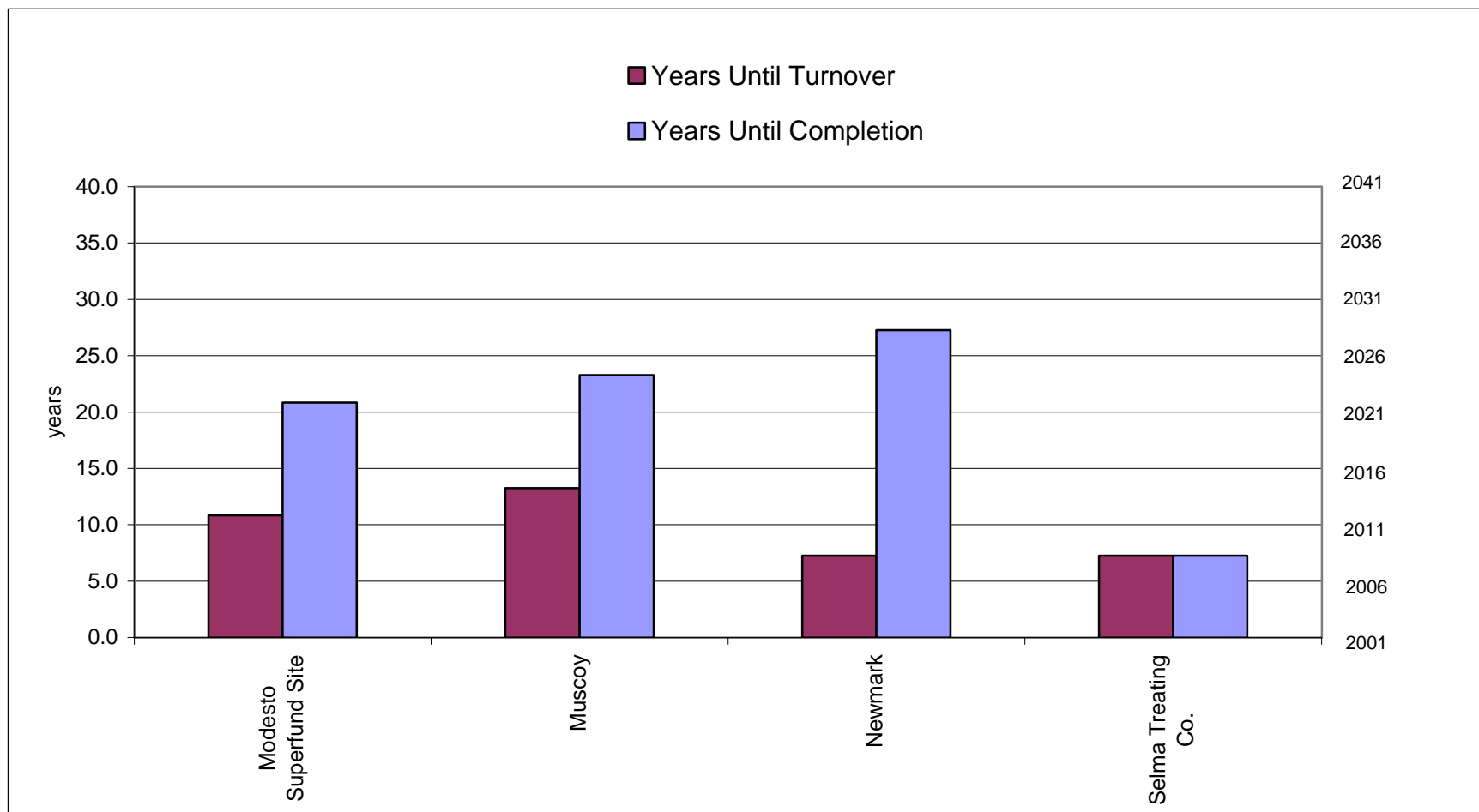
July 3, 2001



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.

July 3, 2001

Nationwide Superfund Reform Initiative
Phase 1– Data Collection and Site Screening, Region 10

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.O. 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
Protonic/Air Duster- 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 Trichloroethylene (TCE)/Tetrachloroethylene (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
	Commencement Bay, South Tacoma Channel, Well 12A	23.0%	\$465,677	9.5	Not Sufficient	150	5	1	40	Minor Moderate
	McCormick & Baxter Creosoting Co.	30.0%	\$1,127,934	Indefinite	Sufficient	3	6	4	50	Minor Minor
	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

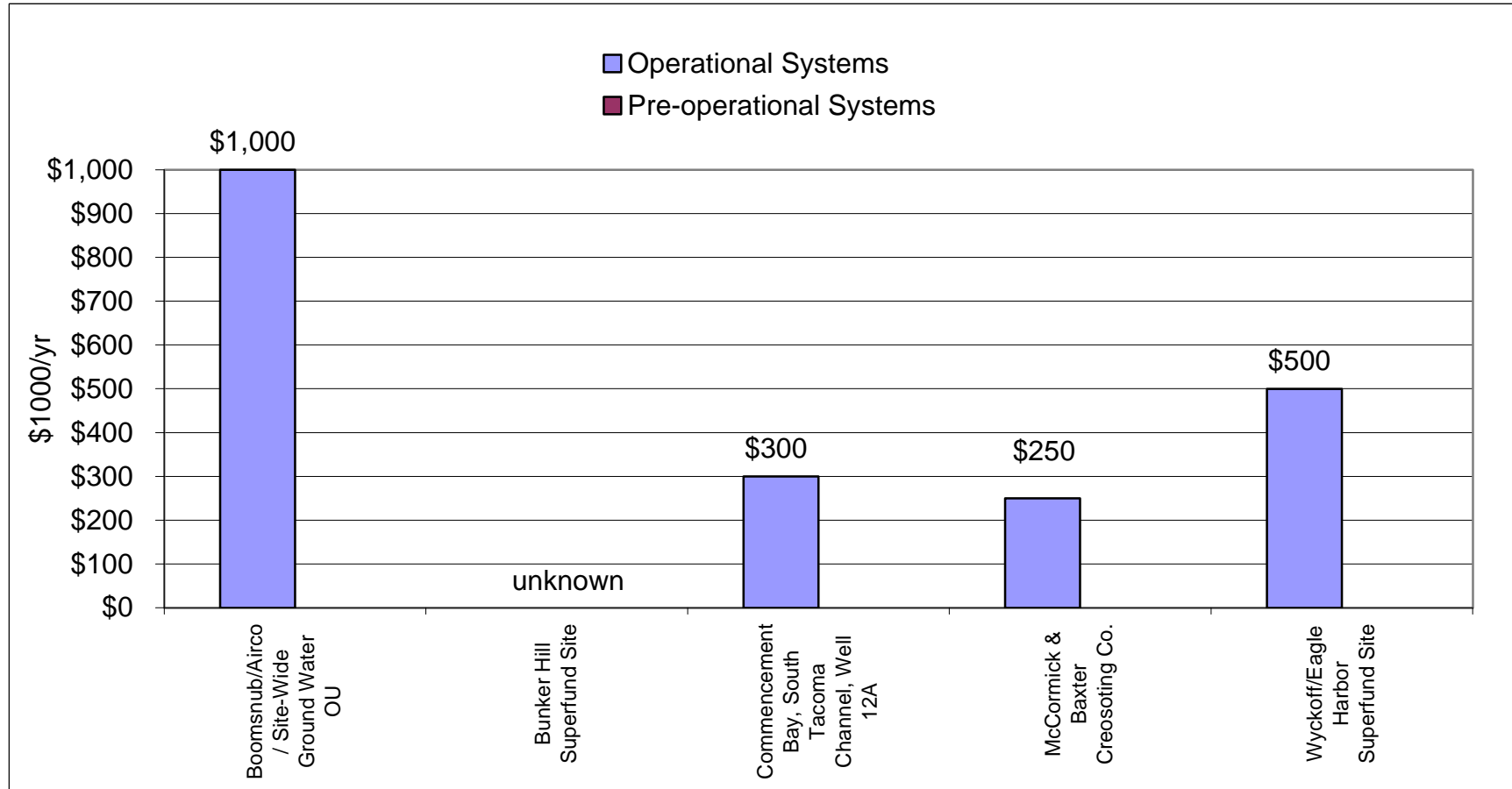
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

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



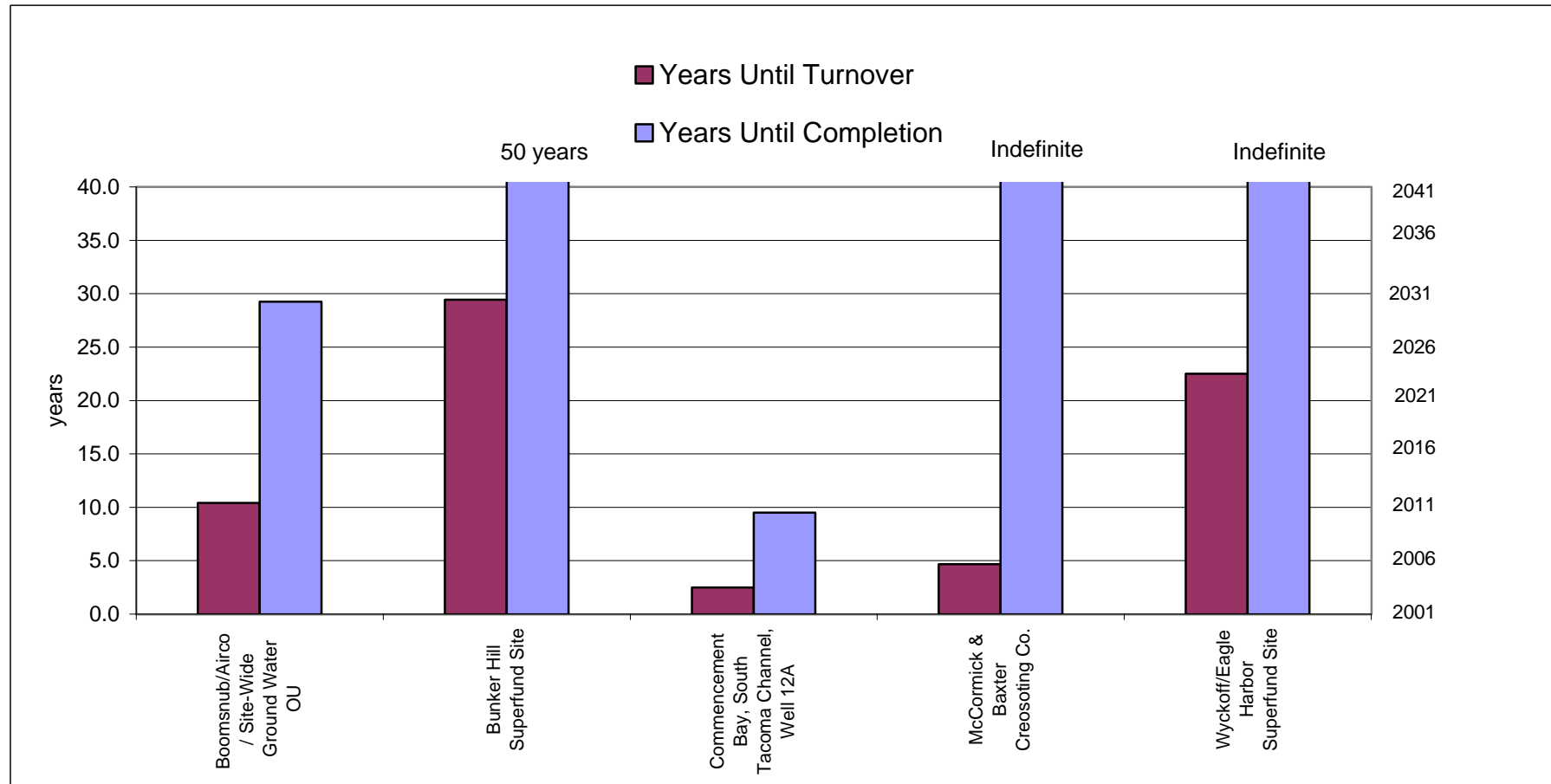
Data reflect estimates provided by site Remedial Project Managers between February and May 2001. These estimates may, in some cases, vary from actuality. Data-- including the number, status, cost, projections, and specifications of systems-- may change overtime.

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.