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Market Opportunities for Innovative Site Cleanup Technologies:

Middle-Atlantic States

U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
Technology Innovation Office
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FOREWORD

The size and scope of the nation's hazardous waste problem have been well documented. In our 1993 report *Cleaning Up the Nation's Waste Sites: Markets and Technology Trends* (PB93-140762), we provided a national perspective on the overall size of markets (Federal, state, local, and private) for hazardous waste remediation technologies. This regional market report provides a detailed and updated view of specific market opportunities at waste sites located in the Middle-Atlantic region of the country. It highlights opportunities for innovative hazardous waste site cleanup in Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. The information contained in this report covers Superfund, Resource Conservation and Recovery Act (RCRA) corrective action, petroleum Underground Storage Tanks (UST), Federal facility, and state cleanup programs.

The purpose of the report is to provide, under one cover, information on sites in the region that could potentially result in market opportunities for innovative site cleanup technologies. The sites and programs highlighted in each state and the District of Columbia represent those that would appear to provide the best near term opportunities for cleanup technologies (2 to 5 years). The contents of this report come from a number of state and Federal sources and represent a compilation of the best, accessible data we could identify. We have sought to provide the most detailed data available on the specific sites and programs, although available information sources for some programs are limited. The report seeks to uncover potential leads for site cleanup opportunities and to give sufficient contact information to allow interested parties to follow-up on those leads.

We would like to thank the staff from state waste programs who contributed their time and information to the report. We would also like to thank EPA headquarters and regional personnel for their contributions of data and subsequent review of the completed report.

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Director, Technology Innovation Office

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LIST OF ACRONYMS

AOC	Area of Concern
AST	Aboveground Storage Tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CLU-IN	Clean-Up Information Bulletin Board System
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
DENIX	Defense Environmental Network for Information eXchange
DEP	Division of Environmental Protection
DEQ	Department of Environmental Quality
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DNREC	Department of Natural Resources and Environmental Control
DoD	Department of Defense
DOE	Department of Energy
EI	Environmental Indicators
EPA	Environmental Protection Agency
FFID	Federal Facility Identification Number
FTP	File Transfer Protocol
FUDS	Formerly Used Defense Site
FY	Fiscal Year
HRS	Hazard Ranking System
HSCA	Hazardous Sites Cleanup Act
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
NASA	National Aeronautics and Space Administration
NPL	National Priorities List
O&M	Operation and Maintenance
OSWER	Office of Solid Waste and Emergency Response
OUST	Office of Underground Storage Tanks
PA	Preliminary Assessment
PADEP	Pennsylvania Department of Environmental Protection
PAH	Polyaromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Perchloroethylene
PNA	Polynuclear Aromatics
POL	Petroleum, Oil, and Lubricants
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RD	Remedial Design
RELAI	Responsive Electronic Link Access Interface

LIST OF ACRONYMS (continued)

RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation and Feasibility Study
RID	ROD Information Database
ROD	Record of Decision
RP	Responsible Party
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SNAP	Superfund NPL Assessment Program
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
TIO	Technology Innovation Office
TSD	Treatment, Storage, and Disposal
USDA	U.S. Department of Agriculture
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VISITT	Vendor Information System for Innovative Treatment Technologies
VOC	Volatile Organic Compound
VRP	Voluntary Remediation Program

1.0 INTRODUCTION AND SUMMARY OF FINDINGS

The purpose of this report is to provide vendors and developers of innovative treatment technologies a resource to use in determining potential technology needs present in the Middle-Atlantic states in order to support them in developing marketing plans for the region. Innovative treatment technologies for remediation are defined here as those technologies for which a lack of cost and performance data inhibit their routine consideration and use. This report was prepared under the direction of the Office of Solid Waste and Emergency Response (OSWER) Technology Innovation Office (TIO) of the U.S. Environmental Protection Agency (EPA). It provides information on potential site clean-up marketing opportunities in EPA's Region 3, which covers Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. This report is a companion to a 1993 survey report developed by TIO, *Cleaning up the Nation's Waste Sites: Markets and Technology Trends*. That report presented a broad national survey of the potential markets for innovative hazardous waste remediation technologies, and this report presents more specific descriptions to help identify potential markets in the Middle-Atlantic region. An update of the national market study will be available in early 1996.

This section presents the purpose and scope of the report, a description of the methodology used to collect market information, a brief discussion of the market-driving regulatory programs at the EPA regional level, a discussion of market opportunities at the state levels, and the potential markets available at Federal facilities. (In Region 3, the Federal facility universe consists, for the most part, of Department of Defense (DoD) installations, although both the U.S. Department of Agriculture (USDA) and the National Aeronautics and Space Administration (NASA) have installations subject to remedial action). The remainder of this section provides a summary of the findings for each state, along with a discussion of technologies that have been employed throughout the Region and a discussion of how to use the document.

The main body of the report, Sections 2 through 7, provides detailed accounts of the potential markets for innovative hazardous waste remediation technologies in each Middle-Atlantic state. This report also contains four appendices: Appendix A contains a list of DoD installations with two or fewer sites or estimated costs for cleanup of less than or equal to $1 million; Appendix B contains EPA-produced fact sheets concerning the Brownfields Economic Redevelopment Initiative; Appendix C contains information on various government contracts of potential interest to vendors of innovative remediation technologies; and Appendix D contains a list of references used to prepare this report.

The main findings of this report are:

- Underground storage tank (UST) sites present the greatest opportunity, in terms of absolute number of sites (though not in complexity of remediation tasks), for marketers of innovative remediation technologies, followed by DoD sites, Superfund National Priorities List (NPL) sites, and in states that maintain an abandoned hazardous waste site program, abandoned hazardous waste sites managed by the state.

- Resource Conservation and Recovery Act (RCRA) facilities subject to corrective action, at which a requirement for a corrective measures study (CMS) or a RCRA facility investigation (RFI) has been imposed are the smallest market in terms of absolute number of sites. However, as time passes, the RCRA segment of the market is likely to grow.

- There are more than 424 RCRA treatment, storage, or disposal (TSD) facilities in EPA Region 3 of which 22 are currently under a requirement to conduct a CMS, indicating that a corrective action will be conducted at the facility in the near future. Forty-nine of the RCRA TSDs have been required to conduct an RFI. Based on EPA experience at sites nationwide, the majority of those facilities are also likely to undergo some form of corrective action. They may, however, represent longer term opportunities.

- There are 164 sites in Region 3 that are listed on the NPL of which 121 present potential opportunities for marketers of innovative remediation technologies.

- Fifty-two hazardous waste sites managed under state programs require remediation.

- There are 3,119 confined release UST sites that require cleanup.

- There are 84 DoD installations in Region 3. On those installations, there are 743 sites at which cleanup is planned.

- Baltimore, Maryland, Cape Charles and Richmond, Virginia, and Philadelphia and Pittsburgh, Pennsylvania, have been designated as pilot project sites under the Brownfields Economic Redevelopment Initiative.

- Innovative remediation technologies have been selected for use at 23 NPL sites, DoD sites, or RCRA sites in Region 3.

1.1 Purpose and Scope

This report provides a vendor interested in exploring remediation market possibilities in the Middle-Atlantic region with sufficient information to determine whether there is an apparent need for the technology the vendor sells and in which states the opportunities for marketing can be found. TIO believes that the report will be a valuable tool for vendors interested in determining future markets for

their technologies. The report provides vendors with an overview of the regional market by identifying individual states that offer promising opportunities and identifying individual RCRA facilities, sites listed on the Superfund NPL, and Federal facilities in each state that are possible marketing targets. TIO believes that these resources will provide marketers of innovative technologies with an improved capability to initially identify opportunities and to augment their marketing strategies.

The report illustrates the general state of the remediation market in Region 3 by highlighting specific information on individual facilities and government installations in need of remediation. The report also provides information on the potential predisposition of EPA and the states to use innovative technologies as solutions to problems related to the remediation of hazardous wastes by identifying past uses of such technologies. To the extent possible, information is supplied in an identical format for each state, so that comparisons can be made among the states of the numbers and types of opportunities that might be available to vendors. However, the level of detail varies from state to state, depending on the amount of data available and the accessibility of the data.

1.2 Remediation Programs at the EPA Regional Level

This section discusses hazardous waste remediation programs in EPA Region 3. Although UST programs are run by the states, RCRA authorities are delegated to the states, and Superfund programs can be complemented by the states, regional staff of the Hazardous Waste Management Division are responsible for EPA oversight of those activities. The EPA Region 3 Hazardous Waste Management Division consists of two offices, the Office of RCRA Programs and the Office of Superfund Programs. Information on opportunities in UST remediation and at Federal facilities is provided in Sections 1.3 and 1.4.

RCRA

The Pennsylvania Operations Branch and the General Operations Branch reside in the Region's Office of RCRA Programs. Those two branches of the Office of RCRA Programs oversee RCRA corrective action activities, and the Compliance and Enforcement Branch oversees UST activities. The two RCRA branches divide responsibilities on a geographic basis: the Pennsylvania Operations Branch manages all activities for Pennsylvania, and the General Operations Branch manages activities in the other states in the Region. The two branches also manage all RCRA corrective action activities in the

Middle-Atlantic region because no state in the Region currently is authorized to implement the corrective action provisions of RCRA. Potential releases typically are identified through inspections or RCRA facility assessments (RFA). Sources of potential releases are described by regulatory authorities as solid waste management units (SWMU); more than one SWMU might be present at any given facility.

Typically, a RCRA permit writer or project manager reviews plans developed by a regulated facility to investigate and correct, as appropriate, potential releases governed by the corrective action provisions of RCRA. Upon identification of a potential release, the permit writer notifies the facility and imposes a requirement that an RFI be performed.

If the RFI concludes that corrective measures are appropriate, a CMS will be developed. The CMS results in the selection of one or more cleanup methods that are implemented during the corrective measures implementation (CMI). Vendors interested in competing for work should focus on those facilities where a CMS has been imposed and not yet been approved, because, in such cases, technology vendors may not yet have been chosen. The event "CMS imposed" was chosen as a good indicator of facilities requiring corrective action in the near-term. Once a CMS has been imposed, it is almost certain that corrective action will be performed at a facility. Information on the number of RFIs also is included because it gives a general indication of sites that will also undergo corrective action in the near future. Also, due to the stabilization initiative, not every facility to be remediated will require a CMS. The stabilization initiative encourages near-term measures ranging from exposure controls through pump-and-treat systems to contain groundwater. These measures need to be implemented as early in the process as possible, preferably in the RFI. The stabilization initiative directs implementers to stabilize facilities and then proceed to the next high priority facility, instead of proceeding through to the final remedy. These sites may also present near-term opportunities.

Table 1-1 below indicates the total number of facilities in Region 3 regulated under RCRA, the number of facilities where a CMS has been imposed, and the number of facilities where a CMS has been approved. The number of facilities with a CMS imposed is not a direct subset of RCRA treatment, storage, and disposal (TSD) facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators.

Table 1-1
Total Number of RCRA Facilities and Facilities
Where a Corrective Measures Study Has Been Imposed in Region 3

State	RCRA Facilities	RCRA Facilities Where A Corrective Measures Study Has Been Imposed[a]	RCRA Facilities Where A Corrective Measures Study Has Been Approved[b]
Delaware	12	3	0
District of Columbia	1	0	0
Maryland	41	1	1
Pennsylvania	237	16	11
Virginia	98	14	4
West Virginia	35	5	1
TOTAL	424	39	17

Source: RCRIS Regional Oversight database, June 1995

a Facilities where a CMS has been imposed are identified here because they present the best marketing opportunities for innovative technology vendors.

b Facilities where a CMS has been approved are identified here because they also present marketing opportunities for innovative technology vendors.

Table 1-2 below indicates the total number of facilities in Region 3 regulated under RCRA, the number of facilities that have an RFI imposed, and the number of facilities where an RFI has been approved. The number of facilities with an RFI imposed is not a direct subset of RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators.

CERCLA

The process prescribed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for listing a site on the NPL is to perform a preliminary assessment (PA), followed by a site inspection (SI). In cases in which situations immediately dangerous to human health and the environment are detected through the PA or SI, a site may be subject to a removal action to minimize that danger. Typically, however, data from the PA and SI are used to score the

site under the Hazard Ranking System (HRS) to determine whether remediation is necessary. Sites that score above 28.5 using the HRS are listed on the NPL. Once a site has been listed on the NPL, EPA begins to search for potentially responsible parties (PRP) and ensures the initiation of the remedial investigation and feasibility study (RI/FS). Data from the RI/FS are used in selecting the appropriate cleanup technologies and strategies for the site.

Table 1-2
Total Number of RCRA Facilities and Facilities
Where a RCRA Facility Investigation Has Been Imposed in Region 3

State	RCRA Facilities	RCRA Facilities Where A RCRA Facility Investigation Has Been Imposed[a]	RCRA Facilities Where A RCRA Facility Investigation Has Been Approved[b]
Delaware	12	4	2
District of Columbia	1	0	0
Maryland	41	11	4
Pennsylvania	237	35	8
Virginia	98	14	4
West Virginia	35	8	5
TOTAL	424	72	23

Source: RCRIS Regional Oversight database, June 1995

a Facilities where an RFI has been imposed are identified here because not every facility will go through a CMS. Therefore, they also present marketing opportunities for innovative technology vendors.

b Facilities where an RFI has been approved are identified here because they also present marketing opportunities for innovative technology vendors.

The results of the RI/FS, including the rationale for the selection of a remedy, are documented in the Record of Decision (ROD). The ROD provides a variety of useful information to vendors, including information about the technologies selected as the appropriate remedy for the site, the volumes of waste potentially to be treated, and the rationale for selection or rejection of particular technologies. After the ROD has been signed, remedial design (RD) begins, which is then followed by remedial action (RA). For fund lead sites, the RD information is used in preparing the bidding documents for the site. After completion of the bid process, the RA itself begins. PRP lead sites may follow a

similar, formal, bid process, or the PRP(s) may have engaged a firm to perform the RI/FS and then build, design, and operate the remediation technology during the RD/RA phase.

There are two branches in the Region 3 CERCLA Office that divide responsibility between removal actions and remedial actions. The Removal Branch manages and works with the states on all activities related to removal actions and the Remedial Branch manages and works with the states on all activities related to remedial actions. All activities related to the listing of a site on the NPL and its management thereafter are managed by these two branches. Table 1-3 provides information on the total number of NPL sites that present potential opportunities for innovative technology vendors in the Middle-Atlantic region. Federal facility sites, specifically those managed by the DoD that have been placed on the NPL, are shown in Table 1-7 (presented on page 1-11). Table 1-4 provides information on the total number of NPL sites with innovative technology projects in Region 3.

Table 1-3
Number of NPL Sites and Operable Units
Requiring Remediation in Region 3

State	Number of Sites	Number of Operable Units
Delaware	10	17
District of Columbia	0	0
Maryland	12	26
Pennsylvania	77	122
Virginia	18	26
West Virginia	4	14
TOTAL	121	205

Table 1-4
Number of NPL Sites in Region 3 in the Pre-Design or Design Phase With Innovative Technology Projects

State	Pre-Design	Design	Total
Delaware	0	1	1
District of Columbia	NA	NA	NA
Maryland	0	0	0
Pennsylvania	6	1	7
Virginia	0	3	3
West Virginia	0	1	1
TOTAL	6	6	12

Source: *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*

NA = Not applicable; this state does not have any sites listed on the NPL.

1.3 Remediation Programs at the State Level

This section discusses hazardous waste remediation programs in each of the Middle-Atlantic states[1]. Delaware, Maryland, and Pennsylvania have state programs that address abandoned hazardous waste sites beyond those governed by RCRA or CERCLA. Delaware, Maryland, and Pennsylvania have enacted legislation to identify and fund cleanup of abandoned hazardous waste sites. A discussion of the process by which the states manage their programs is found in each state section.

Table 1-5 presents the number of state abandoned hazardous waste sites presenting potential opportunities under state hazardous waste cleanup programs. The data included in the table were obtained from two separate sources. The number of sites identified as future opportunities by states was based on interviews with state personnel and state lists of hazardous waste sites that require remediation. The number of sites identified as needing attention was obtained from EPA's *An Analysis of State Superfund Programs: 50 State Study, 1993 Update.*

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[1] Because no state in Region 3 has RCRA corrective action authority, there is no discussion of state administered corrective actions in this section.

Table 1-5
Number of Abandoned Hazardous Waste Sites in Region 3 Presenting Potential Opportunities

State	Number of Sites[a,b]	Number of Sites Identified as Needing Attention[c]
Delaware	27	89
District of Columbia	NA	NA
Maryland	14	343
Pennsylvania	11	50
Virginia	NA[d]	310
West Virginia	NA[e]	NA
TOTAL	52	792

a NA = Not applicable; this state does not have a state Superfund program.

b Based on interviews with state personnel and state lists of hazardous waste sites that require remediation.

c According to EPA's *An Analysis of State Superfund Programs: 50 State Study, 1993 Update.*

d Virginia no longer has a formal program to address abandoned waste sites; however, they are inventorying those waste sites. Virginia is encouraging cleanups of such sites through their Voluntary Remediation Program (VRP), described further in Section 6.1.

e West Virginia currently does not have a formal program to address abandoned waste sites; however, on occasion, they do cleanup such sites deemed necessary to mitigate risks to human health and the environment. These cleanups are funded by the West Virginia Hazardous Waste Emergency Response Fund described further in Section 7.1.

All states in the Middle-Atlantic region manage individual UST programs. Those programs' regulations are similar to the Federal regulations, although some might be more stringent. UST sites comprise the largest group of sites requiring remediation in Region 3. As of July 1995, confirmed releases had been reported at approximately 13 percent of the universe of active and closed tank sites in the Middle-Atlantic region, as shown in Table 1-6. Of the confirmed releases, cleanup has not yet been initiated at 3,119 UST sites. This number represents the difference between total "confirmed releases" (28,257) and total "cleanups initiated" (25,138). The number of UST sites identified here as marketing opportunities will change rapidly, because of the combination of rapid increases in the number of confirmed releases and continuing site closures. State-specific information about obtaining lists of UST sites requiring remediation and state requirements for doing business are provided in each state section. Because specific data on individual sites are voluminous, information is presented in this report only in summary form.

Table 1-6
Underground Storage Tank Corrective Action Measures in Region 3 as of Third Quarter FY95

State	Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
Delaware	2,772	4,588	1,941	1,649	1,179
District of Columbia	1,348	2,373	610	499	326
Maryland	19,992	13,070	11,718	10,718	4,294
Pennsylvania	43,953	34,520	5,637	4,301	1,082
Virginia	40,312	28,986	6,617	6,579	5,373
West Virginia	8,904	12,865	1,734	1,392	533
TOTAL	117,281	96,402	28,257	25,138	12,787

Source: EPA Office of Underground Storage Tanks Quarterly Activity Report for Third Quarter of Fiscal Year 1995 (ending June 30, 1995)

1.4 Remediation Programs Managed by the Departments of Defense and Energy

Together, DoD and the Department of Energy (DOE) manage the largest remediation programs in the world. According to the *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*, otherwise known as the DERP report, and the DOE 5-Year Plan, the average yearly budget for remedial actions conducted by the two departments combined exceeds $10 billion per year.

Although there are no DOE facilities in Region 3, DoD manages many installations in the Region under its environmental programs.

Nationally, DoD, through the Defense Environmental Restoration Program (DERP), is responsible for cleaning up hazardous wastes and constituents at more than 21,000 sites on more than 1,700 active DoD installations and formerly used defense sites (FUDS). DERP is responsible for ensuring that the program is meeting its cleanup targets, assisting DoD Components, (Army, Navy, Air Force, Defense Logistic Agency, Defense Nuclear Agency, and the FUDS Branch) with their cleanup strategies, and assisting in the development of the budget. Decisions about individual cleanups at DoD installations are made by staff of the DoD Components.

As Table 1-7 indicates, there are 84 DoD installations located in EPA Region 3 that either are projecting to spend more than $1 million on all phases of remedial action activities or have three or more sites. Of the 1,143 active sites at those installations, cleanup activities are planned for 743; the remaining sites require no further response action. Contaminants found at DoD sites can include hazardous wastes regulated under RCRA and CERCLA. The wastes typically found at such sites include:

- Petroleum, oil, and lubricants (POL)
- Volatile organic compounds (VOC)
- Heavy metals
- Acids

The contaminants listed above can be found in soils, sludges, groundwater, and surface water.

Specific site data are discussed in each of the state sections examining the market at DoD sites.

Table 1-7
DoD Installations and Sites Located in Region 3 at Which Remedial Activities are Planned

State	Number of Installations[a]	Active Sites[b]	Sites At Which Cleanup Currently Is Planned[c]
Delaware	5	58	20
District of Columbia	3	11	5
Maryland	16	355	271
Pennsylvania	28	198	154
Virginia	27	468	243
West Virginia	5	53	50
TOTAL	84	1,143	743

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

a Installations where there are three or more sites and that have an estimate of more than $1 million for cleanup activities.

b Sites at which some form of remediation activity (including studies, remedial design, remedial action, or interim action) is planned or underway.

c Sites that indicate that a future remedial action is planned. This number might increase as new sites are added to the individual installation sites inventories.

1.5 Summary of Findings for Each Site

This section provides a brief comparison and summary of the information appearing in the individual state sections. Table 1-8 compares the numbers of marketing opportunities in the Middle-Atlantic states. The table includes the number of abandoned hazardous waste sites identified by the state programs as needing cleanup, NPL sites and operable units, RCRA sites for which a requirement for a CMS has been imposed, RCRA sites for which a requirement for an RFI has been imposed, USTs that require cleanup, and DoD facilities and sites at those facilities.

Table 1-8
Comparative Statistics for Marketing Opportunities in the Middle-Atlantic States

	Delaware	District of Columbia	Maryland	Pennsylvania	Virginia	West Virginia	Total
Hazardous Waste Sites Under State Programs Requiring Remediation	27	NA	14	11	NA	NA	52
NPL Sites Requiring Remediation	10	0	12	77	18	4	121
Operable Units	17	0	26	117	34	14	208
RCRA Facilities at Which a CMS is Imposed[a]	3	0	0	5	10	4	22
RCRA Facilities at Which an RFI is Imposed[a]	2	0	7	27	10	3	49
Confirmed Release UST Sites That Require Cleanup[b]	292	111	1,000	1,336	38	342	3,119
DoD Installations	5	3	16	28	27	5	84
Sites at Which Cleanup is Planned	20	5	271	154	243	50	743

Source: CERCLIS, RCRIS, RELAI, the OUST Quarterly Activity Report for Third Quarter Fiscal Year 1995, state agency databases and the DERP report; see Section 1.8 for a detailed description of the data sources.

a Represents the difference between the number of CMSs or RFIs imposed and the number that have been approved in each state.

b Represents the difference between the number of confirmed releases and the number of cleanups initiated in each state.

In reviewing the data available for each state, it was found that UST sites present the greatest opportunity, in terms of absolute number of sites, (though not in complexity of remediation tasks) for marketers of innovative technologies, followed by DoD sites, NPL sites, and in states that maintain an abandoned hazardous waste site program, abandoned hazardous waste sites managed by the state.

RCRA facilities subject to corrective action, at which a requirement for a CMS has been imposed, are the smallest market in terms of absolute numbers of sites. It is important to realize that, as time passes, the RCRA segment of the market is likely to grow. Facilities required to conduct RFIs are not included in the summaries because they are not considered near-term opportunities. Based on EPA experience at sites nationwide, the majority of those facilities are also likely to undergo some form of corrective action. They may, however, represent longer term opportunities.

Following are brief summaries of the markets in each state in EPA Region 3 that focus on near-term opportunities.

Delaware

The State of Delaware provides the following near-term opportunities for vendors of innovative technologies:

- The State currently has 27 sites subject to remediation under the State Hazardous Substance Cleanup Act. (No data were available on the progress of such sites in the remediation process.)
- EPA manages an inventory of 19 NPL sites, 10 of which require further remedial action. At those sites, 17 operable units present opportunities for vendors.
- Three of the State's 12 RCRA facilities are under a requirement to conduct a CMS.
- Current data on UST sites indicate that cleanup has not yet been initiated at 292 sites with confirmed releases in Delaware.
- There are currently 20 sites at five DoD installations at which cleanup activities are planned.

District of Columbia

The District of Columbia provides the following near-term opportunities for vendors of innovative technologies.

- The District manages no abandoned hazardous waste sites nor does the District contain any NPL sites.
- No RCRA corrective action activities are being conducted.

- Current data on UST sites indicate that cleanup has not yet been initiated at 111 sites with confirmed releases in the District.
- There are currently five sites at three DoD installations at which cleanup activities are planned.

Maryland

The State of Maryland provides the following near-term opportunities for vendors of innovative technologies.

- The State currently has 14 sites subject to remediation under State regulations.
- EPA manages an inventory of 13 NPL sites, 12 of which require further remedial action. At those 12 sites, 26 operable units present opportunities for vendors.
- Current data on UST sites indicate that cleanup has not yet been initiated at 1,000 sites with confirmed releases in the State.
- There are currently 271 sites at 16 DoD installations at which cleanup activities are planned.

Pennsylvania

The Commonwealth of Pennsylvania provides the following near-term opportunities for vendors of innovative technologies.

- The Pennsylvania Priority List includes 11 sites, each of which requires remediation expected to cost more than $2 million or take more than one year to complete.
- EPA manages an inventory of 102 NPL sites. At those 102 sites, six Federal facilities (all managed by DoD) and 77 NPL sites have 117 operable units that present opportunities for vendors.
- Five of the State's 237 RCRA facilities are under a requirement to conduct a CMS.
- Current data on UST sites indicate that cleanup has not yet been initiated at 1,336 sites with confirmed releases in the State.
- There are currently 154 sites at 28 DoD installations at which cleanup activities are planned. These sites include the six facilities on the NPL that are mentioned above.

Virginia

The Commonwealth of Virginia provides the following near-term opportunities for vendors of innovative technologies.

- The State does not have a program to manage abandoned hazardous waste sites.
- EPA manages an inventory of 24 NPL sites, 18 of which require further remedial action. At those 18 sites, 34 operable units present opportunities for vendors.
- Ten of the State's 98 RCRA facilities are under a requirement to conduct a CMS.
- Current data on UST sites indicate that cleanup has not yet been initiated at 38 sites with confirmed releases in the State.
- There are currently 243 sites at 27 DoD installations at which cleanup activities are planned.

West Virginia

The State of West Virginia provides the following near-term opportunities for vendors of innovative technologies.

- The State does not have a program to manage abandoned hazardous waste sites.
- EPA manages an inventory of six NPL sites, four of which require further remedial action. At those four sites, 14 operable units present opportunities for vendors.
- Four of the State's 35 RCRA facilities are under a requirement to conduct a CMS.
- Current data on UST sites indicate that cleanup has not yet been initiated at 342 sites with confirmed releases in the State.
- There are currently 50 sites at five DoD installations at which cleanup activities are planned.

1.6 Survey of Innovative Treatment Technologies Typically Employed in Region 3

Information provided in this survey comes from EPA's *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, published in September 1995. The Annual Status Report provides

data on the use of innovative technologies at Superfund sites undergoing either remedial or removal actions. It is also useful as a guide to the technologies that have been accepted in a particular state.

As Table 1-9 indicates, for the reporting period of the seventh edition of the Annual Status Report, innovative technologies were selected or used in 19 remedial actions at NPL sites in Region 3. The single most common innovative technology employed at NPL sites in Region 3 was soil vapor extraction followed by thermal desorption. Across the Region approximately 10 percent of the NPL sites reported in the Annual Status Report, have used innovative technologies. The most common medium treated by the innovative technologies was soil, followed by groundwater. The contaminants most often treated by the specific technologies were VOCs and semivolatile organic compounds (SVOC).

Specific information on numerous innovative treatment technologies and sites where they have been employed is available in the Vendor Information System for Innovative Treatment Technologies (VISITT), a free electronic database developed by TIO to assist vendors to market their technologies. Information on how technologies are included in VISITT is provided in the figure box on page 1-18.

1.7 Sites Managed Under the Brownfields Initiative

Twenty-nine cities across the country have been selected as pilot projects that will revitalize communities by redeveloping abandoned, contaminated industrial or commercial land -- known as "Brownfields" -- and returning these properties to productive land use. The projects are part of the Clinton Administration's Brownfields Economic Redevelopment Initiative, which was launched in November 1993. The projects are targeted to receive $200,000 in funding from EPA over two years. Region 3 projects are located in Baltimore, Maryland, Cape Charles and Richmond, Virginia, and Philadelphia and Pittsburgh, Pennsylvania. Appendix B includes EPA-produced fact sheets concerning the Region 3 Brownfields Initiative pilot projects.

1.8 Sources of Data Used to Develop This Report

The data used to develop the discussion in each of the state sections were obtained from a variety of resources, as shown in Figure 1-1 on page 1-19. These resources and the rationale used to obtain the data are discussed below. In addition to the data from the databases, individuals from each state and

from EPA were interviewed to validate information on state program status, agency addresses, and availability of data. Appendix D presents a complete list of all data sources and references used in developing this report.

Table 1-9
Innovative Treatment Technologies Used in Region 3

Technology	No. of NPL Sites[a]	States	Media Treated[b]	Contaminants Treated[c]
Bioremediation (ex situ)	2	PA (1), WV (1)	SO, SD	VOC, SVOC
Bioremediation (in situ)	1	DE	SO	VOC
Dechlorination	1	VA	SL	SVOC
In situ Flushing	0	-	-	-
In situ Vitrification	0	-	-	-
Soil Vapor Extraction	9	DE (1), PA (6), VA (2)	SO	VOC, SVOC
Soil Washing	0	-	-	-
Thermal Desorption	4	PA (2), VA (2)	SO	VOC, SVOC
Chemical Treatment	1	VA	SL	VOC, SVOC
Contaminated Recovery of Oily Wastes (CROW™)	1	PA	SO	VOC
Phyto-treatment	0	-	-	-
Plasma High Temperature Metals Recovery	1	PA	SO	Metals
Solvent Extraction	0	-	-	-
Air Sparging	1	PA	GW	VOC
Dual-Phase Extraction	0	-	-	-
Passive Treatment Wall	2	PA (2)	GW	Metals
TOTAL	23	-	-	-

Source: *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*

a Nineteen NPL sites in Region 3 are using innovative treatment technologies; however, because one site may use more than one technology, the total shown here is 23.

b SO = soil, SD = sediment, SL = sludge, GW = groundwater

c VOC = volatile organic compounds, SVOC = semivolatile organic compounds

Using VISITT in Marketing

The Vendor Information System for Innovative Treatment Technologies (VISITT) is a free electronic database of innovative treatment technologies and vendors. Version 4.0 of VISITT, released in the summer of 1995, contains current data on 325 innovative treatment technologies provided by more than 200 vendors. VISITT is a cost-effective way to market innovative treatment technologies to those directly involved in selecting hazardous waste remedies. Currently, VISITT has an estimated 10,000 users in 76 countries (EPA 1995h). The database users include government personnel and responsible parties who are faced with the time-consuming task of identifying and selecting the best remediation technology and the best vendor. Vendors of innovative technologies may wish to have their products included in VISITT.

To be included in VISITT, a technology must meet the following criteria:

- It must be defined as innovative (for example, incineration, aboveground treatment of groundwater, and solidification and stabilization are not eligible). Innovative technologies are alternative treatment technologies (alternatives to land disposal), the use of which is inhibited by lack of data on cost and performance.
- It is a technology for cleanup of hazardous waste sites (VISITT does not include companies that only supply products, not does it include technologies that treat process wastes).

For more information on participating in the next VISITT update, call EPA's Technology Innovation Office at (703) 308-8800. EPA has made the VISITT 4.0 software and user manual available for free downloading on the Clean-Up Information Bulletin Board System (CLU-IN). CLU-IN is accessible through the Internet address (clu-in.epa.gov) or via modem by dialing (301) 589-8368. VISITT also is available for downloading through the following access sites: America Online, Simtel File Transfer Protocol (FTP) Site, the Defense Environmental Network for Information eXchange (DENIX) (Telnet 128.174.5.51), and EPA's Site on the Internet (ftp.epa.gov). Future access sites include: CompuServe and Garbo FTP Site.

Instructions for downloading through CLU-IN and the other access sites are available in the EPA VISITT 4.0 Bulletin. For a copy of the VISITT 4.0 Bulletin, or of VISITT 4.0 diskettes, write or send a facsimile to:

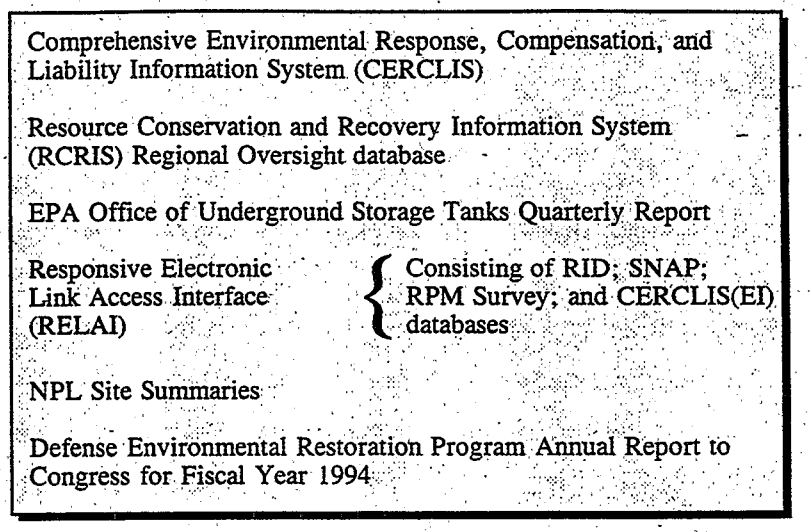
U.S. EPA/NCEPI
P.O. Box 42419
Cincinnati, OH 45242-2419

or

U.S. EPA/NCEPI
(513) 489-8695 (Facsimile)
(513) 489-8190 (Verification)

RCRA Corrective Actions

Figure 1-1
Sources of Data



Data on RCRA corrective actions were obtained from the Resource Conservation and Recovery Information System (RCRIS) as provided by EPA staff in Region 3. The data were obtained from the RCRIS Regional Oversight database in an attempt to identify not only the names and addresses of the facilities, but also any available data on the contaminants, media contaminated, and volume of media contaminated. In general, there was little information on contaminants or media contaminated in the RCRIS Regional Oversight database for the states covered in this report. (The RCRIS National Oversight database does not include data fields for information on contaminants or media.) Data were collected in May 1995 for all Region 3 states.

Underground Storage Tanks

Data on underground storage tanks (UST) regulated by EPA under RCRA Subtitle I were obtained from the EPA Headquarters Office of Underground Storage Tanks (OUST). The information on the numbers of UST sites was obtained from the OUST Quarterly Activity Report for the third quarter of fiscal year 1995. For the purposes of this report, the number of tank sites in need of corrective action was defined as the number of UST sites with "confirmed releases" minus the number of UST sites with "cleanup initiated." This number provides only an estimate of the number of UST sites with confirmed releases currently in need of cleanup, because the number of USTs requiring cleanup is very dynamic and changes on a monthly basis as new releases are confirmed and other tanks are closed. The duration of UST cleanups varies with site specific conditions although UST cleanups generally occur more quickly than complicated RCRA or Superfund sites. The CERCLA and RCRA programs can spend considerable time determining the nature of the release, while the majority of leaking USTs contain petroleum, thereby reducing the time typically associated with identifying contaminants. Some states regulate larger universes of USTs through their own state programs than are Federally regulated and, therefore, may have larger markets for UST-related technologies.

Information about how to request data managed by the individual states is provided at the end of every state section.

NPL Sites

Data on NPL sites were obtained from several sources, including the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), from which data were taken in May 1995; the Responsive Electronic Link Access Interface (RELAI) database, which consists of data taken from the Record of Decision (ROD) Information Database (RID) in September 1994; the Superfund NPL Assessment Program (SNAP) database as of September 1993; risk assessment documents collected during the survey of remedial project managers (RPM) conducted in August 1993 to respond to a Congressional inquiry (data available on 219 sites nationwide); and a review of the NPL site summaries for each site. Data from the RELAI database were retrieved in early June 1995. Data from the sources listed above were combined into a single database that then was used to develop the data needed for this report.

As in the case of RCRIS, several different events in the NPL process can be used to identify NPL sites as promising targets for marketing. The event "remedial action with the actual start date not reported" was selected as the indicator that would best lead vendors of innovative technologies to a potential market. A blank start date for remedial action (RA) is the point at which the remedial design (RD) has been completed but the actual technology vendor is yet to be selected, when EPA or the "Fund" is the lead. According to information gathered by EPA in 1994, approximately 75 percent of the NPL remedial action work is led by potentially responsible parties (PRP). PRPs often bid projects on a "turnkey" basis, with a contractor designing, building, and operating the technology at the site. In cases in which the PRP is the lead, a vendor may wish to become involved in the process at the remedial investigation and feasibility study (RI/FS) or design phase when opportunities may be available. DoD sites that are listed on the NPL are also discussed in the DoD data tables in each state section and in Appendix A.

Basic information about the NPL sites covered in this report, such as name, identification number, and address, was obtained from CERCLIS. Information on media contaminated was obtained from one of the following sources: CERCLIS (specifically the environmental indicators or EI module) provided data for sites where cleanup work has been accomplished and reported; RID provided data for sites for which there are signed RODs, through fiscal year 1993; risk data from risk assessment

documents collected during the RPM survey provided data on contaminants and media; and SNAP provided data on Hazard Ranking System (HRS) scoring information and site characteristics.

Information on volumes of contaminated media and technologies was obtained from CERCLIS EI data and RID. Data on site size were taken from SNAP and NPL site summaries.

DoD Installations and Sites

Data on DoD installations and sites were obtained from Tables B-1 and B-2 of the DERP report. The data obtained from the DERP report were used to determine the projected cost estimates for remediation activities for each installation, the number of sites for which remediation is planned, and the total number of active sites. Because DoD's inventory of installations and sites is voluminous, this study provides complete information only on those DoD installations that projected to spend more than $1 million on all phases of remediation activities (defined as studies, remedial design, remedial action, and interim actions) or had identified three or more sites (from Table B-1 of the DERP report). Appendix A of this report provides a list of those installations with two or fewer sites or estimated costs for cleanup of less than or equal to $1 million (from Table B-2 of the DERP report). The information in Appendix A is limited to the installation name, the state in which the installation is located, the Federal facility identification number (FFID), the number of active sites on the installation, and the amount projected to be spent. The reader should understand that the funding estimates provided in this report are not yet obligated and are for DoD planning purposes only.

State-Managed Sites

Data on abandoned hazardous waste sites managed by the individual state programs were obtained from state-run databases and state-issued reports as well as from private vendors of information. In almost all cases, the states maintain only a list of addresses of abandoned hazardous waste sites. Information on the types of media contaminated and their contaminants is found only in the file materials of the state agency charged with managing the sites. Information on state programs and contacts found at the end of each state section should provide vendors with information necessary to follow up leads on state sites.

1.9 Report Organization

To help vendors and technology developers identify specific market opportunities, the following sections of this report provide information on waste sites and specific waste programs of the five states and the District of Columbia comprising the Middle-Atlantic region. The individual sections are organized to include the following:

- A brief introduction outlining the summary findings on the numbers, types, and locations of sites in the state or District;
- Relevant waste programs and authorities maintained by the state or District and the structure of those programs;
- Market opportunities at abandoned waste sites that fall within state or District program authorities;
- CERCLA sites in the state (the District of Columbia has no NPL sites);
- RCRA corrective action opportunities;
- Opportunities in the individual UST programs;
- Markets for Federal facility sites (this section focuses on DoD installations because there are no DOE sites in the region and only one NASA facility and one USDA facility); and
- Contacts for further information on conducting business at sites in the state or District.

To the maximum extent practicable, the sections are organized uniformly to facilitate cross referencing and comparison. However, not all sections include all information listed above. In some cases the particular program section may not be relevant to the universe of sites found in the state or District.

2.0 DEMAND FOR REMEDIATION OF SITES IN DELAWARE

This section provides a detailed discussion of the opportunities available in the State of Delaware for vendors of innovative technologies. The section is organized in seven sections. The first describes the State's program organization and authority. The next section discusses opportunities at sites subject to Delaware's Hazardous Substance Cleanup Act. That section is followed by a similar discussion of opportunities at Superfund National Priorities List (NPL) sites. The fourth and fifth sections discuss the markets at Resource Conservation and Recovery Act (RCRA) facilities subject to corrective action and at underground storage tank (UST) sites managed by the State. The next section provides information on opportunities at Department of Defense (DoD) installations. The final section of the chapter presents further useful information about working in the State.

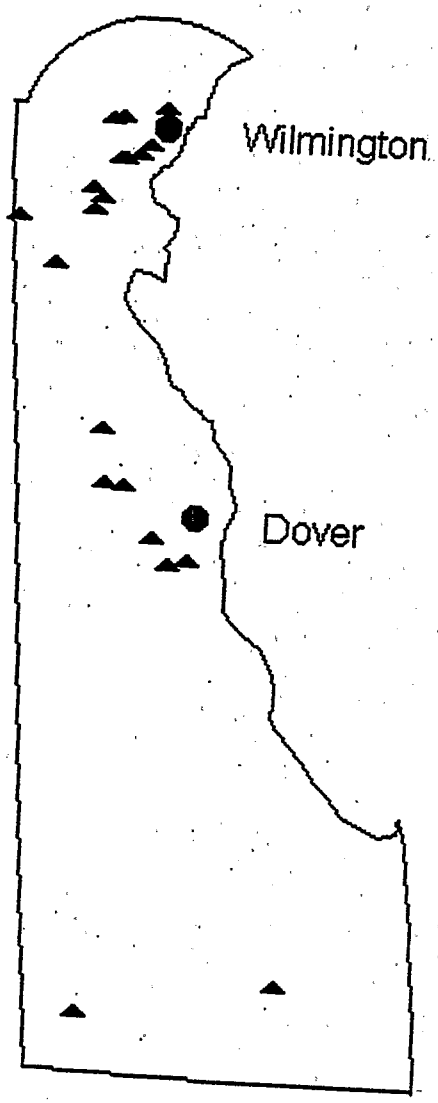
Figures 2-1 and 2-2 present maps of the State of Delaware that indicate the locations of all the sites in Delaware that are listed on the NPL, and the RCRA facilities in the State[1]. NPL sites in Delaware are concentrated in the northern half of the State.

Some use of innovative technologies has occurred in Delaware. According to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, the technologies applied at Superfund sites in Delaware reportedly are in situ bioremediation of soils and soil

Summary Information

Delaware, although not heavily industrialized, does have both a number of RCRA facilities subject to corrective action and NPL sites. In addition, a State program manages abandoned hazardous waste sites and USTs, and remedial actions (RA) are planned at a number of DoD installations in the State. The State has 27 sites subject to remediation under the State Hazardous Substance Cleanup Act. (No data were available on the progress of such sites in the remediation process.) The U.S. Environmental Protection Agency (EPA) manages 10 NPL sites where there are opportunities for innovative technology vendors. Three of the State's RCRA facilities are under a requirement to conduct a corrective measures study (CMS) that also will provide opportunities to vendors. Two of the State's RCRA facilities are under requirement to conduct a RCRA facility investigation (RFI), that may provide opportunity for vendors. Data on USTs indicate that 292 tank sites at five DoD installations at which cleanup activities are planned.

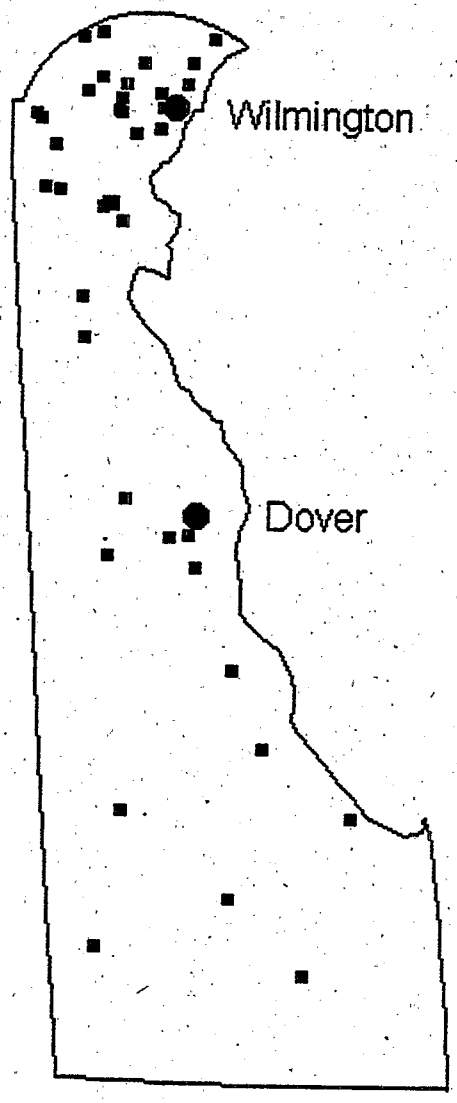
[1] Figures 2-1 and 2-2 do not indicate the locations of *all* NPL sites or *all* RCRA facilities located in Delaware. LandViewII™ contains information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on NPL sites and other sites. It also contains information from the Biennial Reporting System (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 2-1
NPL Sites in Delaware



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 2-2
RCRA Facilities in Delaware

vapor extraction. In addition, the technologies applied at UST sites include thermal desorption, air sparging combined with soil vapor extraction, soil vapor extraction, and in situ and ex situ bioremediation.

2.1 The Delaware Hazardous Waste Management Program

The Delaware Hazardous Substance Cleanup Act of 1990 provides the State with the authority to perform emergency response actions, removals, and remedial actions. The law also establishes a fund to clean up such sites and allows for cost recovery. Delaware requires contaminated sites to be remediated prior to any transfer of property. The Delaware Department of Natural Resources and Environmental Control (DNREC) implements the law through its Superfund Branch, in the Air and Waste Management Division. As of December 1993, there were 31 staff in the division (EPA 1993a). All contracting and oversight activities are managed from the branch.

According to the EPA report *An Analysis of State Superfund Programs: 50-State Study, 1993 Update*, Delaware's Hazardous Substance Cleanup Fund is used for program administration, site investigation, studies and design, removals, remedial actions, emergency response, matching Superfund monies, and operation and maintenance. Delaware's fund had a balance of $4 million at the end of fiscal year 1993.

The Delaware UST Program administers the State's regulations governing USTs and leaking underground storage tanks (LUST). The central office's UST Branch houses both the UST and LUST sections of the tank program and has 20 staff members. The UST section is called the Compliance Group, and the LUST section is called the LUST Remediation and Investigation Group. The program operates under Title 7, and its underlying statute is Section 74 of the Delaware Code. Passed on July 12, 1985, the statute authorizes the State to specify types of USTs and to require best management standards for operating USTs and for cleanup and remediation of LUSTs.

The facilities and sites managed under the programs identified above are discussed in the following sections.

2.2 The Market at Abandoned Sites Managed Under State Authorities

DNREC's Inventory of Hazardous Substance Sites database currently lists 116 sites and indicates that 27 of those sites are subject to remediation under the Delaware Hazardous Substance Cleanup Act. The database contains no information about whether the remediation process has begun at individual sites. In addition, the database does not identify the contaminants, media contaminated, or the volume or extent of contamination. Because the State of Delaware uses the same criteria in screening sites that EPA uses for the NPL, it is reasonable to assume that the sites listed in Table 2-1 will have characteristics similar to those of sites described in Section 2.3 and summarized in Table 2-2. Table 2-1 provides the names and addresses of the sites subject to remediation that are identified in DNREC's Inventory of Hazardous Substance Sites database.

2.3 The Market at Abandoned Sites Managed Under the Federal Superfund Program

EPA has listed 19 NPL sites in Delaware. Table 2-2 on page 2-7 summarizes information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on the status of NPL sites in Delaware, including the number of remedial investigations and feasibility studies (RI/FS), remedial designs (RD), remedial actions (RA), and removals that are planned, in progress, or complete. Currently, no additional sites in Delaware are proposed for NPL listing. Of the 19 NPL sites, RODs have been signed for 17 of those sites. Of the 19 sites, 13 were listed in the 1980s; remediation activities are substantially complete at most of the 13 sites, and they provide little opportunity for vendors. Remedial actions are in progress at seven sites, and remedial designs are in progress at three sites. Several other sites are slated for removal activities only. At the time these data were obtained, two removals were underway. **Table 2-3, at the end of this section,** lists 10 NPL sites at which remedial action at 17 operable units has not yet begun. The sites and operable units of greatest interest to vendors are those for which technologies have been selected but vendors of the technologies have not yet been chosen.

Table 2-1
Remedial Response Sites Under the Delaware Hazardous Substance Control Act

Site Name	Site EPA ID No.	Site Address
Castle Ford	DED011021342	800 Wilmington Road, New Castle 19720
Clayton TWP Landfill	DED980918940	Duck Creek Pkwy, Clayton 19938
Clayville Dump	DED9819034226	Not Available, Christiana 19711
Container Corp.	DED054734918	Brandywine Park, Wilmington 19899
DuPont Haskell Labs	DED0643709992	Elkton RD, Newark 19711
Emulsion Products	DED088801576	1100 Nanticoke Street #731, Seaford 19973
Esham-Davis Fill Area	DED984066878	Rd 389, Williamsville 19975
First State Steel Drum Co.	DED980919328	PO Box 365, Bear 19701
Fraziers Pit	DED981736697	Route 13, Dover 19901
Georgetown Coal and Gas	DED984066183	Not Available, Georgetown 19947
Holy Cross Landfill	DED011963675	N State Street, Dover 19901
Jackson Pit	DED981736739	Route 276, Lewes 19958
Lewes Coal	DED984066209	Kings Highway off Route 9, Lewes 19958
Ludlow Ind. Park Drum Site	DED981104029	Locke Road, Edgemoor 19809
Metcalf Pit	DED981736796	County RD 285, Lewes 19958
Motor Wheel	DED002334639	1901 Ogletown Road, Newark 19711
Newport City Landfill	DED980705313	Water Street & Cooper Drive, Newport 19804
Newport Drum Site	DED984066696	Maryland Avenue & Kraminsi Road, Newport 19804
Paradee Oil - Dover Site	DED011006335	Dennys Road, Dover 19901
Selbyville Dump	DED000862417	County RD 386, Selbyville 19975
Simpson Lumber Co. Dump	DED981173762	Tidbury Drive, Dover 19901
Summit Airport	DED984067066	Route 896, Middletown 19709
Sussex CO Landfill #2	DED981108400	Route 20, Stockley 19947
Sussex CO Landfill #6	DED981103955	County RD 373, Omar 19945
Sussex CO Landfill #1	DED981103363	County RD 594, Bridgeville 19933
Sussex CO Landfill #3	DED981111313	Off Route 288 N of Angola, Angola Beach 19951
Sussex Lumber Co.	DED981104979	Route 227, Lewes 19958

Source: Delaware Department of Natural Resources and Environmental Control

A review of the NPL site summaries and the data from CERCLIS indicates that most NPL sites in Delaware are contaminated with volatile organic compounds (VOC) in both the soil and groundwater. Polynuclear aromatic hydrocarbons (PAH) are present at several sites. The presence of metals and polychlorinated biphenyls (PCB) also is reported in several cases. The contaminated areas range in size from 1 acre to as many as 317 acres. Figure 2-3 on page 2-8 presents data on the size

distribution of the 10 sites that present opportunities for vendors. No data were available on the volume of contaminated soil or groundwater to be remediated.

Table 2-2
Number of Sites and Operable Units at Federal NPL Sites in Delaware

Phase of Activity	Number of Sites	Number of Operable Units
Remedial Investigations/Feasibility Studies		
Planned	1	1
In Progress	4	9
Complete (RD not started)	2	2
Remedial Designs		
Planned	7	12
In Progress	3	4
Complete (RA not started)	1	1
Remedial Actions		
Planned	10	17
In Progress	7	7
Complete	7	10
Removals		
Started	9	9
Complete	7	7

Source: Data as of May 1995 from EPA CERCLIS database; see Section 1.8 for a detailed description of the data sources.

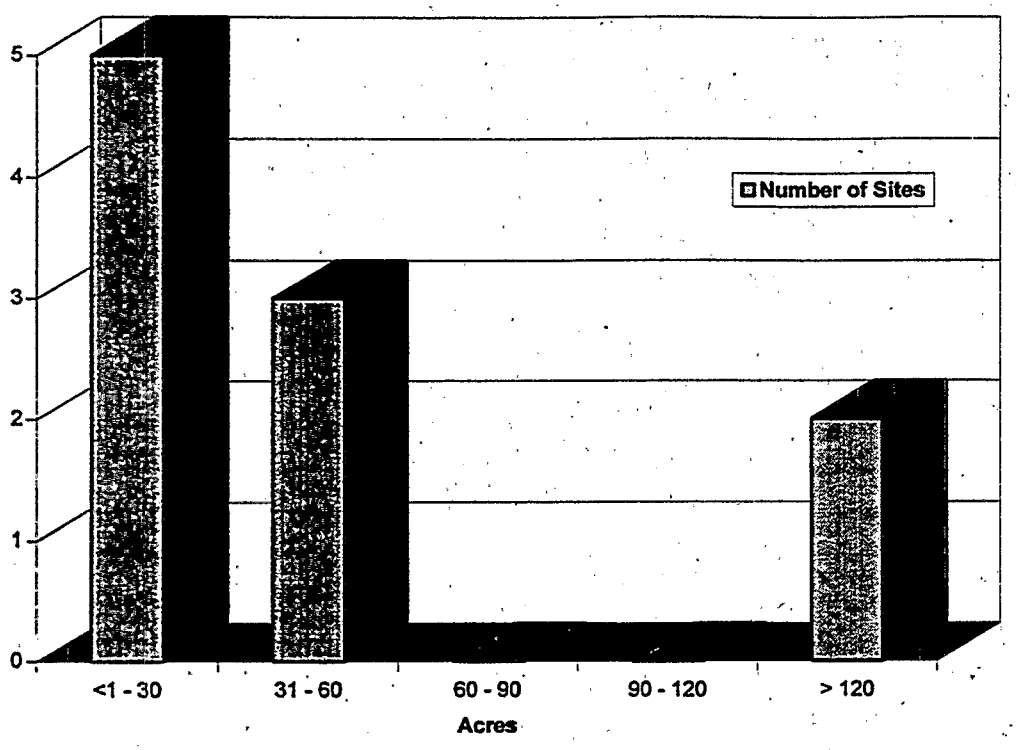
Several technologies have been selected for use at these NPL sites. The technologies selected include biodegradation, air stripping, solidification and stabilization, and vitrification.

2.4 The Market at RCRA Corrective Action Sites

Although Delaware is authorized to issue RCRA Part B hazardous waste management permits for hazardous waste facilities, it is not authorized to administer the corrective action program; all corrective action activities are managed by EPA Region 3. Delaware does not have a separate State-mandated corrective action program for operating hazardous waste facilities.

Data from the Resource Conservation and Recovery Information System (RCRIS) database indicate there are 12 RCRA facilities in the State: 4 land disposal units, 2 incinerators, and 12 storage and

Figure 2-3
NPL Site Size Distribution for State of Delaware



treatment units[2]. Three of the RCRA facilities currently require corrective action. The definition of such facilities used here includes any facility that has been required to perform a corrective measures study (CMS). Most of those facilities are concentrated in the northern third of the State. The number of facilities with a CMS imposed is not a direct subset of RCRA treatment, storage, and disposal (TSD) facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. In addition, two facilities are currently under a requirement to conduct a RCRA facility investigation (RFI). The number of facilities with an RFI imposed is not a direct subset of RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. As discussed in Section 1.2, these facilities may also provide either a long-term opportunity where no CMS is necessary to begin corrective action, or corrective activity begins in accordance with the stabilization initiative.

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[2] A facility may be included in more than one of these categories.

As **Table 2-4 at the end of this section** indicates, data from RCRIS show that three RCRA facilities have a requirement for a CMS imposed upon the entire facility. No data were available in RCRIS to indicate the media contaminated or the contaminants of concern. Contaminants typically found at RCRA facilities include VOCs, semivolatile organic compounds (SVOC), petroleum products, and metals.

2.5 The Market at UST Sites Managed by the State

As shown in Table 2-5 below, Delaware has 2,772 active tank sites. Active tanks are defined as tanks still in service (EPA 1995e). Confirmed releases have occurred at 70 percent of the active tanks in Delaware. As of July 1995, the State has reported to EPA's Office of Underground Storage Tanks (OUST) 1,941 confirmed release sites in Delaware. Cleanup has yet to be initiated at 292 of those sites.

Table 2-5
Underground Storage Tank Corrective Action Measures in Delaware as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
2,772	4,588	1,941	1,649	1,179

The number of USTs identified as marketing opportunities for vendors of innovative technologies will change rapidly because of the combination of rapid increases in the number of confirmed releases and continuing site closures. In national studies of USTs performed by EPA in 1991 and 1992, it was found that the majority, or about 87 percent, of tanks are used to manage gasoline or diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes, such as used oil (4 percent), hazardous materials (2 percent), and other material (5 percent), or are empty (2 percent). The majority of the contamination problems are related to VOCs and SVOCs in soils and groundwater (EPA 1992a, 1992b). According to DNREC, the UST program has used thermal desorption, air sparging combined with soil vapor extraction, and in situ and ex situ bioremediation.

2.6 The Market at Federal Facility Sites in Delaware

As is the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the state where remedial actions are planned. There are five active DoD installations and formerly used defense sites (FUDS) in Delaware where remedial actions are planned. Those DoD installations and FUDS include 58 active sites, at 20 of which remediation currently is planned.

The *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994* (DERP report) indicates that a total of approximately $49 million in funding is estimated to be needed through the year 2030 in all phases of cleanup at the five installations. The bulk of those funds ($31 million) is allocated to Dover Air Force Base (which is listed on the NPL), with the smallest amount of funds allocated to Fort Miles Military Reservation, a FUDS.

No data are available on volumes of soil and groundwater to be treated. Table 2-6 provides information on the individual installations in the State and the sites that are subject to remediation at those installations. Staff at each installation determine the individual sites at which they plan to perform remedial actions. Cleanup already may be underway at other sites. However, these sites are not included in the table because it is unlikely that they will afford an opportunity for vendors of innovative technologies. Of the installations included in the table, only Dover Air Force Base is listed on the NPL.

2.7 Further Market Information for Delaware

To bid on state contracts in Delaware, it is necessary to register with the State Division of Purchasing. A request to register must be sent on company letterhead, briefly stating the company's qualifications. The request should be sent to:

Ms. Janet Schukoske
Division of Purchasing
P.O. Box 299
Delaware City, DE 19706

Table 2-6
DoD Installations and Sites in Delaware at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Dover AFB Outyear Funding FY95-2030 $31,534	DE357182401000	A,N	8
Ft. Miles Military Reservation Outyear Funding FY95-2008 $2,145	DE39799F133300	A,F	3
Gov. Bacon Health Center Outyear Funding FY95-2008 $7,879	DE39799F134200	F	4
Greater Wilmington Airport Wilmington Outyear Funding FY95-2002 $3,696	DE357282427400	A	3
New Castle Army Air Field Outyear Funding FY95-2008 $3,483	DE39799F135900	F	2
All Other Installations $8,081	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

a Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

b Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.
F = The installation is no longer active and is managed by the FUDS Branch.
N = The site is listed on the final National Priorities List.

After the purchasing division receives the letter, it sends the company an application to register with the State. Registration will allow the company to bid on state contracts. Information on bids is published in local newspapers. If a contract is awarded, the winning company either must have a license from the State of Delaware or must initiate the process of obtaining such a license. A vendor that wishes to obtain information about sites in Delaware managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA Programs. For information on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requester may be billed for the information, depending on the volume of information requested.

Information is also available on the names and addresses of the UST sites in the State that require remediation. A vendor may write to:

Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Waste Management Section
Underground Storage Tank Branch
715 Grantham Lane
New Castle, DE 19720-4801

For information on sites currently subject to Delaware's Hazardous Substance Cleanup Act, vendors may write to:

Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Waste Management Section
Superfund Branch
715 Grantham Lane
New Castle, DE 19720-4801

There is a charge for each report requested, depending on the volume of material.

NPL Sites in Delaware at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: CHEM-SOLV, INC NPL STATUS: Final					EPA ID: DED980714141 SIZE: 2 Acres		ADDRESS: 176A N DUPONT HIGHWAY; DOVER, DE 19901 TYPE: NA	
01		(PS/FE/RP)	3/30/95	Y	GW	NA	METALS; VOCs	Monitoring; Pump and Treat at POTW with Discharge; Air Stripping Technologies; Disposal of Residual; Off-Site Treatment; Steam Stripping
SITE NAME: DELAWARE CITY PVC PLANT NPL STATUS: Final					EPA ID: DED980551667 SIZE: 180 Acres		ADDRESS: RTE 13 & SCHOOL HOUSE RD; DELAWARE CITY, DE 19706 TYPE: Manufacturing Chemicals; Plastic Resins	
03	NA	(RP/FE)	10/02/99	N	GW; SO	NA	NA	NA
SITE NAME: DELAWARE SAND & GRAVEL LANDFILL NPL STATUS: Final					EPA ID: DED000605972 SIZE: 10 Acres		ADDRESS: 229 GRANTHAM LN; NEW CASTLE, DE 19720 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
04	NA	(RP)	6/30/95	N	DB; ST	NA	NA	NA
05	NA	(RP)	3/31/96	N	NA	NA	NA	NA
SITE NAME: DOVER AIR FORCE BASE NPL STATUS: Final					EPA ID: DE8570024010 SIZE: 44 Acres		ADDRESS: RTE 113; DOVER, DE 19901 TYPE: Undeveloped Land (Including forests, fields, wetlands); Recycling Waste Oil	
04	HW TANK	(FF)	12/31/96	N	GW; SO	NA	NA	NA
05	AREA 6 GROUND WATER	(FF)	6/30/97	N	GW	NA	NA	NA
06	DRAINAGE AREA DRAINAGE DITCH 1	(FF)	9/30/98	N	SD; SO; SW	NA	NA	NA
07	REMAINING SOURCES	(FF)	9/30/98	N	GW; SO	NA	NA	NA
08	AREA 4 GROUNDWATER	(FF)	9/30/98	N	NA	NA	NA	NA
09	AREA 5 GROUNDWATER	(FF)	9/30/98	N	NA	NA	NA	NA
SITE NAME: DOVER GAS LIGHT CO NPL STATUS: Final					EPA ID: DED980693550 SIZE: 1 Acre		ADDRESS: NEW ST; DOVER, DE 19962 TYPE: Automobile Parking	
01	NA	(RP/FE)	7/15/97	Y	DB; GW; SL; SO	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 2-3 (continued)
NPL Sites in Delaware at Which Marketing Opportunities Exist[a]

Operable Unit Number	Name	(Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: E.I. DU PONT DE NEMOURS (NEWPORT LANDFILL) NPL STATUS: Final					EPA ID: DED980555122 SIZE: 7 Acres		ADDRESS: JAMES & WATER STS; NEWPORT, DE 19804 TYPE: Park/Recreational Area; Misc. Laboratory Wastes; Industrial Organic Chemicals, Wastewater Treatment Plant	
01	NA	(RP/FE)	6/30/01	Y	AI; GW; SD; SO; SW	NA	METALS; VOCs	Monitoring; Air Stripping Technologies; Disposal of Residual; Precipitation; Surface Capping Only
SITE NAME: HALBY CHEMICAL CO NPL STATUS: Final					EPA ID: DED980830954 SIZE: 2 Acres		ADDRESS: 600 TERMINAL AVE; NEW CASTLE, DE 19720 TYPE: Other	
01	SURFACE SOIL-OPERATING FACILITY	(F/RP)	9/30/95	Y	DB; SO	NA	METALS; VOCs	Disposal of Residual; Off-Site Treatment; Surface Capping Only; Solidification and Stabilization; Monitoring
02	GROUND WATER & SURFACE WATER	(F/RP)	4/15/98	N	GW; SD; SW	NA	NA	NA
SITE NAME: KOPPERS CO., INC. (NEWPORT PLANT) NPL STATUS: Final					EPA ID: DED980552244 SIZE: 317 Acres		ADDRESS: FOOT OF LINDBURG ST; NEWPORT, DE 19804 TYPE: Abandoned - No Use	
01	KOPPERS SITE	(RP/FE/F)	3/15/00	N	DK	NA	NA	NA
SITE NAME: STANDARD CHLORINE OF DELAWARE, INC NPL STATUS: Final					EPA ID: DED041212473 SIZE: 46 Acres		ADDRESS: GOVERNOR LEA RD, POB 319; DELAWARE CITY, DE 19706 TYPE: Industrial Organic Chemicals	
01	NA	(PS/S/RP)	8/31/97	Y	AI; GW; MS; SD; SO; SW	NA	NA	NA
SITE NAME: TYLER REFRIGERATION PIT NPL STATUS: Final					EPA ID: DED980705545 SIZE: 51 Acres		ADDRESS: GLENWOOD AVE; SMYRNA, DE 19977 TYPE: Miscellaneous Metalwork	
01	NA	(RP/FE)	8/30/99	N	GW; RC	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.
[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 2-4
RCRA Facilities in Delaware Currently Undergoing Corrective Action[a]

Site Name Mailing Address	EPA ID	SWMU and Unit Names
DUPONT DE NEMOURS, E I & CO INC 400 WOODLAND RD SEAFORD, DE 19973-3439	DED002348845	ENTIRE FACILITY
DUPONT-GLASGOW BUSINESS COMM PO BOX 6101 GBC BOX 116 NEWARK, DE 19714-6101	DED042263764	ENTIRE FACILITY
OCCIDENTAL CHEMICAL CORP PO BOX 550 DELAWARE CITY, DE 19706	DED003913266	ENTIRE FACILITY

[a] Data as of May 1995 from the EPA RCRIS database. See Section 1.8 for a detailed description of data sources.

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3.0 DEMAND FOR REMEDIATION OF SITES IN THE DISTRICT OF COLUMBIA

This section provides a discussion of the opportunities available in the District of Columbia for vendors of innovative technologies. The section is organized in four sections. The first section describes the District's hazardous waste management program, which focuses on management of underground storage tanks (UST) and UST remediation. The next section discusses opportunities in the remediation of UST sites. The third section discusses Department of Defense (DoD) installations in the District that might present marketing opportunities for vendors of innovative technologies. The final section of the chapter presents a brief discussion about working in the District.

Figure 3-1 presents a map of the District of Columbia that indicates the locations of the RCRA facilities in the District[1]. There are no NPL sites in the District. The RCRA facilities are distributed relatively evenly across the District.

There is no innovative technology use occurring at hazardous waste sites in the District.

Summary Information

Because the District is small and very highly industrialized, there are few opportunities for vendors of innovative technologies for hazardous waste site cleanup. The District manages no abandoned hazardous waste sites and contains no Superfund National Priorities List (NPL) sites. In addition, no facilities are currently under a requirement to conduct a corrective measures study (CMS). However, data on USTs indicate that 111 tank sites in the District are in need of cleanup. There are also five sites at three DoD installations at which cleanup activities are planned.

3.1 The District of Columbia Hazardous Waste Management Program

The *Hazardous Waste Management Act of 1978* (D.C. Code §§ 6-701 as amended) authorizes the mayor to take "the actions necessary to terminate" a permit where persons have not taken corrective actions resulting from a notice of violation. The District of Columbia Department of Consumer and Regulatory Affairs manages the District's UST and Leaking Underground Storage Tank (LUST) programs under its UST Branch. Pursuant to the District of Columbia Underground Storage Tank (DC UST) Management Act of 1990, D.C. Code §§ 6-99.5 and DC UST Regulations, 20 District of Columbia Municipal Regulations (DCMR) §§ 55-68 (40 District of Columbia Register [DCR] 7835)

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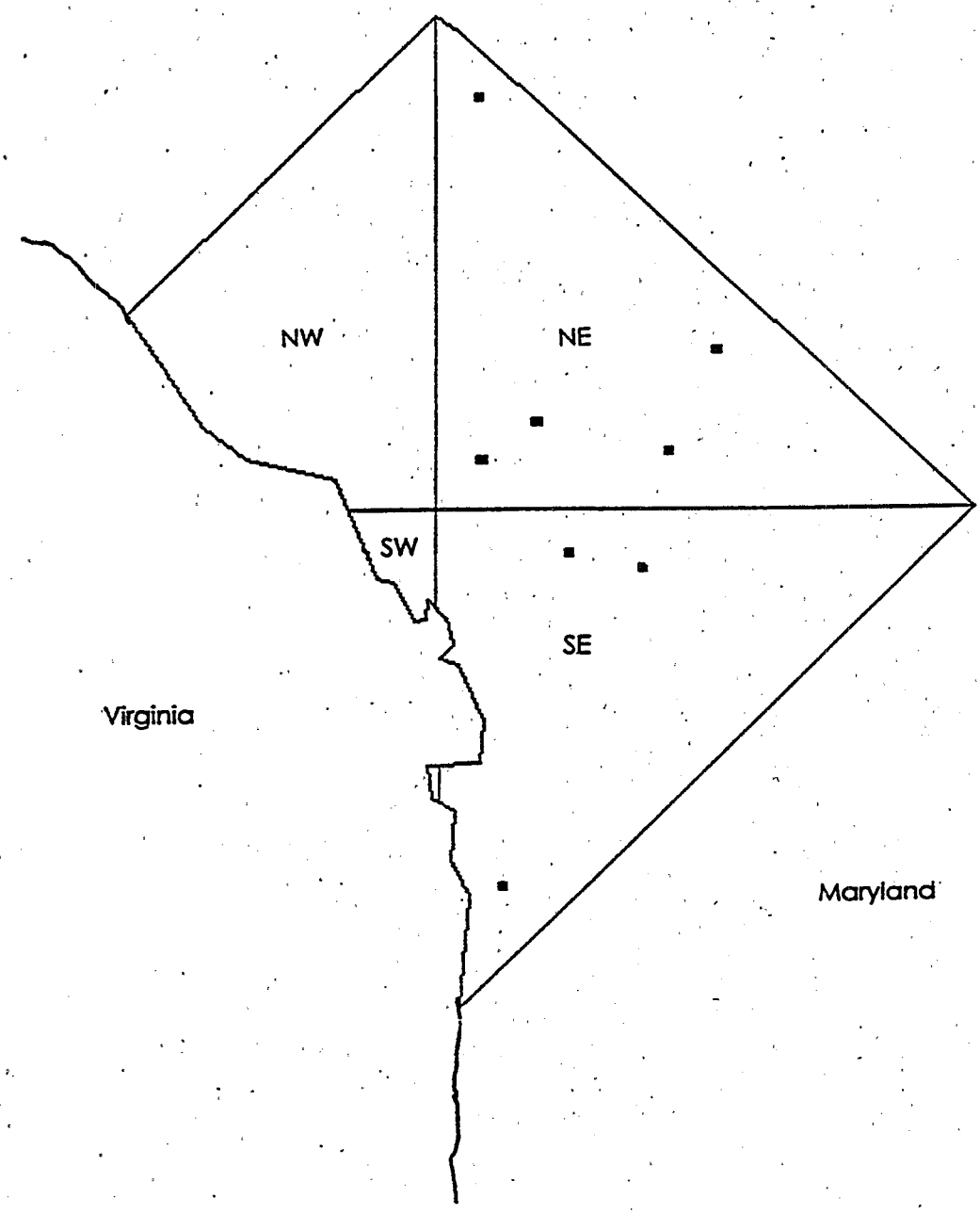
1 Figure 3-1 does not indicate the locations of *all* RCRA facilities located in the District of Columbia. LandView II™ contains information from the Biennial Reporting System (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 3-1
RCRA Facilities in the District of Columbia

and 40 Code of Federal Regulations (CFR) Part 280, the DC UST Branch manages the UST program and the LUST program. The UST Branch regulates petroleum and hazardous substance USTs. There are approximately 8,000 Federally and District regulated UST systems in the District. In the District of Columbia, there are no abandoned hazardous waste sites for which the District is responsible. The UST Branch has 11 staff members. The program is authorized under RCRA Subtitle I and enforces the same standards as the RCRA UST regulations (40 CFR Part 280). Currently, the District does not administer either the RCRA base program or the corrective action program. It is seeking authorization for the RCRA base program. The District's hazardous waste program is partially funded by Federal grants (EPA 1993a).

3.2 The Market at UST Sites Managed by the District

As shown in Table 3-1, the District has 1,348 active tanks, the smallest number of active tanks in Region 3. Active tanks are defined as tanks still in service (EPA 1995e). It also has the smallest number of tanks closed in the Region, 2,373. As of July 1995, the District had reported to EPA's Office of Underground Storage Tanks (OUST) 610 confirmed releases. Cleanup has yet to be initiated at 111 of those sites.

Table 3-1
Underground Storage Tank Corrective Action Measures in the District of Columbia as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
1,348	2,373	610	499	326

The numbers of USTs identified as marketing opportunities for vendors of innovative technologies will change rapidly, because of the combination of rapid increases in the number of confirmed releases and continuing site closures. In national studies of USTs performed by EPA in 1991 and 1992, it was found that the majority, or about 87 percent, of USTs are used to manage gasoline or diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes, such as used oil (4 percent), hazardous material (2 percent), and other material (5 percent) or are empty (2 percent). The majority of the contamination problems are related to the

contamination of soils and groundwater with petroleum products that contain volatile organic compounds (VOC) and semivolatile organic compounds (SVOC) (EPA 1992a, 1992b).

3.3 The Market at Federal Facility Sites in the District of Columbia

As is the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the District where remedial actions are planned. Three active DoD installations are located in the District. The installations have 11 active sites, and remediation is planned at five of the sites. The total number of sites to be remediated may exceed that figure because, in general, DoD does not plan remediation at a site until the remedial investigation and feasibility study (RI/FS) has been completed.

The *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994* (DERP report) indicates that a total of approximately $33 million in funding is estimated to be needed through the year 2010 in all phases of cleanup at the three installations. The bulk of the funds ($28 million) is allocated to Bolling Air Force Base, with the smallest amount of funds allocated to Walter Reed Army Hospital ($1.3 million).

Data on volumes of soil and groundwater to be treated are not available. Table 3-2 provides information about the individual installations and sites subject to remediation at the installations. Staff at each installation determine the individual sites at which they plan to perform remedial actions. Cleanup may already be underway at other sites and, therefore, such sites have not been included in the table because it is unlikely that they will afford marketing opportunities for vendors of innovative technologies. None of the DoD installations in the District has sites listed on the NPL.

3.4 Further Market Information for the District of Columbia

To bid on work in the District, it is necessary to be certified by the Minority Business Opportunity Commission. A certification package may be requested by telephoning the Department of Human Rights and Minority Business Development at (202) 724-1385. Information on bids is published in the local newspapers. The District also provides opportunities to non-minority businesses.

Table 3-2
DoD Installations and Sites in the District of Columbia at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Walter Reed Army Medical Center **Washington, DC 20307-5000** Outyear Funding FY95-2002 $1,317	DC321002115600	A	0
Washington, DC NAVSECSTA Outyear Funding FY95-2010 $4,279	DC317002347600	A	1
Bolling Air Force Base 20332-5000 Outyear Funding FY95-2003 $27,710	DC357042444300	A	4
All Other Installations $22,565	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

a Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

b Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.

A vendor that wishes to obtain information about sites in the District of Columbia managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA Programs. For information on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requestor will be billed for the information, depending on the volume of information.

Information is also available on the names and addresses of the UST sites in the District that are currently in need of remediation. A vendor may write to:

Ms. Habeiba Israel
FOIA Officer
Department of Consumer and Regulatory Affairs
2100 Martin Luther King Jr. Avenue S.E., Suite 203
Washington, DC 20020-5732

There is a charge for each report requested, depending on the volume of material.

4.0 DEMAND FOR REMEDIATION OF SITES IN MARYLAND

This section is organized in seven sections. The first section describes Maryland's hazardous waste management program and its regulatory authority. The next two sections discuss the market at abandoned hazardous waste sites managed by the State, and the market for National Priorities List (NPL) sites in the State addressed under the Superfund program. The fourth section discusses the market at Federal Resource Conservation and Recovery Act (RCRA) corrective action sites. The U.S. Environmental Protection Agency (EPA) has not authorized the State of Maryland to administer corrective action; therefore, no discussion is included of sites subject to corrective action under the authority of the State. The fifth section discusses the market at underground storage tank (UST) sites managed by the State. The sixth section discusses the market at Federally owned sites in Maryland that require remediation. The final section presents a discussion of other useful information about the market for innovative technologies in Maryland.

Figures 4-1 and 4-2 present two maps of the State of Maryland that indicate the locations of the sites in the State that are listed on the NPL and RCRA facilities in the State, respectively[1]. The majority of the NPL sites in Maryland are clustered around the Chesapeake Bay, in the eastern portion of the State. RCRA facilities tend to be concentrated in the Baltimore area, although there are many located in the corridor between Baltimore and the District of Columbia. Facilities are more or less evenly distributed across the remainder of the State.

Summary Information

Maryland offers a variety of opportunities to vendors of innovative technologies at NPL sites and at abandoned hazardous waste sites managed by the State. Listed on the Maryland priorities list for state-managed cleanup are 14 sites that are predominantly characterized by groundwater contamination. EPA manages 12 NPL sites where there are opportunities for innovative technology vendors. One additional Department of Defense (DoD) site is a candidate for the NPL. One RCRA facility in Maryland is under a requirement to conduct a corrective measure study (CMS). Seven RCRA facilities in the State are under a requirement to conduct a RCRA facility investigation (RFI). Data on USTs indicate that 1,000 tank sites in the State are in need of cleanup. There are 271 sites at 16 active DoD installations and formerly used defense sites (FUDS) at which cleanup activities are planned.

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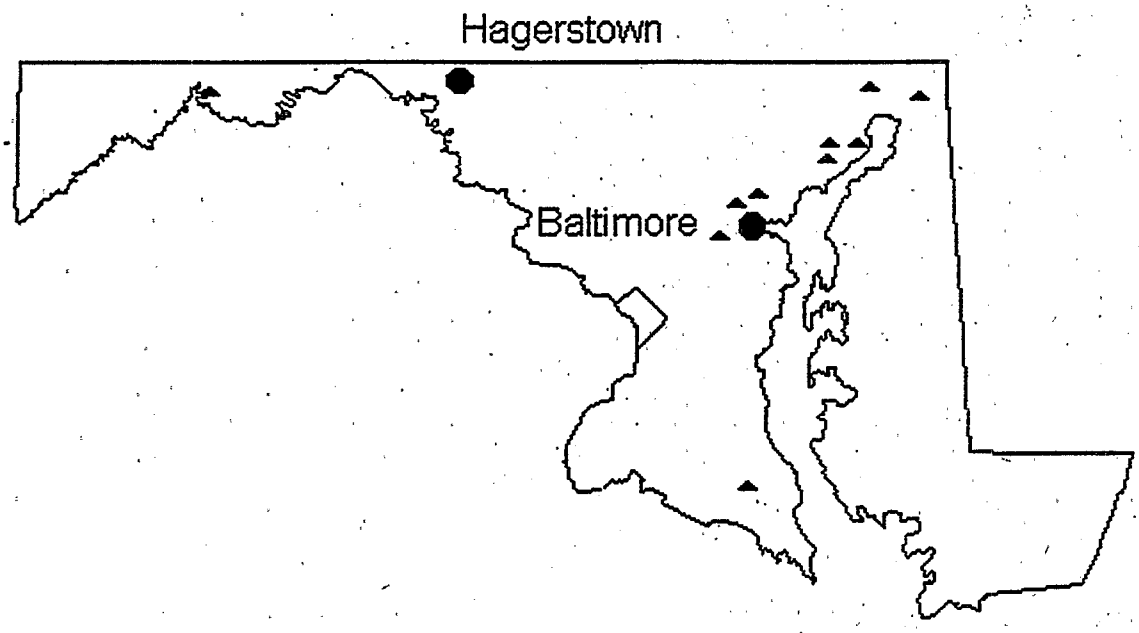
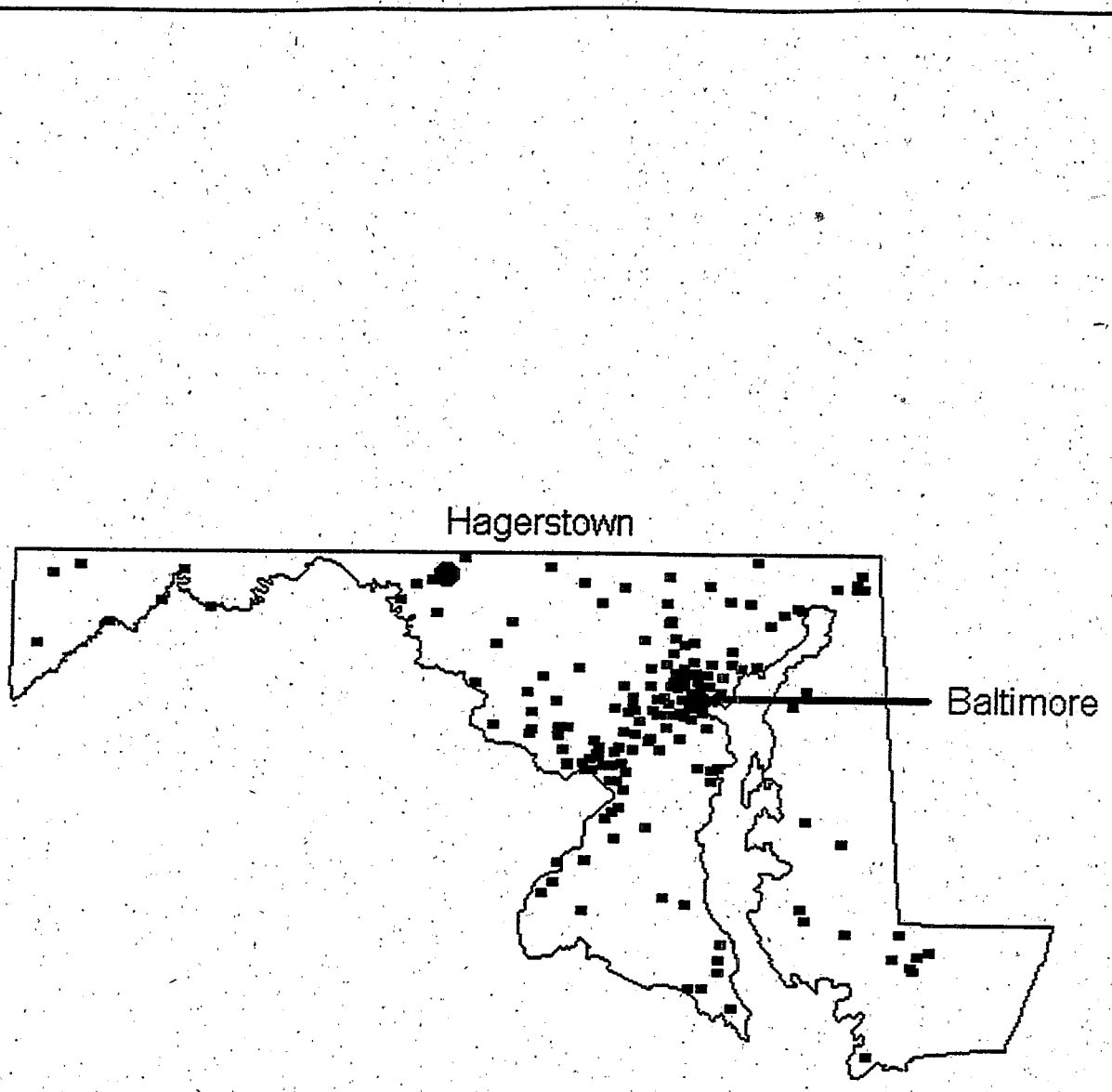
[1] Figures 4-1 and 4-2 do not indicate the locations of *all* NPL sites or *all* RCRA facilities located in Maryland. LandView II™ contains information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on NPL sites and other sites. It also contains information from the Biennial Reporting system (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 4-1
NPL Sites in Maryland



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 4-2
RCRA Facilities in Maryland

According to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, no innovative technologies have been used at Superfund NPL sites in Maryland.

4.1 The Maryland Hazardous Waste Management Program

The Annotated Code of Maryland, Environment Articles, Title 7 -- Hazardous Material and Hazardous Substances, Subtitle 2 -- Controlled Hazardous Substances 7-2-1 through 7-268 as amended, establishes the State's Hazardous Substance Control Fund and enforcement authorities. Under that authority, the State is authorized to regulate abandoned hazardous waste sites.

The Maryland Department of the Environment (MDE), Waste Management Administration, Environmental Response & Restoration Program has two divisions that are involved in the Superfund process: the Site Assessment/State Superfund Division and the Federal and NPL Superfund Division. The administration is responsible for overseeing all remediation work in the State.

Maryland's Hazardous Substance Control Fund Subaccount is funded by bond issuances and cost recoveries. The balance as of November 1993 was approximately $14 million. There is no cap on the fund. Fund monies can be used for removals, site investigation, emergency response, studies and design, remedial actions, program administration, operation and maintenance, and state funds to match Superfund contributions.

MDE's Oil Control Program manages the UST program in Maryland. The program has an administrative, permitting, support, and field staff of 40 persons, all located in the headquarters office in Baltimore. Included in the 40 staff members are 23 field inspectors.

4.2 The Market at Abandoned Sites Managed Under State Authorities

Maryland currently has approximately 470 abandoned hazardous waste cleanup sites that are not listed on the NPL, including sites at which the State oversees cleanup by the responsible party or parties. Of those 470 sites, 14 sites are on Maryland's priority list for cleanup. Conversations with representatives of the State indicate that the majority of the State program's priority cleanups involve groundwater contamination, because 70 to 75 percent of nonurban residents in the State use groundwater. Table 4-1 lists the 14 priority sites in Maryland.

Table 4-1
Sites in Maryland Selected for Priority Cleanup

Site Name	Site Address	Comments
Bauer Farm	Off North Point Road and Bauers Farm Road Baltimore, MD 21219	Action by responsible party (RP) to begin remediation by 12/95
Baltimore Gas and Electric (BGE) Bayard Street Station	Bayard and Bush Streets Baltimore, MD 21201	Coal gasification plant in industrialized area
Central Chemical	Mitchell Road Hagerstown, MD 21740	Groundwater contamination
Frederick Town Gas	350 Church Street Frederick, MD 21701	Groundwater contamination
Gibson-Homans	1101 Hanzlik Avenue Baltimore, MD 21237	RP action; operations and maintenance (O&M) phase planned
Hagerstown/Bradfording Road	Cearfoss Pike and Bradfording Road Hagerstown, MD 21740	Groundwater pump-and-treat system required
Honeywell/Alliant	2nd Street Ext. Greenwood Acres Annapolis, MD 21404	Groundwater contamination
Reisters Property	Junction of Maryland Routes 30 and 140 Reisterstown, MD 21136	RP action; O&M phase planned
Salisbury Town Gas	520 Commerce Street Salisbury, MD 21801	Source (soil) removal completed; groundwater remediation to follow
68th Street Dump	68th Street and Pulaski Highway Baltimore, MD 21237	Groundwater, soil, and surface water contaminated with mercury
Thiokol Corporation	Nottingham Road and Thiokol Road Elkton, MD 21921	Many RPs; studies continuing
W.L. Gore Left Bank	Triumph Industrial Park, 3 Blue Hall Road P.O. Box 1130 Elkton, MD 21921-1130	RPs sent notice of liability letters; removal and remedial actions planned
W.P. Ballard	10722 Tucker Street Beltsville, MD 20705	RP action for remedial system planned; soil and groundwater contaminated with trichloroethylene (TCE)
Westminster Coal Gas Plant	George Street Westminster, MD 21157	Memorandum of Understanding signed; remedial action planned

Source: Maryland Department of the Environment, Waste Management Administration

Maryland officials indicate that, in general, at State Superfund sites, the State requires the use of technologies that treat groundwater contaminated by trichloroethylene (TCE), metals, volatile organic compounds (VOC), and semivolatile organic compounds (SVOC). They also indicate that technologies of immediate interest to representatives of the State include bioremediation, capping, and in situ vitrification.

4.3 The Market at Abandoned Sites Managed Under the Federal Superfund Program

EPA has listed 13 NPL sites in Maryland. Table 4-2 summarizes information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on the status of the NPL sites in Maryland, including the number of remedial investigations and feasibility studies (RI/FS), remedial designs (RD), remedial actions (RA), and removals that are planned, in progress, or complete. One additional site currently is being proposed for listing on the NPL. Of the 13 sites, 8 sites were listed in the 1980s. Remediation activities are substantially complete at one site. **Table 4-3, found at the end of this section,** lists 12 Federal NPL sites in Maryland at which remedial action at 26 operable units has not yet begun. Those sites and operable units are of greatest interest to vendors, as technologies may have been selected but vendors of those technologies have not.

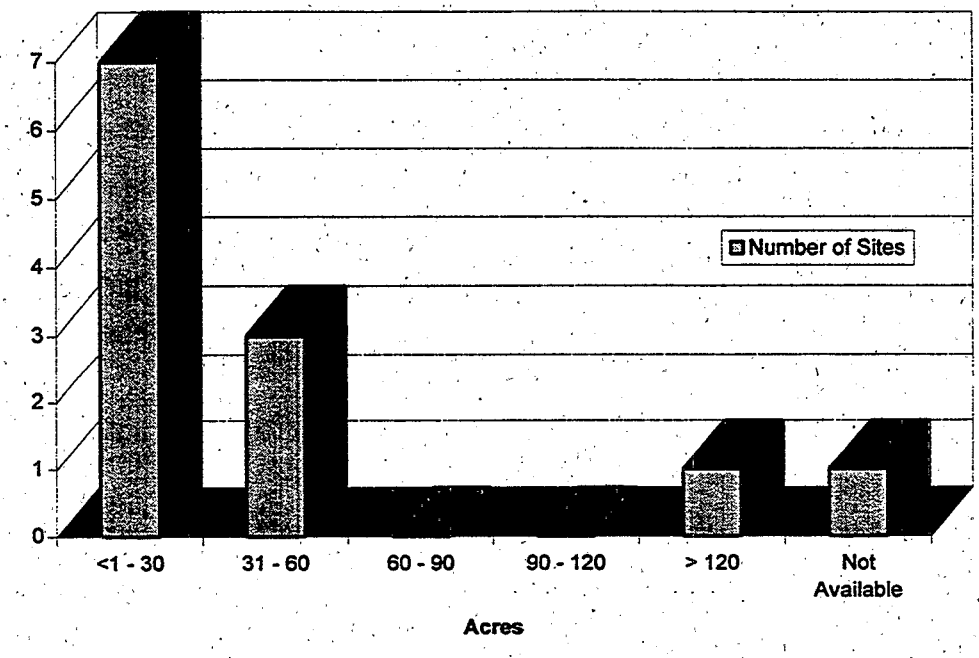
Table 4-2
Number of Sites and Operable Units at Federal NPL Sites in Maryland

Phase of Activity	Number of Sites	Number of Operable Units
Remedial Investigations/Feasibility Studies		
Planned	4	4
In Progress	6	16
Complete (RD not started)	5	5
Remedial Designs		
Planned	11	22
In Progress	2	3
Complete (RA not started)	2	2
Remedial Actions		
Planned	12	26
In Progress	2	2
Complete	5	6
Removals		
Started	8	17
Complete	8	16

Source: Data as of May 1995 from the EPA CERCLIS database; see Section 1.8 for a detailed description of the data sources.

A review of the NPL site summaries indicates that most Maryland NPL sites are contaminated with metals and VOCs in both the soil and the groundwater. Pesticides, polychlorinated biphenyls (PCB), and other chemical agents also are present at several sites. The presence of unexploded ordnance (UXO) also is reported at one DoD NPL site. Minimal data on the volumes of contaminated soil or groundwater to be treated appear in Table 4-3. The sizes of the contaminated areas range from 3 acres to as much as 13,000 acres. Figure 4-3 presents the distribution of sizes of Federal NPL sites in Maryland.

Figure 4-3
NPL Site Size Distribution for the State of Maryland



Several innovative technologies have been selected for use at the NPL sites. The technologies selected include, but are not limited to, on-site chemical precipitation, air stripping, ultraviolet oxidation, carbon adsorption, and steam stripping. Since data show that a remedial action is either completed or underway at only seven sites, opportunities may be present at sites where construction is not yet underway.

4.4 The Market at RCRA Corrective Action Sites

Although Maryland is authorized to issue RCRA Part B permits for hazardous waste facilities, the State is not authorized to administer the corrective action program; however, through the RCRA - Subtitle C Grant, Maryland provides administrative support to EPA Region 3 in the management of corrective action activities including preparation of draft corrective action permits and inspections. Maryland does not have a State-mandated corrective action program for active hazardous waste facilities.

Data from Resource Conservation and Recovery Information System (RCRIS) indicate that there are 41 RCRA facilities in the State: 10 land disposal units, 4 incinerators, and 34 storage and treatment units[2]. Seven facilities are under a requirement to conduct a RCRA facility investigation (RFI). The number of facilities with an RFI imposed is not a direct subset of the RCRA treatment, storage, and disposal (TSD) facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. As discussed in Section 1.2, these facilities may provide either a long-term opportunity or near-term opportunity where no CMS is necessary to begin corrective action or corrective activity begins in accordance with the stabilization initiative.

4.5 The Market at UST Sites Managed by the State

The Maryland Department of Environment (MDE) Oil Control Program administers the State UST program. Table 4-4 presents data on the number of USTs in Maryland.

Table 4-4
Underground Storage Tank Corrective Action Measures in Maryland as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
19,992	13,070	11,718	10,718	4,294

[2] A facility may be included in more than one of these categories.

There are approximately 19,992 active USTs in Maryland; the State ranks third in Region 3 in number of active tanks. (Active tanks are defined as tanks still in service.) Confirmed releases have occurred at approximately 59 percent of the active USTs in the State. As of July 1995, 11,718 confirmed releases had been reported by Maryland to EPA's Office of Underground Storage Tanks (OUST) of which 1,000 require cleanup. The numbers of USTs identified as marketing opportunities for vendors of innovative technologies will change rapidly because of the combination of rapid increases in the number of confirmed releases and continuing site closures. In national studies of USTs performed by EPA in 1991 and 1992, it was found that the majority, or about 87 percent, of tanks are used to manage gasoline or diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes, such as used oil (4 percent), hazardous material (2 percent), and other material (5 percent) or are empty (2 percent). The majority of the contamination problems are related to the contamination of soils and groundwater with petroleum products that contain VOCs and SVOCs (EPA 1992a, 1992b).

4.6 The Market at Federal Facility Sites in Maryland

As is the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the State where remedial actions are planned. There is one site owned by the U.S. Department of Agriculture (USDA) in Maryland, the Beltsville Agricultural Research Center, which is listed on the NPL. No data were available that indicate the level of funding for the site. Other information about the site is presented in **Table 4-3, found at the end of this section.**

There are also 16 active Department of Defense (DoD) installations and formerly used defense sites (FUDS) in Maryland. At the 16 active DoD installations and FUDS, there are 271 sites at which remediation currently is planned. The eventual number of sites at those installations that require remediation may exceed that figure because DoD has not completed its evaluation of all the sites.

The *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994* (DERP report) indicates that a total of approximately $2 billion in funding is estimated to be needed through 2025 in all phases of cleanup at the 16 installations in Maryland. The bulk of the funds ($1.6 billion) is allocated to Aberdeen Proving Ground (Edgewood Area and Michaelsville Landfill, which are listed on the NPL), with the smallest amount of funds ($1.6 million) allocated to the Defense National Stockpile Center (DNSC) Curtis Bay.

The majority of the contaminants at the sites at DoD installations for which remediation currently is planned fall into four broad categories: petroleum, oil, and lubricants (POL); VOCs; metals; and waste related to ordnance, specifically, white phosphorus, and UXO. No data were available on the volumes of soil and groundwater to be treated. Table 4-5 presents information on the individual installations in the State and the sites subject to remediation at those installations. Staff at each installation determine the individual sites at which they plan to perform remedial actions. Cleanup already may be underway at other sites; those sites are not included in the table because it is unlikely that they will afford near-term opportunities for vendors of innovative technologies. Of the installations included in the table, Aberdeen Proving Ground (Edgewood Area and Michaelsville Landfill) and Naval Air Station Patuxent River are listed on the NPL. The Naval Surface Warfare Center (NSWC) Indian Head is proposed for the NPL.

Table 4-5
DoD Installations and Sites in Maryland at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Aberdeen Proving Ground **21005-5001** Outyear Funding FY95-2010 $1,627,078	MD321002135500	A,N	191
Blossom Point Field Test Facility Outyear Funding FY95-2005 $4,702	MD321002100200	A	0
Fort Detrick **21702-5000** Outyear Funding FY95-2013 $28,290	MD321002026700	A	0
Fort George G. Meade **20755-5000** Outyear Funding FY95-2010 $35,302	MD321002056700	A	2
Bethesda NAVMEDCOM NATCAPREG Outyear Funding FY95-2009 $9,396	MD317002468700	A	2
NSWC Carderock Outyear Funding FY95-2010 $21,887	MD317002468600	A	7
NSWC Indian Head **20640-5035** Outyear Funding FY95-2007 $25,691	MD317002468400	A, P	22

Table 4-5 (continued)
DoD Installations and Sites in Maryland at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Naval Air Station Patuxent River 20670-5409 Outyear Funding FY95-2005 $40,614	MD317002453600	A,N	10
Naval Training Center Bainbridge Outyear Funding FY95-2004 $4,835	MD317002256200	A	2
Solomons Annex NAVRECCEN P.O. Box 147 Solomons 20688-0147 Outyear Funding FY95-2007 $6,161	MD317002753100	A	2
U.S. Naval Academy Annapolis 21402-5054 Outyear Funding FY95-2010 $27,701	MD317002260200	A	3
NSWC White Oak Outyear Funding FY95-2006 $11,284	MD317002344400	A	7
Andrews Air Force Base Washington, DC 20331-5000 Outyear Funding FY95-2025 $80,561	MD357182400000	A	10
Martin State Air National Guard Baltimore 21220-2899 Outyear Funding FY95-TBD $10,850	MD357282590100	A	9
DNSC Curtis Bay Curtis Bay 21226-1797 Outyear Funding FY95-1997 $1,598	MD397152020200	A	1
Nike BA-09 (Fork) Outyear Funding FY95-2008 $2,000	MD39799F137400	F	3
All Other Installations $35,744	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

[a] Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

[b] Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.
F = The installation is no longer active and is managed by the FUDS Branch.
N = The site is listed on the final National Priorities List.
P = The site is proposed for listing on the National Priorities List.

4.7 Further Market Information for Maryland

The Maryland Department of General Services provides initiation and administration for contracting. There are no bidders lists for engineering or construction work. Vendors can reach the Department of General Services by calling (410) 225-4997.

Contracts are advertised in approximately 30 trade publications in the State and in the *Maryland Register Contract Weekly*. To subscribe to the publication, vendors can call (410) 974-2486.

A vendor that wishes to obtain information about sites in Maryland that are managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA Programs. For information on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requestor will be billed for the information, depending on the volume of information.

In addition, the MDE, Waste Management Administration, Oil Control Program provides two lists to the public. The cost as of June 1995 for each list appears in parentheses below. The Oil Control Program has available a list of UST facilities ($25.00 per county or $500 for the entire State) and a list of active recovery sites ($100). The UST list includes the facility identification number; the name, address, city, county, and ZIP code of the site; the current age of the tank; its capacity; the status of the tank; and the substance it contains. The list of active recovery sites includes the name and address of the site, the type of recovery, and the site's MDE number. The office can be contacted at and checks made payable to:

Maryland Oil Fund
Fiscal Services Division
2500 Broening Highway
Baltimore, MD 21224
(410) 631-3433
(410) 631-3092 (facsimile)

Table 4-3
NPL Sites in Maryland at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: ABERDEEN PROVING GROUND (EDGEWOOD AREA)				EPA ID: MD2210020036		ADDRESS: OFF RTE 40; ABERDEEN, MD 21001		
NPL STATUS: Final				SIZE: 13,000 Acres		TYPE: Chemical Agent Munitions; Ordnance Testing and Maintenance		
01	GROUND WATER	(FF)	6/30/95	Y	AI; SO	NA	METALS; PHOSPHORUS; VOCs	On-Site Chemical Precipitation; Air Stripping; Inoxidation; Carbon Adsorption
02	CANAL CREEK (GROUNDWATER)	(FF)	3/31/97	N	GW	NA	METALS; PHOSPHORUS; VOCs	NA
03	CANAL CREEK (OTHER)	(FF)	9/30/95	Y	AI; DB; MS; SD; SO; ST; SW	700 Acres	METALS; PHOSPHORUS; VOCs	Landfill Cap
04	O-FIELD (SOURCE)	(FF)	9/30/95	N	AI; DB; LW	NA	CHEMICAL AGENTS; UXO	Permeable Cap
06	O-FIELD (OTHER)	(FF)	12/31/97	N	GW; MS; SD; SO; SW	NA	CHEMICAL AGENTS	NA
07	J-FIELD (SOURCE)	(FF)	3/31/95	N	AI; DB; MS; SD; SO; SW	NA	UXO	NA
08	J-FIELD (GROUNDWATER)	(FF)	9/30/98	N	GW	NA	NA	NA
09	CARROLL ISLAND	(FF)	12/31/96	N	AI; DB; GW; MS; SD; SO; SW	NA	NA	NA
10	GRACES QUARTERS	(FF)	3/31/96	N	AI; DB; GW; MS; SD; SO; SW	NA	METALS; PHOSPHORUS; VOCs; UXO	NA
11	OTHER AREAS	(FF)	9/30/97	N	AI; DB; GW; LW; MS; RC; SD; SL; SO; ST; SW	NA	NA	NA
In general, studies are scheduled to continue throughout the site until 2000; many RAs are scheduled for completion in 1995.								

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 4-3 (continued)
NPL Sites in Maryland at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: ABERDEEN PROVING GROUND (MICHAELSVILLE LANDFILL)					EPA ID: MD3210021355		ADDRESS: OFF RTE 40; ABERDEEN PROVING GROUND, MD 21005	
NPL STATUS: Final					SIZE: 20 Acres		TYPE: Ordnance Testing and Maintenance; Landfill; Disposal Area; Firing Ranges; Impact Areas; Fire Training Area; Laboratories	
02	LANDFILL (GROUNDWATER)	(FF)	6/30/97	N	GW	NA	METALS; PHOSPHORUS; VOCs	NA
03	PHILLIPS FIELD LF	(FF)	9/30/98	N	DB; GW; ST	NA	PCBs; PESTICIDES; VOCs	NA
04	WHITE PHOS. AREA UNDERWATER MUNICIPAL BURIAL SITE	(FF)	In 1996, a review of new technologies to study suspected contamination will be performed.	Y	SO; SW	NA	NA	NA
05	FIRE TRAINING AREA	(FF)	3/31/97	N	GW; SL; SO	NA	NA	NA
06	OTHER AREAS (NON-NPL)	(FF)	6/30/98	N	AI; DB; GW; SD; SO; SW	NA	NA	NA
Investigation began in 1991 and is expected to be completed in early 2002.								
SITE NAME: BELTSVILLE AGRICULTURAL RESEARCH (USDA)					EPA ID: MD0120508940		ADDRESS: BUILDINGS 1321 & 204 BARL; BELTSVILLE, MD 20705	
NPL STATUS: Final					SIZE: 4 Acres		TYPE: WASTE AREA	
01	FDA VET MED. BIODEGRADABLE L.F.	(FF)	6/30/98	N	GW; SD; SO; SW	NA	PAHs; PESTICIDES; PCBs; METALS; VOCs	NA
SITE NAME: BUSH VALLEY LANDFILL					EPA ID: MDD980504195		ADDRESS: BUSH RD POB 246; ABINGDON, MD 21009	
NPL STATUS: Final					SIZE: 29 Acres		TYPE: Refuse Systems--Co-disposal Landfill	
01		(RP/F)	5/31/98	N	AI; DB; GW; SD; SO; ST; SW	NA	VOCs; METALS	NA
SITE NAME: KANE & LOMBARD STREET DRUMS					EPA ID: MDD980923783		ADDRESS: KANE & LOMBARD STS; BALTIMORE, MD 21224	
NPL STATUS: Final					SIZE: 8 Acres		TYPE: Abandoned - No Use	
02	GROUNDWATER	(S/FE/RP)	11/30/99	Y	GW; SD; SW	NA	VOCs; METALS	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

NPL Sites in Maryland at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: LIMESTONE ROAD NPL STATUS: Final					EPA ID: MDD980691588 SIZE: 35 Acres		ADDRESS: LIMESTONE RD OFF RTE 51; CUMBERLAND, MD 21502 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
02	GROUNDWATER/STREAMS/ SEDIMENTS	(F/FE/RP)	3/18/98	Y	GW; SD; SW	NA	NA	NA
SITE NAME: ORDNANCE PRODUCTS, INC. NPL STATUS: Proposed					EPA ID: MDD982364341 SIZE: 55 Acres		ADDRESS: MECHANICS VALLEY ROAD; NORTHEAST, MD 21901 TYPE: NA	
01	NA	(RP/FE)	9/14/00	N	GW; SO; SW	NA	METALS; VOCs	NA
SITE NAME: PATUXENT RIVER NAVAL AIR STATION NPL STATUS: Final					EPA ID: MD7170024536 SIZE: NA		ADDRESS: BUTT RIFLE RANGE LANDFILL; PATUXENT, MD. 20670 TYPE: DISPOSAL PITS	
01	BUTT RIFLE LANDFILL	(FF)	12/31/98	N	SO; SW	16.5 Acres	PESTICIDES; OT	NA
SITE NAME: SAND, GRAVEL & STONE NPL STATUS: Final					EPA ID: MDD980705164 SIZE: 3 Acres		ADDRESS: RTE 40; ELKTON, MD 21921 TYPE: Abandoned - No Use	
03	NA	(RP)	6/30/95	N	NA	NA	NA	
04	NA	(RP)	12/31/94	N	NA	NA	NA	Pump and Treatment; Alternate Water Supply
SITE NAME: SOUTHERN MARYLAND WOOD TREATING NPL STATUS: Final					EPA ID: MDD980704852 SIZE: 25 Acres		ADDRESS: STATE RT 235; HOLLYWOOD, MD 20686 TYPE: Abandoned - No Use; Wood Treatment Operations	
02	SOIL/GROUND WATER	(F)	12/31/96	N	GW; MS; SD; SO; SW	NA	CREOSOTES; PCP; VOCs; PAHs; DNAPL	NA
SITE NAME: SPECTRON, INC NPL STATUS: Final					EPA ID: MDD000218008 SIZE: 8 Acres		ADDRESS: 111 PROVIDENCE RD; ELKTON, MD 21921 TYPE: NA	
01	SPECTRON 00 CONTINUED	(RP/FE)	3/26/01	N	SW; SO	NA	VOCs	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 4-3 (continued)
NPL Sites in Maryland at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: WOODLAWN COUNTY LANDFILL NPL STATUS: Final					EPA ID: MDD980504344 SIZE: 37 Acres		ADDRESS: FIRE TOWER & WAIBEL RDS.; WOODLAWN, MD 21904 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	ENTIRE SITE	(RP/FE)	2/10/97	Y	AI; GW; SD; SL; SO; ST; SW	400 cubic yards	METALS; PESTICIDES/ HERBICIDES; VOCs	Monitoring; Air Stripping Technologies; Disposal of Residual; Precipitation; Leachate Treatment; Steam Stripping,; Surface Capping Only; Off-Site Treatment

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

5.0 DEMAND FOR REMEDIATION OF SITES IN PENNSYLVANIA

This section is organized in seven sections. The first section describes the Pennsylvania hazardous waste management program. The next section discusses sites managed by the State. The third and fourth sections discuss the market at sites addressed by the Federal Superfund Program and Federal Resource Conservation and Recovery Act (RCRA) corrective action sites respectively. The U.S. Environmental Protection Agency (EPA) has not authorized Pennsylvania to administer corrective action; therefore, no discussion is included of sites subject to corrective action under the authority of the State. The fifth section discusses the market at underground storage tank (UST) sites managed by the State. The sixth section reviews the market at Department of Defense (DoD) sites in Pennsylvania. The final section of the chapter presents a brief discussion of other useful information about doing business at sites in Pennsylvania.

Figures 5-1 and 5-2 presents two maps of Pennsylvania that indicate the locations of the sites in the State that are listed on the NPL and RCRA facilities in the State, respectively[1]. NPL sites in Pennsylvania are concentrated in the eastern part of the State, with the majority found in the southeast, in the area of Philadelphia. While RCRA facilities are found throughout the State, there are two major concentrations in the areas around Philadelphia and Pittsburgh.

Summary Information

The number of sites and operable units in the State that require remediation indicates that Pennsylvania presents the greatest marketing opportunity in the Middle-Atlantic region for vendors of innovative technologies. The Pennsylvania Priority List, which includes abandoned sites to be remediated under the State cleanup program, lists 11 sites, each of which requires remediation that is expected to cost more than $2 million or take more than one year to complete. EPA manages 77 Superfund National Priorities List (NPL) sites where there are opportunities for innovative technology vendors. Five of the State's RCRA facilities are under a requirement to conduct a corrective measure study (CMS). Twenty-seven of the State's RCRA facilities are under a requirement to conduct a RCRA facility investigation (RFI). Data on USTs indicate that 1,336 tank sites in the State are in need of cleanup. There are 154 sites at 28 active DoD installations and formerly used defense sites (FUDS) at which cleanup activities are planned.

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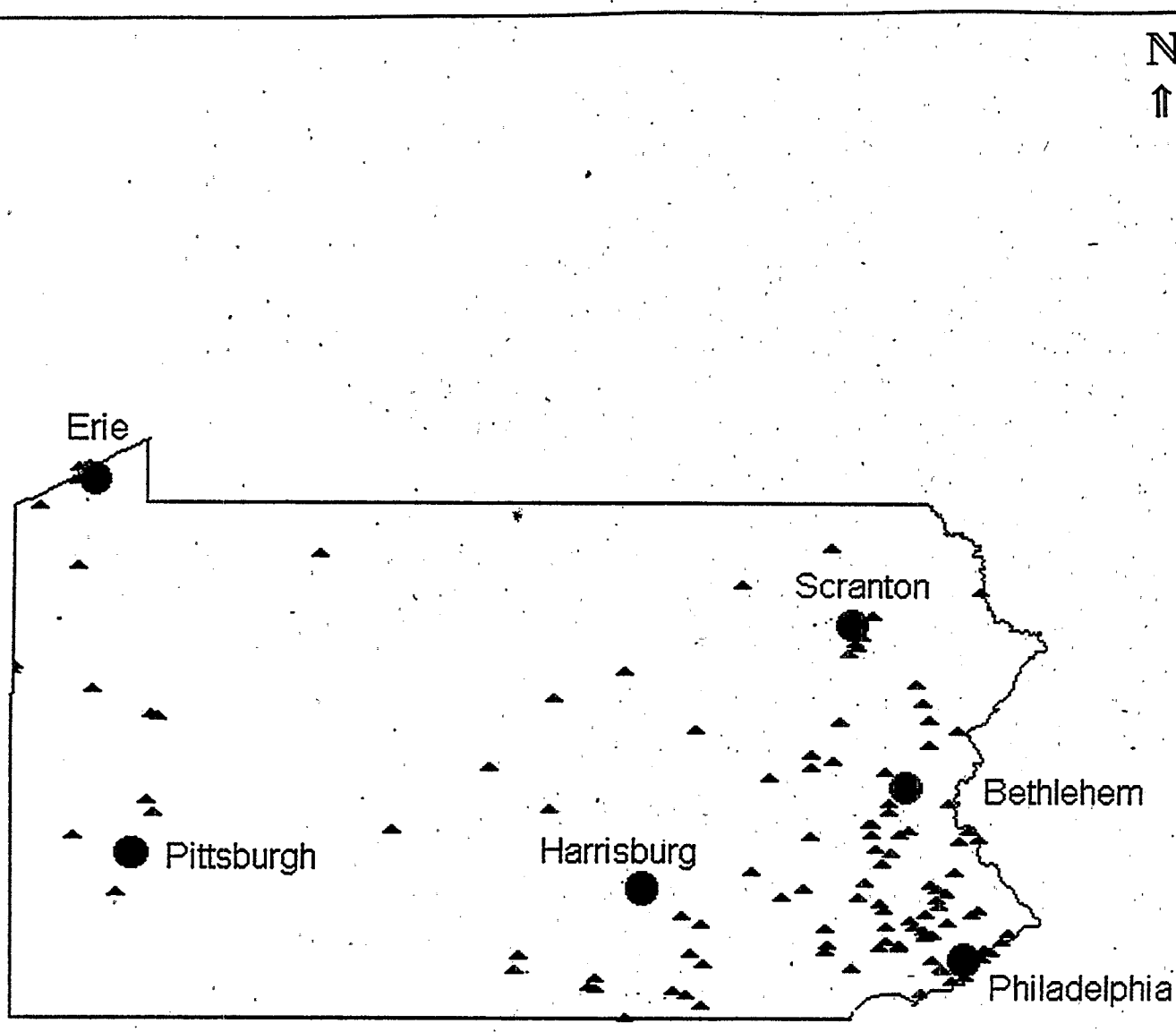
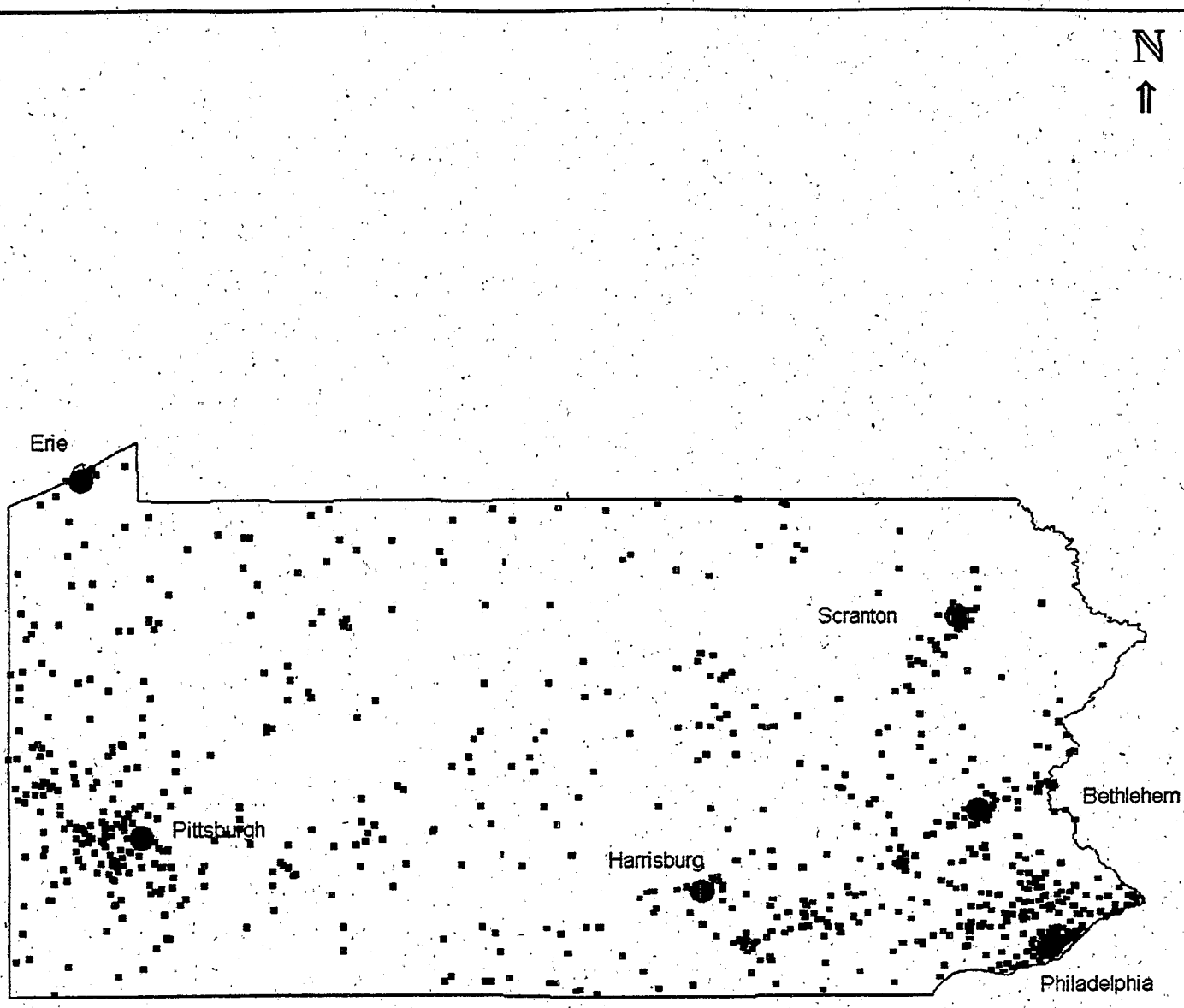
1 Figures 5-1 and 5-2 do not indicate the locations of *all* NPL sites or *all* RCRA sites located in Pennsylvania. LandView II™ contains information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on NPL sites and other sites. It also contains information from the Biennial Reporting System (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 5-1
NPL Sites in Pennsylvania



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 5-2
RCRA Facilities in Pennsylvania

Some use of innovative technologies has occurred in Pennsylvania. The technologies applied at Superfund sites, according to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, are ex situ bioremediation, soil vapor extraction, thermal desorption, and chemical treatment.

5.1 The Pennsylvania Hazardous Waste Management Program

The Pennsylvania Department of Environmental Protection (PADEP) is responsible for administering the State's regulations governing abandoned waste sites. PADEP has more than 3,800 employees and numerous regional and district offices throughout the State. The Hazardous Sites Cleanup Program has 127 employees.

The Hazardous Sites Cleanup Act (HSCA) of 1988 (Act 1988-108, 35 P.S. § 6020.101 *et seq.*) established a state fund and provides for administrative and judicial enforcement authority, cleanup procedures, a priority list, replacement of water supplies, restrictions on transfer of property, legal action by citizens, and public participation. The State Superfund program, managed by PADEP's Bureau of Waste Management, supports field staff in administering statewide programs for hazardous, municipal, and residual solid waste management, including cleanup of hazardous waste sites. The State fund provides 100 percent of the administrative costs of PADEP. The management organization of the program consists of a PADEP Headquarters organization located at the central offices in Harrisburg, six regional field operations offices, and six mining district offices. The Bureau of Waste Management in the Air and Waste Management Office is responsible for making policy and managing remediation contracts. The regional field operations offices, listed in Section 5.7, implement the technical program and provide oversight of contractors (PADEP 1995k; EPA 1993a).

According to EPA's *An Analysis of State Superfund Programs: 50-State Study, 1993 Update*, the Hazardous Sites Cleanup Fund is used to fund all phases of site cleanup except for operation and maintenance. The fund is used for a broad range of activities that go beyond the scope of a typical site cleanup program, including grants for recycling programs, grants or loans provided to municipalities as compensation for citing a hazardous waste facility, and loans for facilitating cleanups by private parties. The fund had a balance of $60.5 million at the end of fiscal year (FY) 1993. Additions to the fund during FY93 totaled $45.58 million. A capital stock and franchise tax generated $34.8 million. Hazardous waste transportation and management fees provided $2.6 million to the fund. Minor sources of monies for the fund were interest, penalties, and cost recoveries.

Expenditures from the fund in FY93 totaled $45,000 for the NPL portion of the program and $11.88 million for the non-NPL portion. Obligations from the fund in FY93 were $900,000 for the NPL portion and $21.57 million for the non-NPL portion. Fund monies may be used for site investigations, studies and design, removals, remedial actions, program administration, emergency response, compensation of victims, and restoration of natural resources, as well as to provide funds to match Federal Superfund dollars for sites governed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Pennsylvania Priority List includes sites that PADEP has determined to require remediation under HSCA. A description of those sites is included in Section 5.2 below.

According to EPA's 1993 50-State Study, HSCA provides that, until the State promulgates its own standards, the Federal Superfund Amendments and Reauthorization Act (SARA) Section 121 regarding cleanup standards applies. Maximum contaminant levels (MCL) and EPA guidelines are used when appropriate. PADEP may apply more stringent standards, on a case-by-case basis, including standards based on background levels, or it may waive or modify otherwise applicable requirements under HSCA Section 504.

The new Land Recycling Program was created in 1995 to encourage the cleanup and redevelopment of old industrial sites. The Land Recycling Program was created by legislation -- Act 2, 3 and 4 -- that Governor Tom Ridge signed into law May 19, 1995. Act 2 is the primary law of the land recycling program and establishes a realistic framework for setting cleanup standards, provides special incentives for developing abandoned sites, releases responsible parties from liability when cleanup standards are met, sets deadlines for PADEP actions and provides funding for environmental studies and cleanups. This new program will encourage the recycling of old industrial sites but, because the program is relatively new, there are no data on the number of sites to be cleaned up under this program at this time.

Act 32, the Storage Tank and Spill Prevention Act, was passed in 1989 and amended on April 18, 1992, to authorize Pennsylvania to regulate both aboveground and underground storage tanks (AST and UST, respectively), including heating oil tanks. The act gives PADEP the authority to:

- Provide for certification of installers and inspectors

- Require the registration of tanks
- Develop standards for both ASTs and USTs
- Develop regulations governing financial responsibility
- Establish the UST Indemnification Fund, which is an insurance fund administered by the State Department of Insurance, to provide for cleanups

The leaking underground storage tank (LUST) program is managed by the Bureau of Waste Management's Division of Land Recycling and Remediation, located in PADEP's central office in Harrisburg and in the six regional offices throughout the State. The central office develops statewide policies, regulations, and procedures, while the regional offices implement the program. There are approximately 120 staff working in the LUST program.

The facilities and sites managed under the programs identified above are discussed in the following subsections.

5.2 The Market at Abandoned Sites Managed Under State Authorities

As of June 1995, 11 sites are listed on the Pennsylvania Priority List for Remedial Response, published in the *Pennsylvania Bulletin*. The sites did not receive scores above 28.5 when evaluated by the Federal Superfund's Hazard Ranking System (HRS). They, therefore, are not listed on the NPL but have been determined by PADEP to require remediation. In addition, the sites are not subject to corrective action under RCRA.

Remedial response sites governed by provisions of HSCA are sites at which the response is expected to cost more than $2 million or take more than one year to complete. At some of the remedial sites, an interim response may be underway, or may have been completed, to secure or stabilize the site, pending the final remedial response. There also are eight sites governed by HSCA at which an interim response currently is being conducted. Interim responses are responses that are expected to cost less than $2 million and usually are completed within two months. In some cases, the interim response under HSCA is followed by a remedial response or a second interim response, both under HSCA, or a response action that is governed not by HSCA but by other legal authorities. In most cases, the interim response under HSCA is the only response implemented at the site. Finally, there are seven "other HSCA sites" for which PADEP has determined that a response under HSCA may be

necessary, and such a response is being planned or a site investigation is being conducted under HSCA. Table 5-1 presents the names and locations of the sites classified by PADEP under remedial response, or active interim response, or other categories of sites governed by HSCA. The reader should note that due to the rapid nature of investigation and cleanup work at active interim response and other sites, the information included in the table may change quickly.

Table 5-1
Sites Subject to the Pennsylvania Hazardous Sites Cleanup Act

Site Name	Municipality	County
HSCA Remedial Response Sites		
Crown Industries	Lackawaxen Township	Pike
Delta Chemicals	North Buffalo Township	Armstrong
Dupont/Newcastle	New Castle	Lawrence
Easterly Sewage Treatment Plant	Logan Township	Blair
F.E. Cooper Lumber	Broad Top Township	Bedford
H.K. Porter Dump Site	Hopewell Township	Beaver
Industrial Solvents and Chemical	Newberry Township	York
J.C. Cleaners	Gettysburg	Adams
Municipal and Industrial Disposal Company	Elizabeth Township	Allegheny
Presque Isle Chemical	Washington Township	Erie
Shaler/JTC	Bruin	Butler
HSCA Active Interim Response Sites		
Blumenthal Battery	Waynesboro	Franklin
Coudersport PCE	Coudersport	Potter
Delta Truck Body Company, Inc.	Perry Township	Berks
Gray Chemical	Roulette	Potter
National Precision Casting	East Whiteland Township	Chester
Quality Container Corp.	Philadelphia	Philadelphia
Sellersville Landfill	Sellersville Borough	Bucks
Zieglersville TCE	Lower Frederick Township	Montgomery

Table 5-1 (continued)
Sites Subject to the Pennsylvania Hazardous Sites Cleanup Act

Other HSCA Sites		
Economy Borough Site*	Economy Borough	Beaver
Filmore Site	Mill Creek Township	Erie
Hanover Scrap Quarry	Conewago Township	Adams
Leighton Industries	Phoenixville	Chester
Little Rio Grande Creek Site	Hulmeville Borough	Bucks
Oliver Landfill*	Waterford Township	Erie
Reclamation Resources, Inc.	Hatfield Township	Montgomery

Source: Pennsylvania Department of Environmental Protection

* Potentially Responsible Party (PRP)-lead Cleanup

Data provided by PADEP listed in Table 5-2 indicate that groundwater and soil are contaminated at most remedial response sites governed by HSCA. Surface water at many sites is contaminated. Typical contaminants include polychlorinated biphenyls (PCB), dioxin, and metals. Table 5-2 presents the names of remedial response sites governed by HSCA at which remedial activities have not yet begun, identifies the media contaminated and the contaminants present at those sites, and describes the status of each site. Table 5-3 provides information on two of the "other sites" governed by HSCA at which remedial activities may be required. Limited information was available on other sites, so the information in the table is not all-inclusive.

Table 5-2

Pennsylvania HSCA Remedial Response Sites
at Which Remediation Activities Have Not Yet Started

Site Name	EPA ID	Size	Media	Contaminants	Status
Crown Industries (salvage operation for metals) Rheingold Boulevard Lackawaxen, PA 18457 Pike County	PAD981034846	Not Available	Groundwater, soil, surface water, sediments	PCBs, benzene, phenols, dioxin, polyaromatic hydrocarbons (PAH), lead, antimony, cadmium, copper, zinc	Phase I remedial response conducted to remove scrap. Phase II remedial response to address source reduction currently under evaluation
Delta Chemicals (former solvent recycling facility) Worthington Road and Beatty Mills Road North Buffalo, PA 16262 Armstrong County	PAD088915822	Not Available	Surface water, groundwater, soil	Cadmium, benzene, perchloroethylene (PCE), trichloroethylene (TCE), chloroform, toluene, methylene chloride, and other organic compounds	Interim response actions conducted, current negotiations by PADEP with PRPs to implement a selected remedy to address soil and groundwater contamination

Table 5-2 (continued)
Pennsylvania HSCA Remedial Response Sites
at Which Remediation Activities Have Not Yet Started

Site Name	EPA ID	Size	Media	Contaminants	Status
Dupont/Newcastle (battery and scrap metal reclaiming operation and sulfuric acid manufacturing) Hopewell, PA Lawrence County	PAD980552061	9 acres	Groundwater, soil, surface water, sediments	Organics, lead	Further investigation required to determine nature and extent of contamination and evaluate possible remedial response
Easterly Sewage Treatment Plant Logan, PA Blair County	Not Available	Not Available	Groundwater, surface water, soil	Benzene, chlorinated benzene and ethenes, vinyl chloride, TCE, PCE, PCBs, metals	Response selected in 1994 for treating contaminated waste and soil using solvent extraction followed by treatment of contaminated groundwater; PADEP currently in design phase for waste and soil treatment response
F.E. Cooper Lumber (wood treating facility) Broad Top, PA Huntington County	Not Available	2 acres	Groundwater, surface water, soil	Creosote	Selected remedial response under internal review; interim response to intercept creosote that is seeping into the Juniata River to be implemented.
H.K. Porter Dump Site Beaver County	Not Available	17.5 acres	Soil, surface water, groundwater, sediments	Lead, cadmium, PCBs, PAHs, cyanide	Remedial response proposed; waste removal
Industrial Solvents and Chemical (solvent reprocessing facility) 1 Stevens Road Newberry, PA 17370 York County	PAD098732118	Not Available	Soil, groundwater	TCE, PCE, 1,1,1-trichloroethane, other organic compounds	Site listed on PA Priority List in 1991, with a score of 55.72; a settlement by PADEP with some responsible parties for sampling and disposal of waste; interim response action conducted
J.C. Cleaners (small dry cleaning business) 30 W. Railroad St. Gettysburg, PA 17325-1406 Adams County	Not Available	Not Available	Soil, groundwater	PCE, TCE, C_{15}-1,2-dichloroethylene	Remedial response to incorporate groundwater extraction/treatment and soil vapor extraction; design of treatment facility currently underway
Municipal and Industrial Disposal Company Cemetery Road Elizabeth, PA 15037 Allegheny County	PAD982366353	110 acres	Groundwater	Benzene, ethylbenzene, naphthalene, cadmium, chromium, lead, zinc, phenols, toluene, xylenes	PADEP conducting study
Presque Isle Chemical (abandoned recycling operation) Washington, PA Erie County	Not Available	28 acres	Groundwater, soils	TCE, PCE, lead, chromium, cadmium, copper, PCBs	Groundwater remediation response selected -- design and construction scheduled for completion in 1995; remedy selection process underway for the source operable unit to address contamination with TCE, PCE, lead, and PCBs

Table 5-2 (continued)
Pennsylvania HSCA Remedial Response Sites
at Which Remediation Activities Have Not Yet Started

Site Name	EPA ID	Size	Media	Contaminants	Status
Shaler/JTC (abandoned coal washing facility) Route 268 Bruin, PA 16022 Butler County	PAD987396769	15.3 acres	Groundwater, soil, sediments	PCBs, PCE, PAHs, TCE, acetone, benzene, vinyl chloride, arsenic, lead, cadmium, chromium, mercury	Response proposed

Source: Pennsylvania Department of Environmental Protection

Table 5-3
Pennsylvania Other HSCA Sites at Which Remediation Activities May Be Required

Site Name	EPA ID	Size	Media	Contaminants	Status
Leighton Industries Phoenixville, PA Chester County	Not Available	Not Available	Not Available	Lead, metals, solvents	As of August 1993, the site contained drums of unknown substances, an area contaminated with lead and other metals, and a closed solvent disposal pit; further investigation is required to determine the nature and extent of contamination
Oliver Landfill Route 97 Waterford, PA 16441 Erie County	PAD981038730	52 acres	Groundwater	1,1 dichloroethane, chloroethane, trans-1,2 dichloroethene	PRP Cleanup

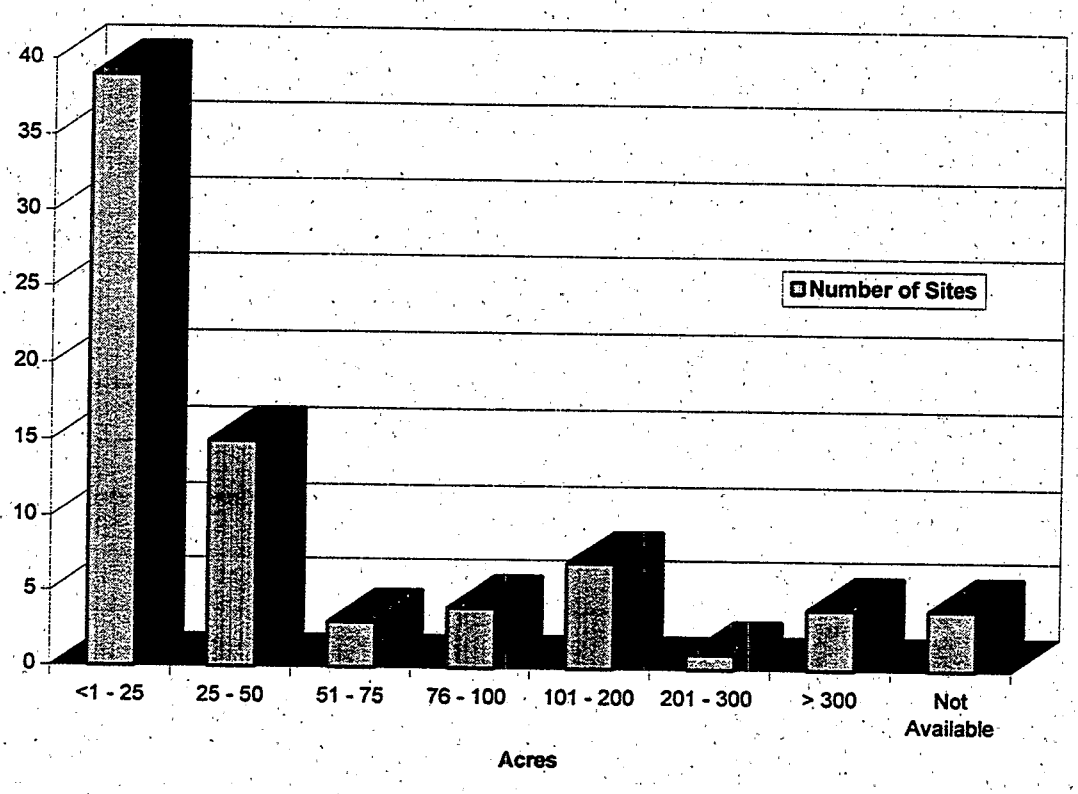
Source: Pennsylvania Department of Environmental Protection

5.3 The Market at Abandoned Sites Managed Under the Federal Superfund Program

EPA has listed 101 sites and proposed 1 site for listing in Pennsylvania on the NPL. Table 5-4 presents summary information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on the status of NPL sites in Pennsylvania. Remedial actions are in progress at 25 sites and remedial design is in progress at 32 sites. Removal actions are in progress at six sites. **Table 5-5, at the end of this section,** lists information from the CERCLIS database available on 77 sites and 117 operable units at which remediation activities have not yet begun. Those sites and operable units are of the greatest interest to technology vendors; technologies themselves may have been selected, but not vendors of those technologies. A review of NPL site summaries indicates that there is contamination by volatile organic compounds (VOC) in

both the soil and groundwater at the majority of the NPL sites. At many sites, there also is contamination with heavy metals in groundwater and surface water. There also is contamination with PAHs at several sites. The presence of PCBs also is reported in several cases. The sizes of the contaminated areas range from less than 1 acre to more than 38,000 acres. Figure 5-3 presents data on the size distribution of these sites.

Figure 5-3
NPL Site Size Distribution in Pennsylvania



The majority of NPL sites in the State are between 1 and 50 acres in size. Technologies selected for use at the sites include biodegradation, air stripping, solidification and stabilization, vitrification, and immobilization. Since data show that a remedial action is underway at only 25 sites, opportunities may be present at the 77 sites where construction is not yet underway. No data were available on the volumes of contaminated soil or groundwater present at the various sites.

Table 5-4 summarizes the number of remedial investigation and feasibility studies (RI/FS), remedial designs (RD), remedial actions (RA), and removals that are planned, in progress, or complete throughout Pennsylvania.

Table 5-4
Number of Sites and Operable Units at Federal NPL Sites in Pennsylvania

Phase of Activity	Number of Sites	Number of Operable Units
Remedial Investigations/Feasibility Studies		
Planned	10	17
In Progress	41	47
Complete (RD not started)	14	14
Remedial Designs		
Planned	77	117
In Progress	25	29
Complete (RA not started)	32	51
Remedial Actions		
Planned	50	51
In Progress	44	45
Complete	32	51
Removals		
Started	50	51
Complete	44	45

Source: Data as of May 1995 from the EPA CERCLIS database; see Section 1.8 for a detailed description of the data sources.

5.4 The Market at RCRA Corrective Action Sites

Although Pennsylvania is authorized to issue RCRA Part B hazardous waste management permits for hazardous waste facilities, it is not authorized to administer the corrective action program; all corrective action activities are managed by EPA Region 3. Pennsylvania does not have a separate State-mandated corrective action program for operating hazardous waste facilities.

Data from the Resource Conservation and Recovery Information System (RCRIS) database indicate that there are 237 RCRA facilities in the State: 54 land disposal units, 13 incinerators, and 214

storage and treatment units[2]. Five of the RCRA facilities currently require corrective action. The definition of corrective action used here is that a facility has been required to perform a CMS. The number of facilities with CMS imposed is not a direct subset of RCRA treatment, storage, and disposal (TSD) facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. **Table 5-6, at the end of this section,** presents those facilities. For four facilities, the entire facility is listed as subject to requirements for corrective action. It is likely that, at those facilities, several different problems have been identified that indicate a need for corrective action for the entire facility. In addition, 27 facilities are under a requirement to conduct a RCRA facility investigation (RFI). The number of facilities with an RFI imposed is not a direct subset of RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. As discussed in Section 1.2, these facilities may also provide either a long-term opportunity or near-term opportunity where no CMS is necessary to begin corrective action or corrective activity begins in accordance with the stabilization initiative.

No data were available in RCRIS to identify the contaminants of concern or the media contaminated at the RCRA sites in the State. However, in some cases, the name of the facility can provide a general indication of the problems likely to be present there. Eleven of the facilities are chemical and manufacturing plants. Three facilities use metals in the production of products. Another facility is a printing company; as such, it is likely to generate organic waste. In general, information available was insufficient to support identification of actual contaminants at the RCRA facilities. Information also was insufficient to support identification of specific media contaminated; however, soil contamination can be assumed to have occurred at all the facilities. Groundwater has been identified as a SWMU at one facility.

5.5 The Market at UST Sites Managed by the State

PADEP administers the State UST program. Table 5-7 presents data on the number of USTs in Pennsylvania. Pennsylvania has more active tanks (43,953) than any other state in Region 3. Active

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[2] A facility may be included in more than one of these categories.

tanks are defined as tanks still in service. Confirmed releases have occurred at 13 percent of the sites.

Table 5-7
Underground Storage Tank Corrective Action Measures in Pennsylvania as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
43,953	34,520	5,637	4,301	1,082

As of July 1995, Pennsylvania reported 5,637 confirmed releases to the EPA Office of Underground Storage Tanks (OUST). Cleanup has not yet been initiated at 1,336 of the sites. The number of USTs identified as marketing opportunities for vendors of innovative technology will change rapidly because of the combination of increases in the number of confirmed releases and continuing site closures. National studies of USTs by EPA in 1991 and 1992 found that about 81 percent of the tanks manage gasoline, diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes such as used oil (4 percent), hazardous material (2 percent), and other material (5 percent) or are empty (2 percent). The majority of the contamination problems caused by leaking tanks are related to the contamination of soil and groundwater with petroleum products that contain VOCs and SVOCs.

As indicated above, the UST program is managed by PADEP's Bureau of Water Quality Management, Division of Storage Tanks, located in PADEP's central office in Harrisburg. Further information on the locations of leaking USTs can be obtained from the State (see Section 5.7).

5.6 The Market at Federal Facility Sites in Pennsylvania

As in the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the state where remedial actions are planned. There are 28 active DoD installations and formerly used defense sites (FUDS) located in the State, 25 of which require further remedial action. At those 25 installations there are 198 active sites. DoD plans remediation activities for 154 of the 198 sites.

The *Defense Environmental Restoration Program Annual Report to Congress for 1994* indicates that a total of about $747 million in funding is estimated to be needed through the year 2000 in all phases of cleanup at the 28 installations. Facilities having the largest allocations of funds are Letterkenny Army Depot ($438 million) and Naval Air Warfare Center Warminster ($76 million). Nike Missile site, Pittsburgh-71 (Coraopolis) has the lowest funding level ($1.96 million).

The majority of the contaminants at the sites where remediation is now planned fall into one of three broad categories: petroleum, oil, and lubricants (POL); VOCs; and metals. Those contaminants are found in the soil at all the sites and in the groundwater in a large percentage of the sites. Data on volumes of soil and groundwater to be treated are not available. Table 5-8 provides information on the individual installations and sites subject to remediation at those installations. The number of sites to be subject to cleanup in the future is defined in the DERP report. Cleanup already may be underway at other sites; such sites have not been included in the total because it is unlikely that they will afford marketing opportunities for vendors of innovative technologies.

Several of the sites at which cleanup is planned are defined as operable units in their NPL listings. At some of those sites, there also may be areas subject to corrective action requirements under RCRA.

Table 5-8
DoD Installations and Sites in Pennsylvania at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
C.E. Kelly Support Facility **Logough Street, Bldg. 5-6, Oakdale 15071-5000** Outyear Funding FY95-2010 $7,646	PA321002234400	A	0
Fort Indiantown Gap **Annville 17003-5011** Outyear Funding FY95-2010 $10,232	PA321002044400	A	0
Letterkenny Army Depot **Chambersburg 17201-4150** Outyear Funding FY95-2099 $438,061	PA321002050300	A,N	34
MG Wurts USARC Outyear Funding FY95-2002 $3,031	PA32100PA13700	A	1

Table 5-8 (continued)
DoD Installations and Sites in Pennsylvania at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Scranton Army Ammunition Plant Outyear Funding FY95-2005 $6,508	PA321002151000	A	1
Tobyhanna Army Depot **18406-5000** Outyear Funding FY95-2024 $32,029	PA321002089200	A,N	4
Mechanicsburg SPCC **17055-0780** Outyear Funding FY95-2003 $7,708	PA317002210400	A,N	3
Naval Air Station Willow Grove **19090-5010** Outyear Funding FY95-2010 $28,247	PA317000015800	A,F	6
Naval Air Warfare Center Warminster **18974-5000** Outyear Funding FY95-2009 $76,133	PA317002454500	A,N	9
Naval Shipyard Philadelphia Outyear Funding FY95-2003 $9,695	PA317002241800	A	16
Ft. Indiantown Gap ANGB Outyear Funding FY95-2008 $5,875	PA357282882400	A	3
Greater Pittsburgh ANGB Outyear Funding FY95-2004 $5,606	PA357282846900	A	1
Pittsburgh International Airport **15231-5000** Outyear Funding FY95-2007 $10,581	PA357122428900	A	2
Willow Grove Air Force Range Outyear Funding FY95-2002 $10,145	PA357122534900	A	0
DDRE New Cumberland Outyear Funding FY95-2015 $28,755	PA397152064200	A	22
Defense Personnel Support Center Philadelphia **2800 S. 20th Street, Philadelphia 19101-8419** Outyear Funding FY95-1999 $4,600	PA397154266500	A	19
Fort Mifflin Outyear Funding FY95-2008 $1,968	PA39799F148700	F	1

Table 5-8 (continued)
DoD Installations and Sites in Pennsylvania at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Frankford Arsenal Outyear Funding FY95-2008 $3,553	PA39799F144700	F	3
Keystone Ordnance Works Outyear Funding FY95-2008 $7,838	PA39799F144800	F	3
Naval Air Station Newcumberland Outyear Funding FY95-2008 $4,395	PA39799F155200	F	3
Naval Ordnance Plant York Outyear Funding FY95-2008 $2,338	PA39799F154500	F	2
Nike Missile Site Philadelphia-07 (Richboro) Outyear Funding FY95-2008 $2,325	PA39799F145400	F	3
Nike Missile Site Philadelphia-97/99 (Lansdale) Outyear Funding FY95-2008 $7,635	PA39799F146900	F	3
Nike Missile Site Pittsburgh-02 (Rural Ridge) Outyear Funding FY95-2008 $5,735	PA39799F145200	F	3
Nike Missile Site Pittsburgh-71 (Coraopolis) Outyear Funding FY95-2008 $1,960	PA39799F146100	F	3
Olmsted Air Force Base Outyear Funding FY95-1998 $14,361	PA39799F153700	F,N	3
Reading Army Air Field Outyear Funding FY95-2008 $3,868	PA39799F151100	F	3
Valley Forge General Hospital Outyear Funding FY95-2008 $6,547	PA39799F150000	F	3
All Other Installations $38,727	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

[a] Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

[b] Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.
F = The installation is no longer active and is managed by the FUDS Branch.
N = The site is listed on the final National Priorities List.

5.7 Further Market Information for Pennsylvania

A vendor that wishes to bid on any state contract must request a vendor application for commodities from the Department of General Services, Bureau of Purchases of the Vendor Services Division at (717) 787-2199. The vendor uses that form to register in the State as a vendor interested in bidding on state procurements. A vendor can learn about upcoming procurements by contacting the Vendor Services Division.

A vendor that wishes to obtain information about sites in Pennsylvania that are managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA programs. For information on CERCLA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requestor will be billed for the information depending on the volume of information.

PADEP's public information office is a good source of information about the hazardous waste sites that PADEP manages. The office can be contacted at:

The Pennsylvania Department of Environmental Resources
Public Liaison Office
9th Floor, Fulton Building, 3rd and Locust Streets
P.O. Box 2063
Harrisburg, PA 17105-2063
(717) 787-9580

Information specific to hazardous waste sites and State and Federal Superfund enforcement can be obtained from PADEP's Bureau of Hazardous Sites and Superfund Enforcement at (717) 787-9368. The bureau is responsible for cleanup of hazardous sites and enforcement litigation activities under

Federal and State law. Vendors also may contact the Bureau of Waste Management at (717) 787-9870. The bureau supports the field operations offices, listed below, in administering statewide programs for hazardous, municipal, and residual solid waste management, including oversight of Federal Superfund activities for which the State is responsible.

PADEP Field Operations Offices

Southeast Region (Conshohocken) (610) 832-6000
Counties: Bucks, Chester, Delaware, Montgomery, Philadelphia

Northeast Region (Wilkes-Barre) (717) 826-2511
Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming

Southcentral Region (Harrisburg) (717) 657-4585
Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York

Northcentral Region (Williamsport) (717) 327-3636
Counties: Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union

Southwest Region (Pittsburgh) (412) 442-4000
Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, Westmoreland

Northwest Region (Meadville) (814) 332-6945
Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren

A list of leaking USTs is available from PADEP's Bureau of Water Quality Management, Division of Storage Tanks. The list and additional information can be obtained from:

Ms. Linda K. Hilbish
Administrative Assistant
The Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
Division of Storage Tanks
400 Market Street State Office Building 10th Floor
Harrisburg, PA 17101-2301
(717) 772-5599

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Table 5-5
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: A.I.W. FRANK/MID-COUNTY MUSTANG **NPL STATUS:** Final					**EPA ID:** PAD004351003 **SIZE:** 16 Acres		**ADDRESS:** INT RTE 202 & RTE 30; EXTON, PA 19341 **TYPE:** Other	
01	NA	(F/RP)	9/30/97	N	GW; SO; SW	NA	NA	NA
SITE NAME: AVCO LYCOMING (WILLIAMSPORT DIVISION) **NPL STATUS:** Final					**EPA ID:** PAD003053709 **SIZE:** 28 Acres		**ADDRESS:** 652 OLIVER ST; WILLIAMSPORT, PA 17701 **TYPE:** Aircraft Engines and Engine Parts, Mfg.	
01	NA	(RP/FE)	9/30/95	Y	GW	NA	VOCs; METALS	Air Stripping Technologies; Incineration with On-Site Disposal of Residual; Leachate Treatment; Off-Site Treatment; Precipitation; Steam Stripping; Monitoring
SITE NAME: BALLY GROUND WATER CONTAMINATION **NPL STATUS:** Final					**EPA ID:** PAD061105128 **SIZE:** 1 Acre		**ADDRESS:** RTE 100 20 N THIRD ST; BALLY, PA 19503 **TYPE:** Household Equipment	
01	NA	(RP/FE)	10/30/94	Y	AI; GW; SO	NA	VOCs	Monitoring; Air Stripping Technologies; Leachate Treatment; Thermal Treatment with On-Site Placement
SITE NAME: BELL LANDFILL **NPL STATUS:** Final					**EPA ID:** PAD980705107 **SIZE:** 33 Acres		**ADDRESS:** TWP RTE 393; WYALUSING - TERRY TWP, PA 18853 **TYPE:** Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	NA	(RP/FE)	10/17/96	Y	AI; GW; SO; SW	NA	NA	Institutional Controls; Leachate Treatment; Other Source Control Remedies
SITE NAME: BERKLEY PRODUCTS CO DUMP **NPL STATUS:** Final					**EPA ID:** PAD980538649 **SIZE:** 2 Acres		**ADDRESS:** RD 2; DENVER, PA 17517 **TYPE:** Refuse Systems--Co-disposal Landfill	
01	NA	(F)	12/31/96	N	RC; ST	NA	NA	NA
SITE NAME: BERKS LANDFILL **NPL STATUS:** Final					**EPA ID:** PAD000651810 **SIZE:** 58 Acres		**ADDRESS:** RD 8348; SINKING SPRING, PA 19608 **TYPE:** Refuse Systems--Co-disposal Landfill	
01	NA	(RP)	5/01/97	N	GW; SD; SO; ST; SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: BLOSENSKI LANDFILL NPL STATUS: Final					EPA ID: PAD980539985 SIZE: 20 Acres		ADDRESS: RTE 340; WEST CALN TWP, PA 19376 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
03	NA	(RP)	3/30/97	NA	AI; DB; GW; LW; SD; ST; SW	NA	NA	NA
04	NA	(F/RP)	3/30/95	NA	AI; DB; GW; LW; SD; ST; SW	NA	NA	NA
SITE NAME: BOARHEAD FARMS NPL STATUS: Final					EPA ID: PAD047726161 SIZE: 113 Acres		ADDRESS: LONELY COTTAGE DR; BRIDGETON TWP, PA 18972 TYPE: Other	
01	NA	(F)	4/01/99	N	GW; SO; SW	NA	NA	NA
SITE NAME: BRODHEAD CREEK NPL STATUS: Final					EPA ID: PAD980691760 SIZE: 12 Acres		ADDRESS: S OF MAIN ST BRG; STROUDSBURG, PA 18360 TYPE: Unknown	
01	FREE COAL TAR	(PS/FE/RP)	3/31/96	Y	GW; LW; SO; SW	179 cy	VOCs; METALS; CREOSOTES	Monitoring; Innovative Technology; Disposal of Residual; Incineration with On-Site Disposal of Residual; Off-Site Treatment
02	RESIDUAL COAL TAR AND GW	(RP/FE)	6/30/97	N	GW; SO	NA	NA	NA
SITE NAME: BROWN'S BATTERY BREAKING NPL STATUS: Final					EPA ID: PAD980831812 SIZE: 9 Acres		ADDRESS: LISHER LANE RD; BERNE, PA 19526 TYPE: NA	
02	REMEDIATE SOILS AND GW	(F/RP)	12/31/97	NA	DB; GW; MS; SO	67,000 cy	METALS; OTHER INORGANICS	Off-Site Treatment; Thermal Treatment with On-Site Placement; Disposal of Residual; Precipitation; PH Neutralization, Other Neutralization; Steam Stripping; Monitoring; Pump and Treat at POTW with Discharge
SITE NAME: BUTLER MINE TUNNEL NPL STATUS: Final					EPA ID: PAD980508451 SIZE: 38,400 Acres		ADDRESS: SUSQUEHANNA RIVER; PITTSTON TWP, PA 18640 TYPE: Abandoned - No Use	
01	NA	(RP/FE)	9/30/96	N	SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.
[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: BUTZ LANDFILL **NPL STATUS:** Final					**EPA ID:** PAD981034705 **SIZE:** 13 Acres		**ADDRESS:** RD #5 TWP RTE 601; JACKSON TWP, PA 18360 **TYPE:** Unknown; Refuse Systems--Co-disposal Landfill	
01	NA	(F)	6/30/96	Y	GW	NA	VOCs; DNAPLs; PLASTICS	Air Stripping Technologies; Disposal of Residual; Precipitation; Leachate Treatment; Off-Site Treatment
SITE NAME: C & D RECYCLING **NPL STATUS:** Final					**EPA ID:** PAD021449244 **SIZE:** 50 Acres		**ADDRESS:** R.D. #1 - SANDY RUN; FREELAND, PA 18224 **TYPE:** Unknown	
01	NA	(RP/FE)	12/31/96	Y	AI; DB; GW; SD; SO; SW	20,565 cy	METALS	Monitoring; Decontamination; Off-Site Treatment; Recycling; Disposal of Residual; Solidification and Stabilization
SITE NAME: CENTRE COUNTY KEPONE **NPL STATUS:** Final					**EPA ID:** PAD000436261 **SIZE:** 4 Acres		**ADDRESS:** 201 STRUBLE RD; STATE COLLEGE, PA 16801 **TYPE:** Industrial Organic Chemicals; Agricultural Chemicals, Organic & Inorganic	
01	NA	(RP/FE)	12/29/97	Y	GW; SD; SO; SW	NA	NA	NA
SITE NAME: COMMODORE SEMICONDUCTOR GROUP **NPL STATUS:** Final					**EPA ID:** PAD093730174 **SIZE:** 10 Acres		**ADDRESS:** VAN BUREN & RITTENHOUSE RDS; NORRISTOWN, PA 19403 **TYPE:** Abandoned - No Use	
01	NA	(RP/FE)	03/30/95	Y	GW	NA	VOCs	Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Pump and Treat at POTW with Discharge; Off-Site Treatment; Monitoring
SITE NAME: CRATER RESOURCES/KEYSTONE COKE/ALAN WOOD STEEL **NPL STATUS:** Final					**EPA ID:** PAD980419097 **SIZE:** NA		**ADDRESS:** 2200 RENAISSANCE BOULEVARD; KING OF PRUSSIA, PA 19406 **TYPE:** Abandoned - No Use; Undeveloped Land (Incl. forests, fields, wetlands)	
01	NA	(RP/F)	12/30/97	N	DK	NA	PAHs; VOCss; METALS	NA
SITE NAME: CROSSLEY FARM **NPL STATUS:** Final					**EPA ID:** PAD981740061 **SIZE:** 24 Acres		**ADDRESS:** HUFF'S CHURCH ROAD & BLACKHEAD HILL; **TYPE:** Abandoned - No Use	
01	NA	(F/RP)	12/30/97	N	GW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: CROYDON TCE NPL STATUS: Final					EPA ID: PAD981035009 SIZE: 2,560 Acres		ADDRESS: RIVER RD; CROYDON & BRISTOL TWP, PA 19020 TYPE: Residential-Private Home Ownership; Dwelling Operators, Except Apartments; Mobile Home Site Operators; Nonresidential Building Operators; Elementary and Secondary; Garment Pressing and Cleaners' Agents; Industrial Inorganic Chemicals; Industrial Organic Chemicals; Manufacturing (Electroplating; Agricultural Chemicals, Organic & Inorganic; Paper Mills; Industrial Equipment; Recycling Waste Oil)	
03	NA	(RP)	12/31/98	NA	NA	NA	NA	NA
SITE NAME: CRYOCHEM, INC NPL STATUS: Final					EPA ID: PAD002360444 SIZE: 19 Acres		ADDRESS: RTE 562; WORMAN TWP., BOYERTOWN, PA 19512 TYPE: Cold Finishing of Steel Shapes	
03	NA	(F)	12/30/95	Y (FS)	AI; SD; SO	NA	VOCs	Monitoring; Air Stripping Technologies; Leachate Treatment; Off-Site Treatment
SITE NAME: DELTA QUARRIES & DISP./STOTLER LANDFILL NPL STATUS: Final					EPA ID: PAD981038052 SIZE: 40 Acres		ADDRESS: UNOBTAINABLE, ANTIS AND LOGAN TWPS, PA 16602 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	NA	(RP/FE)	7/01/95	Y	AI; GW; SD; SW	NA	VOCs; METALS	Monitoring; Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Precipitation; Pump and Treatment
SITE NAME: DORNEY ROAD LANDFILL NPL STATUS: Final					EPA ID: PAD980508832 SIZE: 38 Acres		ADDRESS: DORNEY RD; MERTZTOWN, PA 19539 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	OU#1-LANDFILL CAP & WETLANDS	(S/F/RP)	6/30/95	Y	GW; SD; SO; ST; SW	NA	NA	Monitoring; Disposal of Residual
02	GROUND WATER	(S/F/RP)	9/30/95	Y	GW	NA	METALS; VOCs; DNAPLs; PLASTICS	Leachate Treatment; Monitoring; Pump and Treatment
SITE NAME: DOUGLASSVILLE DISPOSAL NPL STATUS: Final					EPA ID: PAD002384865 SIZE: 50 Acres		ADDRESS: RTE 724; DOUGLASSVILLE, PA 19518 TYPE: Abandoned - No Use	
04	ON-SITE INCINERATION	(F)	6/30/95	NA	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: DRAKE CHEMICAL NPL STATUS: Final					EPA ID: PAD003058047 SIZE: 8 Acres		ADDRESS: 180 MYRTLE ST; LOCK HAVEN, PA 17745 TYPE: Abandoned - No Use	
04	NA	(F)	6/30/96	NA	GW	NA	NA	NA
SITE NAME: DUBLIN TCE SITE NPL STATUS: Final					EPA ID: PAD981740004 SIZE: 5 Acres		ADDRESS: 120 MILL ST./ WHISTLEWOOD APT-RTE 313; DUBLIN, PA 18917 TYPE: Electrometallurgical Products; General Warehousing and Storage	
01	NA	(EP/F)	5/30/95	Y	GW	NA	VOCs; DNAPLs; PLASTICS	Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Monitoring
02	NA	(RP)	6/11/98	N	GW; SD; SO	NA	NA	NA
SITE NAME: EAST TENTH STREET NPL STATUS: Proposed					EPA ID: PAD987323458 SIZE: NA		ADDRESS: 201 EAST 10TH STREET; MARCUS HOOK, PA 19061 TYPE: NA	
01	NA	(F/RP)	9/30/99	N	NA	NA	NA	NA
SITE NAME: EASTERN DIVERSIFIED METALS NPL STATUS: Final					EPA ID: PAD980830533 SIZE: 34 Acres		ADDRESS: LINCOLN AVE; HOMETOWN-RUSH TWP, PA 18252 TYPE: Sanitary Services--Wastewater Treatment Plant	
02	GROUNDWATER	(RP/FE)	9/30/96	Y (FS)	GW; LW; SW	NA	NA	NA
03	NA	(RP/FE)	12/01/96	Y (FS)	AI; DB; GW; SD; SO	NA	METALS; PCBs; PESTICIDES/ HERBICIDES; VOCs; DIOXIN; DNAPLs; PLASTICS	Off-Site Treatment; Recycling; Monitoring
SITE NAME: ELIZABETHTOWN LANDFILL NPL STATUS: Final					EPA ID: PAD980539712 SIZE: 15 Acres		ADDRESS: W RIDGE RD; ELIZABETHTOWN, PA 17022 TYPE: Refuse Systems--Co-disposal Landfill	
01	NA	(RP/FE)	9/30/97	N	DB; GW; LW; SW	NA	NA	NA
SITE NAME: FISCHER & PORTER CO NPL STATUS: Final					EPA ID: PAD002345817 SIZE: 6 Acres		ADDRESS: JACKSONVILLE & ST RD; WARMINSTER, PA 18974 TYPE: Plumbing Fixture Fittings and Trim	
02	REM. EVAL. OF ORIGINAL RI/FS	(F)	4/01/97	N	DK	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: FOOTE MINERAL CO NPL STATUS: Final					EPA ID: PAD077087989 SIZE: NA		ADDRESS: 15 S BACTON HILL RD; FRAZER, PA 19355 TYPE: Abandoned - No Use	
01	NA	(R/PF)	9/30/98	N	DK	NA	NA	NA
SITE NAME: HAVERTOWN PCP NPL STATUS: Final					EPA ID: PAD002338010 SIZE: 15 Acres		ADDRESS: EAGLE RD RC DRAWER F; HAVERFORD TWP., PA 19041 TYPE: Abandoned - No Use	
02	NA	(F)	6/30/96	Y	GW; OT; SD; SW	NA	METALS; PESTICIDES/ HERBICIDES; VOCs; CREOSOTES; DIXOINS; DNAPLs; PLASTICS	Disposal of Residual; Leachate Treatment; Off-Site Treatment; Steam Stripping; Thermal Treatment with On-Site Placement; Precipitation
03	NA	(F)	3/30/97	N	GW	NA	NA	NA
SITE NAME: HELEVA LANDFILL NPL STATUS: Final					EPA ID: PAD980537716 SIZE: 93 Acres		ADDRESS: GARAGE HILL ST; COPLAY (IRONTON VILLAGE), PA 18037 TYPE: Crop Production; Refuse Systems--Co-disposal Landfill	
03	GROUND WATER PUMP & TREAT	(F/RP)	12/31/96	NNA	GW	100,000 gal.	VOCs	Disposal of Residual; Monitoring; Pump and Treatment
SITE NAME: HUNTERSTOWN ROAD NPL STATUS: Final					EPA ID: PAD980830897 SIZE: 3 Acres		ADDRESS: RD #5; GETTYSBURG, PA 17325 TYPE: Undeveloped Land (Incl. forests,fields,wetlands); Refuse Systems--Open Dump	
01	NA	(RP/FE/F)	2/27/96	Y	DB; GW; SD; SO; SW	1,200 cy; 5,100 cy	VOCs; METALS	Soil Cover; Disposal of Residual; Off-Site Treatment; Solidification and Stabilization; Air Stripping Technologies; Thermal Treatment with On-Site Placement; Monitoring; Incineration with On-Site Disposal of Residual; Pump and Treatment
SITE NAME: JACKS CREEK/SITKIN SMELTING AND REFINERY NPL STATUS: Final					EPA ID: PAD980829493 SIZE: 115 Acres		ADDRESS: PO BOX 708; LEWISTOWN, PA 17044 TYPE: Recycling Waste Oil	
01	NA	(F/FE)	9/29/98	N	GW; MS; RC; SD; SO; SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: KEYSTONE SANITATION LANDFILL NPL STATUS: Final					EPA ID: PAD054142781 SIZE: 40 Acres		ADDRESS: RD #1; HANOVER, PA 17331 TYPE: Refuse Systems--Co-disposal Landfill	
02	NA	(F/RP)	12/30/98	N	GW; LW; SD; SW	NA	NA	NA
03	NA	(RP)	12/31/95	NA	NA	NA	NA	NA
04	NA	(RP)	12/31/95	NA	NA	NA	NA	NA
SITE NAME: LETTERKENNY ARMY DEPOT (PDO AREA) NPL STATUS: Final					EPA ID: PA2210090054 SIZE: 250 Acres		ADDRESS: N FRANKLIN ST; CHAMBERSBURG, PA 17201 TYPE: Crop Production; Misc.	
02	SOURCE	(FF)	3/31/96	N	SO	NA	NA	NA
03	GROUNDWATER	(FE)	12/31/97	N	GW	NA	NA	NA
04	OFF-AREA GROUNDWATER	(FE)	12/31/96	N	GW	NA	NA	NA
SITE NAME: LETTERKENNY ARMY DEPOT (SE AREA) NPL STATUS: Final					EPA ID: PA6213820503 SIZE: 170 Acres		ADDRESS: N FRANKLIN ST EXT; CHAMBERSBURG, PA 17201 TYPE: Misc.; Ordnance Production and Storage, Testing, and Maintenance	
02	GROUNDWATER	(FF)	6/30/96	N	GW; SO	5,000 cy	NA	Other/Unknown/Undetermined Technology
03	BASE-WIDE (NO ACTION SMUS)	(FF)	9/30/97	N	DK; GW	NA	NA	Other/Unknown/Undetermined Technology
04	STORM SEWERS & CONTAM. SOILS	(FF)	12/31/96	N	SO	7,000 cy	NA	Other/Unknown/Undetermined Technology
05	AREA A & B SOILS	(FF)	9/30/97	N	SO	NA	NA	Other/Unknown/Undetermined Technology
06	OFF-POST GROUNDWATER	(FF)	3/31/97	N	GW	NA	NA	Other/Unknown/Undetermined Technology
SITE NAME: LINDANE DUMP NPL STATUS: Final					EPA ID: PAD980712798 SIZE: 30 Acres		ADDRESS: RTE 28 & SPRING HILL RD; HARRISON TWP, PA 15065 TYPE: NA	
01	NA	(FE/RP)	9/30/96	Y	DB; GW; LW; SD; SO; ST; SW	NA	METALS; PESTICIDES/ HERBICIDES; VOCs	Surface Capping Only; Disposal of Residual; Air Stripping Technologies; Monitoring; Leachate Treatment

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: MALVERN TCE NPL STATUS: Final					EPA ID: PAD014353445 SIZE: 2 Acres		ADDRESS: 258 N PHOENIXVILLE PK; MALVERN, PA 19355 TYPE: Other	
01	NA	(RP/FE)	6/30/98	Y	GW; SO	NA	NA	NA
SITE NAME: METAL BANKS NPL STATUS: Final					EPA ID: PAD046557096 SIZE: 10 Acres		ADDRESS: COTTMAN & DELAWARE AVE; PHILADELPHIA, PA 19135 TYPE: Abandoned - No Use	
01	NA	(RP/FE)	9/30/97	N	DB; GW; MS; SD; SO; SW	NA	NA	NA
SITE NAME: METROPOLITAN MIRROR AND GLASS NPL STATUS: Final					EPA ID: PAD982366957 SIZE: 8 Acres		ADDRESS: INDUSTRIAL RD; FRACKVILLE, PA 17931 TYPE: Recycling - Other	
01	NA	(RP/F)	03/03/98	N	SL; SO; SW	NA	NA	NA
SITE NAME: MIDDLETOWN AIR FIELD NPL STATUS: Final					EPA ID: PAD980538763 SIZE: 36 Acres		ADDRESS: APPROX 1 MLE OFF RTE 230; MIDDLETOWN, PA 17057 TYPE: Air Transportation, Scheduled Metal Coating and Allied Services	
03	SUPPLEMENTAL STUDY/SOIL MODEL	(F/RP)	12/31/98	N	SO	NA	NA	NA
SITE NAME: MODERN SANITATION LANDFILL NPL STATUS: Final					EPA ID: PAD980539068 SIZE: 72 Acres		ADDRESS: PROSPECT RD; YORK, PA 17404 TYPE: Refuse Systems--Municipal Landfill and Co-disposal Landfill	
01	NA	(PS/FE/RP)	6/30/96	Y	DB; GW; SO; SW	NA	METALS; OTHER INORGANICS; RADIOACTIVE MATERIALS; VOCs	Surface Capping Only; Disposal of Residual; Air Stripping Technologies; Biodegradation and Bioremediation Treatment; Steam Stripping; Monitoring; Leachate Treatment; Pump and Treatment

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: MW MANUFACTURING **NPL STATUS:** Final					**EPA ID:** PAD980691372 **SIZE:** 20 Acres		**ADDRESS:** STATE ROUTE 54 AND I-80; VALLEY TWP, PA 17821 **TYPE:** General Warehousing and Storage	
01	GROUNDWATER	(F/RP)	12/31/95	Y	GW	NA	METALS; PESTICIDES/ HERBICIDES; VOCs	Air Stripping Technologies; Disposal of Residual; Precipitation; Leachate Treatment; Off-Site Treatment; Steam Stripping; Monitoring; Incineration with On-Site Disposal of Residual; Pump and Treatment
03	FLUFF WASTE	(F)	12/31/95	Y	DB; DK; GW; SO; SW	32,000 cy; 130 cy; 86,000 gal.	METALS; PCBs; VOCs; DNAPLs; PLASTICS	Incineration with On-Site Disposal of Residual; Off-Site Treatment; Solidification and Stabilization; Monitoring; Disposal of Residual; Leachate Treatment
04	WATERLINE	(RP)	9/30/95	NA	NA	NA	NA	NA
SITE NAME: NAVAL AIR DEVELOPMENT CENTER (8 AREAS) **NPL STATUS:** Final					**EPA ID:** PA6170024545 **SIZE:** 2 Acres		**ADDRESS:** ST & JACKSONVILLE RD; WARMINSTER, PA 18974 **TYPE:** Misc.; Refuse Systems--Open Dump and Co-disposal Landfill; Airports, Flying Fields, and Services	
01	GROUNDWATER	(FF)	12/31/94	Y	GW	NA	VOCs; METALS	Air Stripping Technologies; Leachate Treatment; Off-Site Treatment; Precipitation; Steam Stripping; Monitoring
04	AREA C GROUNDWATER	(FF)	6/30/96	Y	NA	NA	NA	NA
SITE NAME: NAVY SHIPS PARTS CONTROL CENTER **NPL STATUS:** Final					**EPA ID:** PA3170022104 **SIZE:** 824 Acres		**ADDRESS:** BOX 2020; MECHANICSBURG, PA 17055 **TYPE:** NA	
01	NA	(FF)	9/30/98	N	NA	NA	NA	NA
SITE NAME: NORTH PENN - AREA 1 **NPL STATUS:** Final					**EPA ID:** PAD096834494 **SIZE:** NA		**ADDRESS:** 162 N MAIN ST; SOUDERTON, PA 18964 **TYPE:** Power Laundries, Family and Commercial; Industrial Launderers	
01	SOURCE CONTROL	(F/RP)	12/30/95	Y	GW; SO	NA	NA	Pump and Treatment
SITE NAME: NORTH PENN - AREA 2 **NPL STATUS:** Final					**EPA ID:** PAD002342475 **SIZE:** 8 Acres		**ADDRESS:** 1 SPRING AVE; HATFIELD, PA 19440 **TYPE:** Solvents Recovery; Bolts, Nuts, Rivets, and Washers	
01	NA	(F/RP)	6/30/97	N	GW; SO	NA	NA	NA

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[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: NORTH PENN - AREA 5 NPL STATUS: Final					EPA ID: PAD980692693 SIZE: 20 Acres		ADDRESS: MAPLE DR; COLMAR, PA 18915 TYPE: Electrical Equipment and Supplies; Electronic Components	
01	NA	(F/RP)	8/ 4/97	N	GW	NA	NA	NA
SITE NAME: NORTH PENN - AREA 6 NPL STATUS: Final					EPA ID: PAD980926976 SIZE: 1 Acre		ADDRESS: W 3RD ST; LANSDALE, PA 19446 TYPE: Meat and Dairy Production; Power Laundries; Metal Heat Treating; Heating Equipment, Except Electric; Metal Coating and Allied Services; Recycling Waste Oil	
01	FUND AND PRP LEAD	(F)	6/30/97	N	SO	NA	NA	NA
02	7 PROPERTIES	(RP/FE)	4/01/99	N	NA	NA	NA	NA
03	GROUNDWATER	(F)	1/ 0/99	N	NA	NA	NA	NA
SITE NAME: NORTH PENN - AREA 7 NPL STATUS: Final					EPA ID: PAD002498632 SIZE: 1 Acre		ADDRESS: WISSAHICKON AVE; LANSDALE, PA 19446 TYPE: Unknown	
01	NA	(F/RP)	6/30/98	N	SO	NA	NA	NA
02	NA	(RP)	12/31/97	NA	GW	NA	NA	NA
SITE NAME: NOVAK SANITARY LANDFILL NPL STATUS: Final					EPA ID: PAD079160842 SIZE: 60 Acres		ADDRESS: PARKLAND TERRACE RD & LAPP RD; ALLENTOWN, PA 18104 TYPE: Other; Refuse Systems--Co-disposal Landfill	
01	NA	(RP/FE)	9/29/97	Y	AI; DB; GW; LW; SD; SO; ST; SW	2,222,000,000 gal.	METALS; VOCs; OTHER INORGANICS	Monitoring; Natural Attenuation; Disposal of Residual; Precipitation; Leachate Treatment; Pump and Treat at POTW with Discharge; Off-Site Treatment; Steam Stripping; Surface Capping Only

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases See Section 1.8 for a detailed description of these data sources.
[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: OCCIDENTAL CHEMICAL CORP./FIRESTONE TIRE NPL STATUS: Final					EPA ID: PAD980229298 SIZE: 30 Acres		ADDRESS: ARMAND HAMMER BLVD; POTTSTOWN, PA 19464 TYPE: Plastic Resins	
01	NA	(RP/F)	6/30/96	Y	GW; SD; SL; SO	13,000,000 gal; 20,000,000 gal; 22,000,000 gal; 38,000,000 gal; 258,000,000 gal; 7,676,000 gal; 38,000 cy	VOCs	Air Stripping Technologies; Leachate Treatment; Pump and Treat at POTW with Discharge; Off-Site Treatment; Monitoring; Recycling; Pump and Treatment
SITE NAME: OHIO RIVER PARK NPL STATUS: Final					EPA ID: PAD980508816 SIZE: 32 Acres		ADDRESS: GRAND AVE; NEVILLE ISLAND, PA 15225 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	NA	(RP/FE)	1/14/98	N	SO	NA	NA	NA
SITE NAME: OLD CITY OF YORK LANDFILL NPL STATUS: Final					EPA ID: PAD980692420 SIZE: 176 Acres		ADDRESS: RD# 1 SOUTH RD; SEVEN VALLEYS, PA 17360 TYPE: Refuse Systems--Co-disposal Landfill	
01	GROUND WATER & SOIL COVER	(RP/FE)	6/30/95	Y	AI; GW; SD; SO; SW	NA	VOCs; METALS; OTHER INORGANICS; PCBs	Monitoring; Air Stripping Technologies; Disposal of Residual; Off-Site Treatment; Surface Capping Only; Soil Cover; Pump and Treatment
SITE NAME: OSBORNE LANDFILL NPL STATUS: Final					EPA ID: PAD980712673 SIZE: 15 Acres		ADDRESS: 0.5 MILES E OF TOWN; GROVE CITY, PA 16127 TYPE: Undeveloped Land (Incl. forests, fields, wetlands); Refuse Systems--Open Dump	
02	NA	(RP/FE)	12/29/96	N	GW; SW	NA	NA	NA
SITE NAME: PALMERTON ZINC PILE NPL STATUS: Final					EPA ID: PAD002395887 SIZE: 200 Acres		ADDRESS: 211 FRANKLIN ST; PALMERTON, PA 18071 TYPE: Recycling Waste Oil; Primary Nonferrous Metals; Nonferrous Foundries	
02	NA	(RP/F/FE)	12/31/96	N	DB; GW; SD; SO; SW	NA	NA	Steam Stripping; Monitoring; Surface Capping Only; Temporary On-Site Storage
03	NA	(RP/FE)	12/31/97	N	MS; SO	NA	NA	NA
04	NA	(F/RP)	9/30/99	N	GW; SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: PAOLI RAIL YARD NPL STATUS: Final					EPA ID: PAD980692594 SIZE: 10 Acres		ADDRESS: RR SERVICE SHOP; PAOLI, PA 19301 TYPE: Railroads, Line-Haul Operating	
01	NA	(RP/FE)	6/30/96	Y	AI; DB; GW; LW; SD; SL; SO	35,000 cy; 3,000 cy; 28,000 ft	PCBs; VOCs	Monitoring; Decontamination; Disposal of Residual; Off-Site Treatment; Recycling; Leachate Treatment; Steam Stripping; Surface Capping Only; Solidification and Stabilization; Pump and Treatment
SITE NAME: PUBLICKER INDUSTRIES INC NPL STATUS: Final					EPA ID: PAD981939200 SIZE: 37 Acres		ADDRESS: 3223 S DELAWARE AVE; PHILADELPHIA, PA 19148 TYPE: NA	
03	SOIL AND GROUND WATER	(F)	12/30/95	NA	GW; MS; SD; SO	NA	NA	NA
SITE NAME: RECTICON/ALLIED STEEL CORP NPL STATUS: Final					EPA ID: PAD002353969 SIZE: 5 Acres		ADDRESS: RTE 724 & WELLS RD; PARKER FORD, PA 19457 TYPE: Nonresidential Building Operators	
01	NA	(RP/FE)	6/30/95	Y	GW; SD; SO	NA	METALS; VOCs	Leachate Treatment; Off-Site Treatment
02	SOIL REMEDIATION	(RP)	12/30/95	NA	SO	NA	NA	NA
03	GROUND WATER REMEDIATION	(RP)	12/30/95	NA	GW	NA	NA	NA
SITE NAME: RESIN DISPOSAL NPL STATUS: Final					EPA ID: PAD063766828 SIZE: 45 Acres		ADDRESS: TOP OF STILLEY AVE; JEFFERSON BORO, PA 15025 TYPE: Abandoned - No Use	
01	NA	(PS/FE/RP)	6/30/95	Y	AI; DB; GW; LW; SD; SO; SW	62,900 cy	VOCs; ACID; DNAPLs; PLASTICS; CREOSOTES; OTHER ORGANICS	Monitoring; Surface Capping Only; Disposal of Residual; Pump and Treat at POTW with Discharge; Off-Site Treatment; Recycling; Steam Stripping; Leachate Treatment
02	NA	(RP/FE)	9/30/97	N	GW	NA	NA	NA
SITE NAME: REVERE CHEMICAL CO NPL STATUS: Final					EPA ID: PAD051395499 SIZE: 10 Acres		ADDRESS: LONELY COTTAGE RD; NOCKAMIXON, PA 18972 TYPE: Abandoned - No Use	
01	NA	(RP/FE/F)	12/31/95	Y	DB; MS; RC; SO; ST	NA	NA	Vacuum Extraction
02	NA	(RP/FE)	5/30/97	N	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: RIVER ROAD LANDFILL/WASTE MNGMNT, INC NPL STATUS: Final				EPA ID: PAD000439083 SIZE: 102 Acres		ADDRESS: RTE 846 RIVER RD; SHARPSVILLE, PA 16146 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	NA (RP/FE)	12/28/97	N	SD; SL	NA	NA	NA
SITE NAME: RODALE MANUFACTURING CO., INC NPL STATUS: Final				EPA ID: PAD981033285 SIZE: 0.1 Acre		ADDRESS: 6TH & MINOR STS; EMMAUS, PA 18049 TYPE: Unknown	
01	NA (RP/F)	6/30/97	N	GW	NA	NA	NA
SITE NAME: SAEGERTOWN INDUSTRIAL AREA NPL STATUS: Final				EPA ID: PAD980692487 SIZE: 100 Acres		ADDRESS: GRANT ST; SAEGERTOWN, PA 16433 TYPE: NA	
01	GW-P&T,SPARGE, SOIL-INCINERATE (RP/FE)	3/31/96	Y	DB; GW; SL; SO	9,000 cy; 9,300,000 gal.; 1,818,000 gal.; 9,000 cy	VOCs	Decontamination; Incineration with On-Site Disposal of Residual; Off-Site Treatment; Solidification and Stabilization; Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Recycling; Steam Stripping; Thermal Treatment with On-Site Placement; Monitoring
02	LINK TO 01 ROD (RP)	9/30/95	NA	NA	NA	NA	NA
SITE NAME: SHRIVER'S CORNER NPL STATUS: Final				EPA ID: PAD980830889 SIZE: 10 Acres		ADDRESS: RD #6 ALONG RTE 394; GETTYSBURG, PA 17325 TYPE: Unknown	
01	GROUNDWATER & SOIL (RP/FE)	7/27/97	N	GW; SO	NA	NA	NA
SITE NAME: STANLEY KESSLER NPL STATUS: Final				EPA ID: PAD014269971 SIZE: 2 Acres		ADDRESS: 103 QUEENS DR; KING OF PRUSSIA, PA 19406 TYPE: Recycling Waste Oil	
01	NA (F/RP)	9/30/96	Y	GW	NA	NA	Pump and Treatment; Institutional Controls
SITE NAME: STRASBURG LANDFILL NPL STATUS: Final				EPA ID: PAD000441337 SIZE: 22 Acres		ADDRESS: STRASBURG RD; NEWLIN TWP, PA 19320 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	CAP & LEACHATE COL. SYSM (F/RP)	12/30/95	Y	AI; DB; GW; LW; SD; SO	NA	VOCs	Monitoring; Surface Capping Only; Disposal of Residual; Thermal Treatment with On-Site Placement

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Name	(Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: TOBYHANNA ARMY DEPOT NPL STATUS: Final					EPA ID: PA5213820892 SIZE: 1,408 Acres		ADDRESS: ATTN SDSTO-AF-E; TOBYHANNA, PA 18466 TYPE: Misc.; Industrial Equipment; Sanitary Services--Wastewater Treatment Plant; Water Supply--Groundwater Supply	
01	SOIL AND GROUNDWATER	(FF)	12/31/96	N	GW; SO	NA	NA	NA
02	COAL PILE	(FF)	12/31/97	N	SW	NA	NA	NA
03	RCRA CLOSURE AREAS OF CONCERN	(FF)	12/31/96	N	OT	NA	NA	NA
04	VERIF STUD FIRST 11 AREA CON.	(FF)	6/30/97	N	DK	NA	NA	NA
06	OAKES SWAMP	(FF)	6/30/98	N	NA	NA	NA	NA
07	BARNEY'S LAKE	(FF)	6/30/98	N	NA	NA	NA	NA
08	INACTIVE LANDFILL	(FF)	6/30/98	N	NA	NA	NA	NA
SITE NAME: TONOLLI CORP NPL STATUS: Final					EPA ID: PAD073613663 SIZE: 20 Acres		ADDRESS: RTE 54; NESQUEHONING, PA 18240 TYPE: Abandoned - No Use	
01	NA	(RP/FE)	12/30/95	Y	AI; DB; GW; MS; SD; SL; SO	39,000 cy	METALS	Monitoring; Off-Site Treatment; Decontamination; Recycling; Disposal of Residual; Chemical Treatment; Surface Capping Only; PH Neutralization, Other Neutralization; Solidification and Stabilization
SITE NAME: TYSONS DUMP NPL STATUS: Final					EPA ID: PAD980692024 SIZE: 5 Acres		ADDRESS: UNOBTAINABLE; UPPER MERION TWP, PA 19406 TYPE: Abandoned - No Use	
03	NA	(RP/FE)	9/30/96	Y (FS)	GW; SW	NA	VOCs	Off-Site Treatment; Monitoring
SITE NAME: UGI COLUMBIA GAS PLANT NPL STATUS: Final					EPA ID: PAD980539126 SIZE: 1.5 Acres		ADDRESS: S FRONT & MILL STS; COLUMBIA, PA 17512 TYPE: NA	
01	NA	(SR/FE)	3/31/99	N	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.
[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: WELSH LANDFILL **NPL STATUS:** Final					**EPA ID:** PAD980829527 **SIZE:** 8 Acres		**ADDRESS:** WALSH RD; HONEYBROOK, PA 19344 **TYPE:** Tire Retreading and Repair Shops; Recycling Waste Oil; Other; Refuse Systems--Co-disposal Landfill	
01	LANDFILL CAP	(S/F)	6/30/96	Y	DB; GW; SD; SO; ST	NA	METALS; VOCs	Monitoring; Surface Capping Only
04	NA	(F/RP)	6/30/99	N	DK	NA	NA	NA
SITE NAME: WESTINGHOUSE ELECTRONIC (SHARON PLANT) **NPL STATUS:** Final					**EPA ID:** PAD005000575 **SIZE:** 50 Acres		**ADDRESS:** 469 SHARPSVILLE AVE; SHARON, PA 16146 **TYPE:** General Warehousing and Storage	
01	THE SITE (EXCLUDING LNAPL)		9/28/98		GW	NA	NA	NA
SITE NAME: WESTINGHOUSE ELEVATOR CO. PLANT **NPL STATUS:** Final					**EPA ID:** PAD043882281 **SIZE:** 85 Acres		**ADDRESS:** 1200 BIGLERSVILLE RD, RTE 34 N; GETTYSBURG, PA 17325 **TYPE:** Industrial Equipment	
01	NA	(PS/FE/RP)	6/30/96	N	GW; LW	NA	VOCs; DNAPLs	Monitoring; Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Off-Site Treatment; Recycling; Pump and Treatment
SITE NAME: WHITMOYER LABORATORIES **NPL STATUS:** Final					**EPA ID:** PAD003005014 **SIZE:** 175 Acres		**ADDRESS:** 19 N RAILROAD ST; MYERSTOWN, PA 17067 **TYPE:** Abandoned - No Use	
02	NA	(F/RP)	6/30/95	Y (FS)	DB; LW; MS; SI; SL; ST	230,900 gal.; 20,402 gal.; 919,100 gal.; 4,848,000 gal.; 747 cy	METALS; VOCs	Incineration with On-Site Disposal of Residual; Off-Site Treatment; Incineration and Disposal; Solidification and Stabilization; Other/Unknown/Undetermined Technology
03	NA	(F/RP)	12/31/97	Y (FS)	DB; GW; SD; SO	121,000 cy	METALS; VOCs; CREOSOTES; DNAPLs; OTHER ORGANICS	Off-Site Treatment; Disposal of Residual; Monitoring; Biodegradation and Bioremediation Treatment; Solidification and Stabilization; Pump and Treatment
04	NA	(RP)	12/31/95	NA	NA	NA	NA	NA
05	NA	(RP)	6/30/96	NA	NA	NA	NA	NA
06	NA	(RP)	6/30/96	NA	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed, the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-5 (continued)
NPL Sites in Pennsylvania at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: WILLIAM DICK LAGOONS NPL STATUS: Final					EPA ID: PAD980537773 SIZE: 10 Acres		ADDRESS: TELEGRAPH RD; W CALN TWP, PA 19376 TYPE: Abandoned - No Use	
01	NA	(RP/FE/F)	1/30/96	Y	GW; OT; SO	NA	METALS; VOCs; DNAPLs; PLASTICS; OTHER ORGANICS	Disposal of Residual; Monitoring; Pump and Treatment
02	NA	(RP)	7/30/96	NA	GW; SO	NA	NA	NA
03	NA	(RP/FE)	2/28/97	Y (FS)	SO	24,000 cy	METALS; PESTICIDES/ HERBICIDES; VOCs	Soil Cover; Disposal of Residual; Leachate Treatment; Off-Site Treatment; Thermal Treatment with On-Site Placement
SITE NAME: YORK COUNTY SOLID WASTE/REFUSE LANDFILL NPL STATUS: Final					EPA ID: PAD980830715 SIZE: 100 Acres		ADDRESS: RD #3 - BOX 426; HOPEWELL TWP, PA 17363 TYPE: Abandoned - No Use; Refuse Systems--Co-disposal Landfill	
01	NA	(PS/FE/RP)	8/12/96	Y	GW	NA	NA	Institutional Controls; Pump and Treatment

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 5-6
RCRA Facilities in Pennsylvania Currently Undergoing Corrective Action[a]

SITE NAME MAILING ADDRESS	EPA ID	SWMU AND UNIT NAMES
AMERICAN COLOR & CHEM CORP MT VERNON ST LOCK HAVEN, PA 17745	PAD003047792	ENTIRE FACILITY
AMP INC RD 2, PO BOX 247 GLEN ROCK, PA 17237-9802	PAD041421223	ENTIRE FACILITY
ATLANTIC REFINING AND MARKETING CORP 3144 PASSYUNK AVE PHILADELPHIA, PA 19145	PAD002289700	LAND TREATMENT
CHEMCLENE CORPORATION 258 N PHOENIXVILLE PIKE MALVERN, PA 19355	PAD014353445	ENTIRE FACILITY AREA 4 & 7
LANCASTER METALS SCIENCE CORP PO BOX 86 EAST PETERSBURG, PA 17520	PAD082434747	ENTIRE FACILITY

[a] Data as of May 1995 from the EPA RCRIS database. See Section 1.8 for a detailed description of data sources.

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6.0 DEMAND FOR REMEDIATION OF SITES IN VIRGINIA

This section is organized into six sections. The first section discusses the authority and organization of the Virginia Department of Environmental Quality (DEQ). The second and third sections discuss the market at sites addressed through the Federal Superfund program and Federal Resource Conservation and Recovery Act (RCRA) corrective action sites respectively. The fourth section discusses opportunities at underground storage tank (UST) sites managed by Virginia. The fifth section reviews the market at Department of Defense (DoD) sites in Virginia. The sixth section presents a brief discussion of other useful information about the market for innovative technologies in Virginia.

Figure 6-1 presents a map of Virginia that indicates the locations of sites in the State that are listed on the NPL, while Figure 6-2 presents the RCRA facilities in the State[1]. NPL sites and RCRA facilities are evenly distributed across Virginia.

Summary Information

The State does not have a program to manage abandoned hazardous waste sites. The U.S. Environmental Protection Agency (EPA) manages an inventory of 18 Superfund National Priorities List (NPL) sites at which remediation activities have not yet begun. Ten RCRA facilities are under a requirement to conduct a RCRA facility investigation (RFI). Current data on USTs indicate that 38 UST sites in the State are in need of cleanup. There are currently 243 sites at 27 DoD installations at which cleanup activities are planned.

Some innovative technology use has occurred at Superfund NPL sites in Virginia. According to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, technologies selected include soil vapor extraction and thermal desorption.

6.1 The Virginia Hazardous Waste Management Program

Virginia operates its hazardous waste management program under the Waste Management Act (Virginia Code § 10.1-1400 - 10.1-1457 as amended). That legislation is the authority under which the State operates the RCRA base program. The Air, Water, and Waste Management Program of

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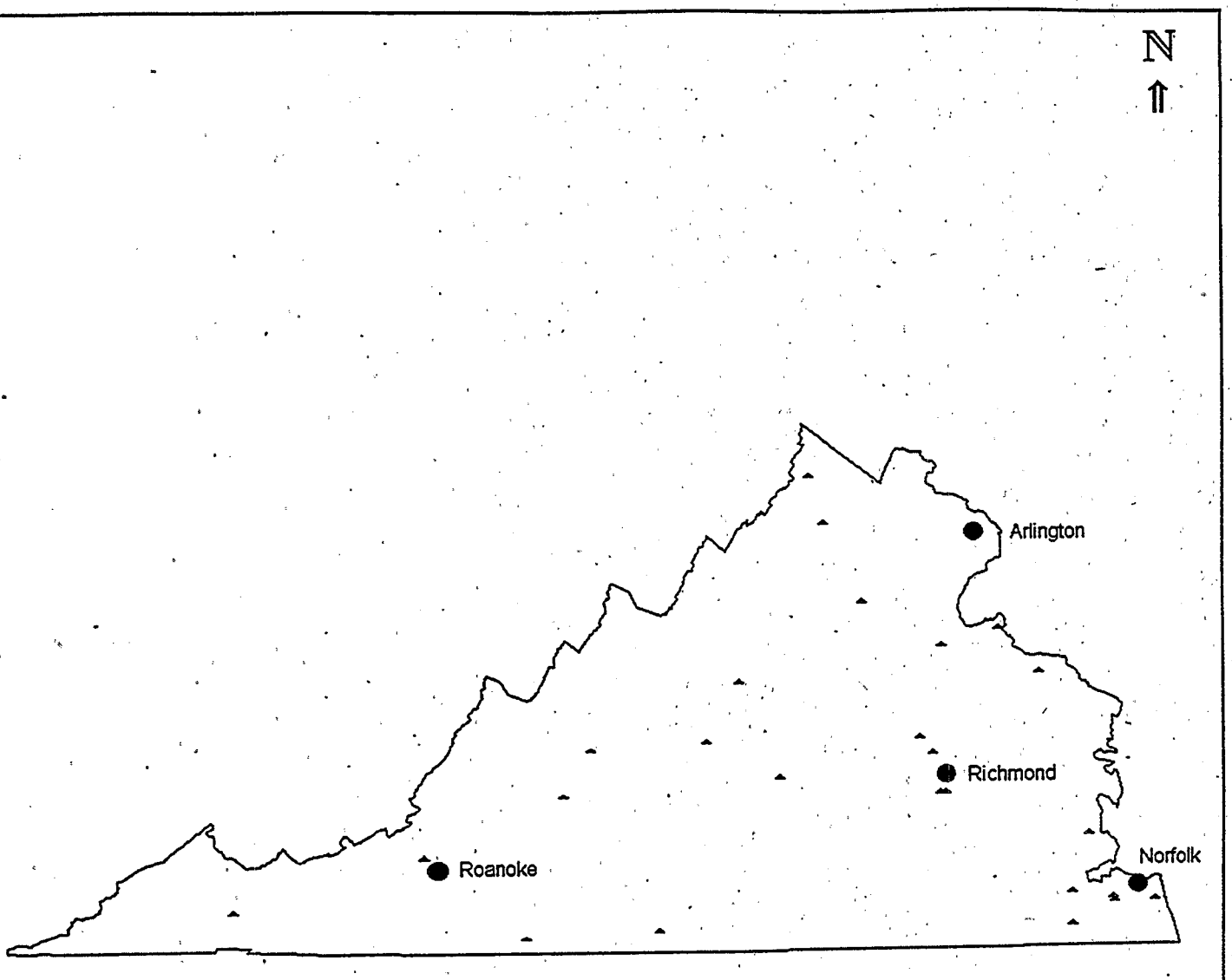
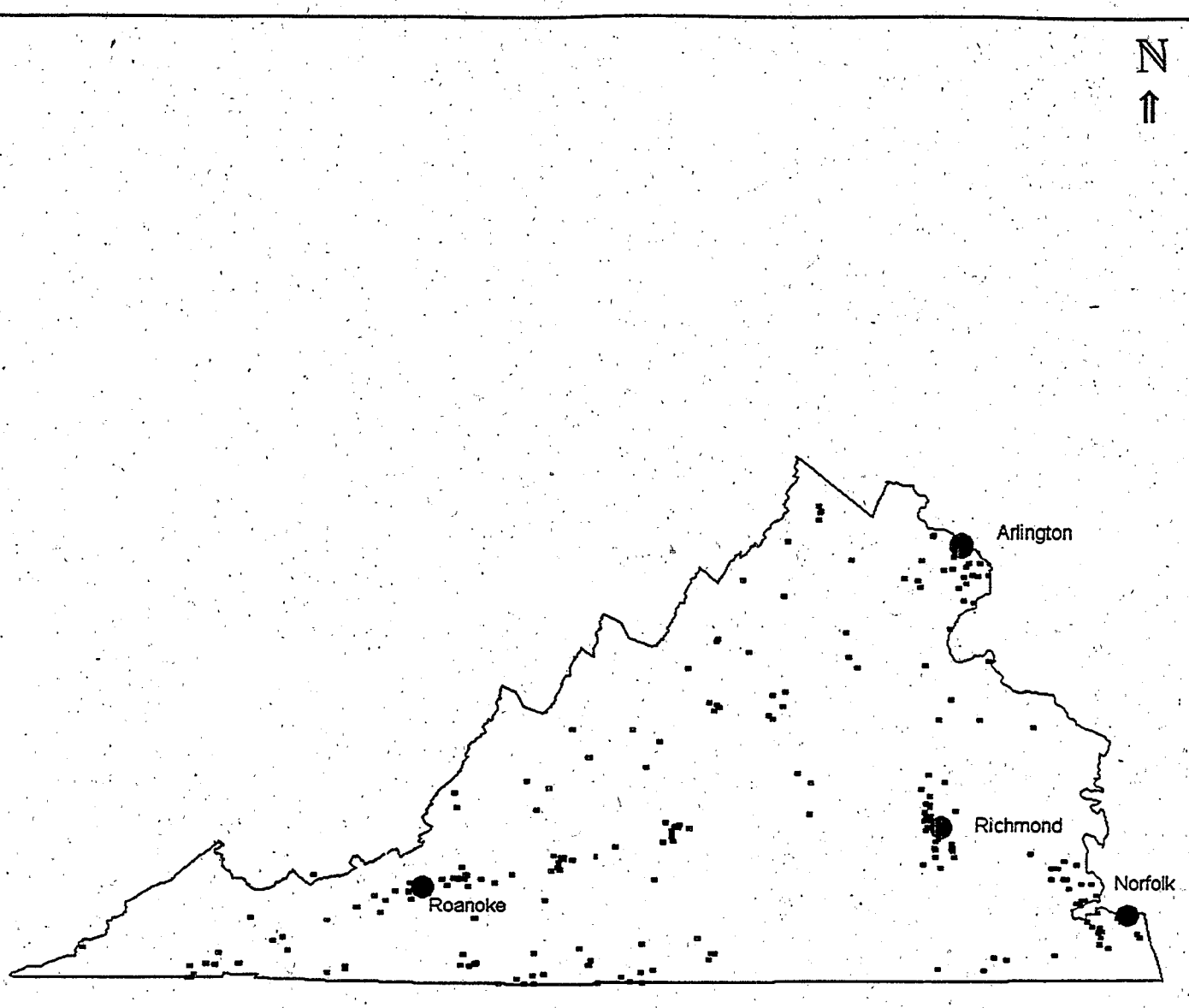
1 Figures 6-1 and 6-2 do not indicate the locations of *all* NPL sites or *all* RCRA facilities located in Virginia. LandView II™ contains information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on NPL sites and other sites. It also contains information from the Biennial Reporting System (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 6-1
NPL Sites in Virginia



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 6-2
RCRA Facilities in Virginia

DEQ is responsible for managing the RCRA base program. Virginia does not have Federal authority to operate the RCRA corrective action program, nor is there a similar State program. However, State staff do assist EPA staff with inspection activities under RCRA. Currently, there are approximately 25 staff working on hazardous waste issues at the State's regional offices and headquarters (PRC 1995l). Virginia no longer has a program to manage abandoned hazardous waste sites, but they are inventorying abandoned waste sites (PRC 1995y).

The Virginia DEQ Water Division administers the UST Program in Virginia. Virginia's UST regulations expand on the Federal regulations by:

- Regulating all heating oil tanks of a capacity of less than 5,000 gallons
- Requiring notification by owners of USTs that remain in the ground, but were taken out of service before January 1, 1974
- Creating the Virginia Petroleum Storage Tanks Fund for cleanups and third-party claims
- Allowing the UST Owners and Operators Fund to demonstrate financial responsibility for corrective action and third-party liability for the Federal $500,000-$1 million per occurrence and $1-$2 million annual aggregate financial assurance requirements.

The management organization of the program consists of the headquarters office of the DEQ UST program in Richmond and six regional offices. (Office addresses are provided in Section 6.6.) The central office is responsible for policy development, database management, and tank registration and compliance. The regional offices are responsible for the implementation of the program.

DEQ is now in the process of establishing a Voluntary Remediation Program (VRP) to begin addressing abandoned sites in the State. The purpose of the VRP is to promote timely remediation of waste sites that might not otherwise receive any formal oversight and provide a mechanism for contaminated properties to return to an economically productive state. The voluntary remediation legislative bill was passed by the Virginia General Assembly in the Spring of 1995. According to the statute, eligible participants include "persons who own, operate, or have a security interest in or who have entered into contract for the purchase of contaminated property to voluntarily remediate hazardous substances, hazardous waste, solid waste, or petroleum."

DEQ will promulgate regulations on the program by July 1997 with provisions that the candidate sites are not under any other regulatory jurisdiction. The program is now operating on an interim process, administered on a case-by-case basis. This interim program is comprised of an application, an agreement, a registration fee, remedial investigation, corrective measures study, corrective measure implementation, remedial completion report, and a satisfactory completion of remediation certification. The application is a formal statement of intent which includes the site history. The application is non-binding; however, it establishes the relationship between DEQ and the participant. There is a registration fee to defray the cost of the program which is not to exceed the lesser of $5,000 or one percent of the total cost of remediation. The remedial investigation identifies the waste units and characterizes any releases (constituents, extent, and magnitude). The corrective measures study outlines the remediation standards (endpoint determination) and remediation technology. Once the corrective measures study is approved, implementation of the plan occurs. When the implementation is completed, a final report with a project summary, confirmation of sampling results, and any administrative requirements outlined in the original plan is required. Upon DEQ acceptance of the completion report, the State issues a "Certification of Satisfactory Completion of Remediation." This certification constitutes an immunity for the recipient to enforcement action under State law.

6.2 The Market at Abandoned Sites Managed Under the Federal Superfund Program

EPA has listed 24 sites in Virginia on the NPL. Table 6-1 provides a summary of the current status of NPL sites in Virginia, including the number of remedial investigations and feasibility studies (RI/FS), remedial designs (RD), remedial actions (RA), and removals that are planned, in progress, or complete. **Table 6-2, found at the end of the section,** provides information on the individual NPL sites in Virginia at which marketing opportunities exist.

Of the 24 NPL sites in Virginia, remedial action has not yet started at 18 of the sites. Fourteen of the 18 sites are in the pre-design phase. These sites present the best opportunities for innovative technology vendors because technologies have not yet been selected. Even at those sites where a remedy has been selected but no technology vendor has been chosen, some market opportunities may exist. Six of these sites are located at DoD installations and are included in Table 6-1, however, they are discussed in more detail in Section 6.5. The discussion in this section focuses on the 12 non-Federal NPL sites.

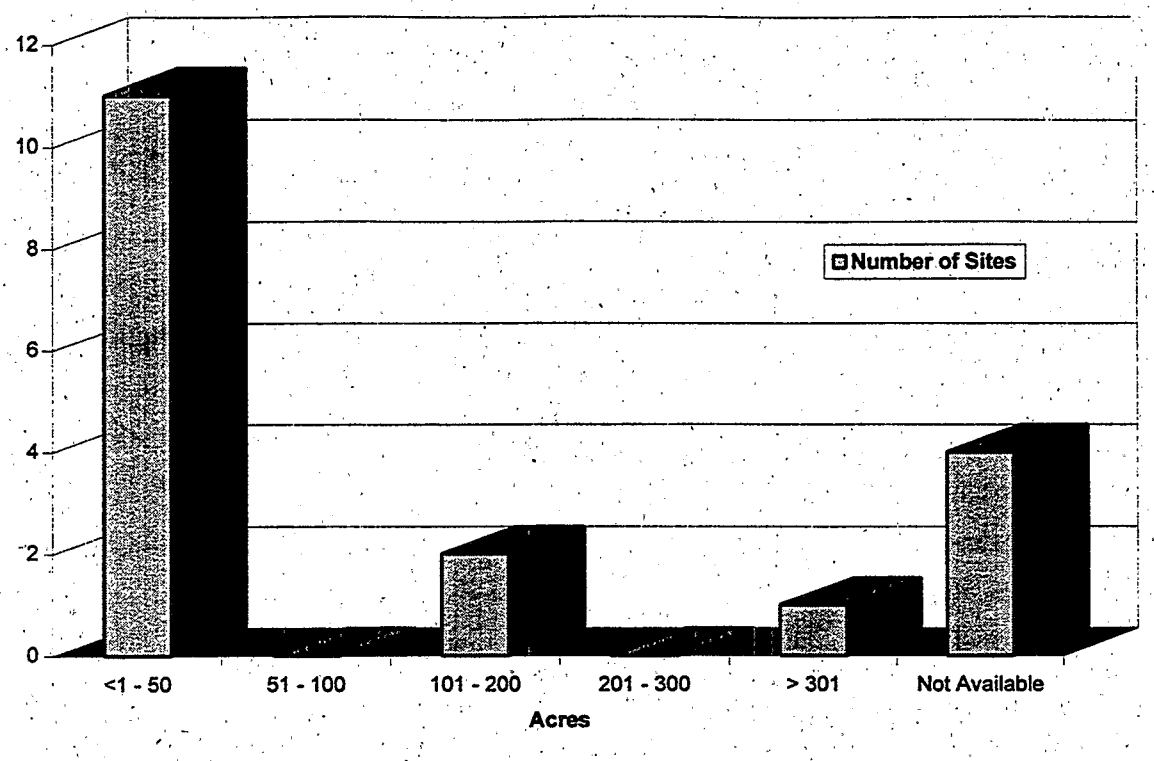
Table 6-1
Number of Sites and Operable Units at Federal NPL Sites in Virginia

Phase of Activity	Number of Sites	Number of Operable Units
Remedial Investigations/Feasibility Studies		
Planned	8	18
In Progress	12	23
Complete (RD not started)	3	3
Remedial Designs		
Planned	14	29
In Progress	5	5
Complete (RA not started)	1	1
Remedial Actions		
Planned	18	34
In Progress	10	12
Complete	5	8
Removals		
Started	12	12
Complete	11	11

Source: Data as of May 1995 from EPA CERCLIS database; see Section 1.8 for a detailed description of the data sources.

Contaminants and contaminated media identified at the sites include metals in soils, sludge, and groundwater; volatile organic compounds (VOC) and pesticides in soil, surface water, and groundwater; polynuclear aromatic hydrocarbons (PAH) and polynuclear aromatics (PNA) in soil, sludge, refuse, and groundwater; and polychlorinated biphenyls (PCB) and dioxin in soils and surface water. According to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, innovative technologies selected include thermal desorption and soil vapor extraction. Figure 6-3 presents the data available on the distribution of sizes of the NPL sites in Virginia. The sites range in size from 1 to 321 acres. More than 75 percent of the sites for which data are available are less than 50 acres in area.

Figure 6-3
NPL Site Size Distribution in Virginia



6.3 The Market at RCRA Corrective Action Sites

Although Virginia is authorized to issue RCRA Part B hazardous waste management permits for hazardous waste facilities, it is not authorized to administer the corrective action program; all corrective action activities are managed by EPA Region 3. Virginia does not have a separate State-mandated corrective action program for operating hazardous waste facilities. Data from the Resource Conservation and Recovery Information System (RCRIS) database indicate there are 98 RCRA treatment, storage, and disposal (TSD) facilities in the State: 48 land disposal units, 8 incinerators, and 64 storage and treatment units[2]. Ten of the RCRA facilities currently require corrective action. The definition of requiring corrective action used here is that a facility has been required to perform a CMS. **Table 6-3, found at the end of this section,** lists facilities, with their mailing addresses, that are scheduled to undergo corrective action in the future. The number of facilities with a CMS imposed is not a direct subset of RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. In 9 of the 10 cases, the

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2 A facility may be included in more than one of these categories.

entire facility is listed as subject to CMS; at one site a requirement for a CMS was imposed for groundwater. Most of the facilities house manufacturing operations. One military installation, Naval Air Station Oceana (NAS Oceana) and two oil refineries also are on the list.

Data were available in RCRIS for only one facility that indicate the media contaminated (groundwater); in no case did RCRIS have data identifying contaminants for the sites in Virginia. Names of the solid waste management unit (SWMU) identified in RCRIS do not, in this case, give any indication of the nature of the contamination. However, given the types of facilities identified in RCRIS -- oil refineries and storage facilities and a military installation -- it is reasonable to assume that the contaminants of concern would include oil and other petroleum products, solvents (both chlorinated and nonchlorinated), and metals; however, not all the facilities will have all the contaminants. Given that a requirement for a CMS has been imposed, it also is reasonable to assume that, at a minimum, there is contaminated soil present at all 10 facilities.

In addition, 10 facilities are under a requirement to conduct a RCRA facility investigation (RFI). The number of facilities with an RFI imposed is not a direct subset of the RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. As discussed in Section 1.2, these facilities may also provide either a long-term opportunity or near-term opportunity where no CMS is necessary to begin corrective action or corrective activity begins in accordance with the stabilization initiative.

6.4 The Market at UST Sites Managed by the State

The DEQ administers the State program governing USTs. Virginia has 40,312 active tanks, the second largest number in Region 3. Active tanks are defined as tanks still in service (EPA 1995e). Confirmed releases have occurred at about 16 percent of those tanks. As of July 1995, Virginia has reported to EPA's Office of Underground Storage Tanks (OUST) 6,617 confirmed sites. Cleanup has yet to be initiated at 38 of those sites. Table 6-4 below provides information on the number of UST sites in Virginia.

Table 6-4
Underground Storage Tank Corrective Action Measures in Virginia as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
40,312	28,986	6,617	6,579	5,373

The number of USTs identified as opportunities for vendors of innovative technologies will change rapidly because of the combination of rapid increases in the number of confirmed releases and continuing site closures. In national studies by EPA in 1991 and 1992, it was found that the majority, or about 87 percent, of the tanks are used to manage gasoline or diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes, such as used oil (4 percent), hazardous material (2 percent), and other material (5 percent) or are empty (2 percent). The majority of the contamination problems are related to the contamination of soils and groundwater with petroleum products that contain VOCs and semivolatile organic compounds (SVOC) (EPA 1992a, 1992b).

6.5 The Market at Federal Facility Sites in Virginia

As is the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the State where remedial actions are planned. There are 27 active DoD installations and formerly used defense sites (FUDS) in Virginia that currently require remedial activities. At those installations, there are 468 active sites. Of those 468 active sites, DoD currently plans remedial actions at 243 of those sites. The total number of sites to be remediated may exceed that figure because DoD has not yet completed assessment activities at all the installations.

The *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994* (DERP report) estimates that a total of about $686 million in funding is needed through the year 2020 in all phases of the cleanup process at the 27 installations. The bulk of those funds ($128 million) is allocated to Naval Weapons Station Yorktown, with the smallest amount allocated to Cameron Station ($1.443 million). Most of the sites at which remediation is planned are at the remedial investigation and feasibility study (RI/FS) stage.

Six of the DoD installations in Virginia have sites listed on the NPL. At those installations, approximately $392 million in funding is estimated to be needed through the year 2015 for remediation activities. Currently, 127 sites at the six installations are scheduled for remedial action. Because sites identified by DoD in the DERP report are not the same as operable units under the NPL, it is impossible to determine what fraction of the funds is slated for NPL sites at the six installations.

An understanding of the typical activities performed at DoD installations supports the assumption that the majority of contaminants at the sites for which remediation currently is planned fall into one of three broad categories: petroleum, oils, and lubricants (POL), VOCs, or metals. In addition, pesticides, PAHs, and PCBs also have been identified at the six NPL sites. **Table 6-2, found at the end of the section,** provides specific information on the DoD NPL sites. The contaminants mentioned above are found in the soil at all the sites and in the groundwater at a large percentage of the sites. Data on the volumes of soil and groundwater to be treated are not available. Table 6-5 provides information on the individual installations and sites subject to remediation at these installations. Staff at each installation determine the individual sites at which they plan to perform remedial actions. Additional sites may already have cleanup underway; those sites have not been included in the table because it is unlikely that they will afford opportunities to vendors of innovative technologies.

Table 6-5
DoD Installations and Sites in Virginia at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Army Research Laboratory - Woodbridge Outyear Funding FY95-1997 $3,655	VA321002098100	A	0
Cameron Station - Alexandria Outyear Funding FY95-2020 $1,443	VA321002013900	A	2
Fort Belvoir **22060-5000** Outyear Funding FY95-2002 $2,297	VA321002008200	A	1

Table 6-5 (continued)
DoD Installations and Sites in Virginia
at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Fort Eustis **23604-5015** Outyear Funding FY95-2010 $32,912	VA321002032100	A, N	9
Fort Lee **23801-5000** Outyear Funding FY95-2005 $8,246	VA321002050200	A	6
Fort Myer **22211-5050** Outyear Funding FY95-2002 $1,023	VA321002062600	A	0
Fort Story **23459-5000** Outyear Funding FY95-2005 $9,118	VA321002087500	A	4
Radford Army Ammunition Plant Outyear Funding FY95-2010 $40,523	VA321002073000	A	10
Vint Hill Farms Station **Warrenton 22186-5013** Outyear Funding FY95-1998 $10,940	VA321002093100	A	22
Arlington Service Center Outyear Funding FY95-2003 $2,848	VA317009003200	A	3
Chesapeake NSGA NWest **Chesapeake 23322-5000** Outyear Funding FY95-2003 $1,611	VA317002726700	A	1
Command Naval Base Norfolk Outyear Funding FY95-2005 $45,346	VA317006146300	A	14
Craney Island FISC Outyear Funding FY95-2015 $21,618	VA317009000500	A	8

Table 6-5 (continued)
DoD Installations and Sites in Virginia
at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Dahlgreen NSWC **22448-5000** Outyear Funding FY95-2010 $26,753	VA317002468400	A, N	52
Naval Air Station Oceana **Virginia Beach 23460-5012** Outyear Funding FY95-2005 $32.402	VA317002460600	A	10
Naval Amphibious Base Little Creek **Norfolk 23521-5000** Outyear Funding FY95-2003 $19,474	VA317002248200	A	4
Naval Radio Station Driver Outyear Funding FY95-2003 $6,645	VA317002251600	A	2
Naval Shipyard Norfolk **Portsmouth 23709-5000** Outyear Funding FY95-2105 $57,378	VA317002481300	A	7
Naval Weapons Station Yorktown Outyear Funding FY95-2007 $128,297	VA317002417000	A, N	39
Quantico MCCDC **Quantico 22134-5000** Outyear Funding FY95-2005 $93,253	VA317302472200	A, N	8
Williamsburg FISC Cheatham Annex Outyear Funding FY95-2011 $8,252	VA317002460500	A	3
Yorktown FISC Fuels Division Outyear Funding FY95-2003 $9,474	VA317009001700	A	1
Byrd Air National Guard Base Outyear Funding FY95-2005 $4,550	VA357282490400	A	4

Table 6-5 (continued)
DoD Installations and Sites in Virginia
at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Langley Air Force Base **23665-5000** Outyear Funding FY95-2004 $75,177	VA357212447700	A, N	16
DGSC Richmond Outyear Funding FY95-2015 $35,167	VA397152075100	A, N	11
Nansemond Ordnance Depot STP Outyear Funding FY95-2008 $5,567	VA39799F156800	F	2
Virginia State Fuel Farm Outyear Funding FY95-2008 $2,470	VA39799F16880	F	4
All Other Installations $27,505	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

[a] Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

[b] Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.
F = The installation is no longer active and is managed by the FUDS Branch.
N = The site is listed on the final National Priorities List.

6.6 Further Market Information for Virginia

A vendor that wishes to bid on any State contract must request a vendor application from the Department of Purchase and Supply at (804) 786-6152. The vendor uses that form to register in the State as a vendor interested in bidding on state procurements. A vendor can learn about upcoming procurements from newspapers.

A vendor that wishes to obtain information about sites in Virginia that are managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA Programs. For information on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requestor will be billed for the information, depending on the volume of information.

Those interested in inquiring about the Voluntary Remediation Program (VRP) should contact:

Kevin Green
Virginia Department of Environmental Quality
Waste Division
629 East Main Street
Richmond, VA 23219
(804) 698-4236

Information is also available on the names and addresses of the UST sites in the State currently in need of remediation. A vendor may write to the main office:

Virginia Department of Environmental Quality
Water Quality Division
UST Program
629 East Main Street
Richmond, VA 23219
(804) 698-4000

Any of the offices below also can provide information on UST sites. There may be a charge for each report requested.

Regional Offices

Department of Environmental Quality
Northern Regional Office
1549 Old Bridge Road
Suite 108
Woodbridge, VA 22192
(703) 490-8922
(703) 490-6773 (facsimile)
Attn: Chris Byer

Department of Environmental Quality
Piedmont Regional Office
P.O. Box 6030
Glen Allen, VA 23058
(804) 524-5302
(804) 527-5247 (facsimile)
Attn: Marlee Parker

Department of Environmental Quality
Tidewater Regional Office
287 Independence Boulevard
Pembroke Two
Suite 310
Virginia Beach, VA 23462
(804) 552-1840
(804) 552-1849 (facsimile)
Attn: Gene Suidyla

Department of Environmental Quality
West Central Regional Office
P.O. Box 7017
Roanoke, VA 24019
(703) 562-3666
(703) 562-3680 (facsimile)
Attn: Bruce Davidson

Department of Environmental Quality
Valley Regional Office
P.O. Box 268
Bridgewater, VA 22812
(703) 828-2595
(703) 828-4016 (facsimile)
Attn: Kim Mullin

Department of Environmental Quality
Southwest Regional Office
P.O. Box 1688
Abingdon, VA 24212-1688
(703) 676-4800
(703) 676-4899 (facsimile)
Attn: Dan Manweiler

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Table 6-2

NPL Sites in Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: ABEX CORP NPL STATUS: Final					EPA ID: VAD980551683 SIZE: 2 Acres		ADDRESS: RANDOLPH + GREEN ST; PORTSMOUTH, VA 23704 TYPE: Recycling Waste Oil	
01	NA	(PS/FE/RP)	3/31/96	Y	AI; DB; SO	NA	METALS; PCBs; VOCs	Monitoring; Off-Site Treatment; Decontamination; Solidification and Stabilization
02	NA	(RP/FE)	6/30/99	N	GW; SO; SW	NA	NA	NA
SITE NAME: ARROWHEAD ASSOCIATES/SCOVILL CORP NPL STATUS: Final					EPA ID: VAD042916361 SIZE: 25 Acres		ADDRESS: RTE 3; MONTROSS, VA 22520 TYPE: Other	
01	NA	(PS/FE/RP)	12/31/95	Y	AI; GW; SD; SO; SW	NA	VOCs; METALS; OTHER INORGANICS	Monitoring; Air Stripping Technologies; Disposal of Residual; Leachate Treatment; Off-Site Treatment; Precipitation; Steam Stripping
SITE NAME: ATLANTIC WOOD INDUSTRIES, INC NPL STATUS: Final					EPA ID: VAD990710410 SIZE: 15 Acres		ADDRESS: 3550 ELM ST; PORTSMOUTH, VA 23704 TYPE: Wood Preserving	
01	ONSITE SOILS	(RP/FE)	7/01/98	N	SO	NA	NA	NA
02	GROUNDWATER AND OFF-SITE	(RP/FE)	6/30/99	N	GW	NA	NA	NA
SITE NAME: AVTEX FIBERS, INC NPL STATUS: Final					EPA ID: VAD070358684 SIZE: 130 Acres		ADDRESS: BOX 1169 KENDRICK LN; FRONT ROYAL, VA 22630 TYPE: Sanitary Services--Wastewater Treatment Plant	
06	RI/FS - EPA	(RP/F)	6/30/00	N	DK	NA	NA	NA
07	RI/FS PRP	(RP/FE)	6/30/99	N	DK	NA	NA	NA
SITE NAME: BUCKINGHAM COUNTY LANDFILL NPL STATUS: Final					EPA ID: VAD089027973 SIZE: 8 Acres		ADDRESS: ST RTE 640 W OF US RTE 15; DILLWYN, VA 23936 TYPE: Refuse Systems--Co-disposal Landfill	
01	RCRA AREA	(RP/FE)	12/31/96	Y	GW; RC; SL; SO; ST	NA	NA	NA
SITE NAME: CULPEPER WOOD PRESERVERS, INC NPL STATUS: Final					EPA ID: VAD059165282 SIZE: 20 Acres		ADDRESS: RTE 666; CULPEPER, VA 22701 TYPE: Wood Preserving	
01	NA	(F/FE/RP)	3/30/98	Y	DB; GW; LW; SO; SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 6-2 (continued)
NPL Sites in Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: DEFENSE GENERAL SUPPLY CENTER NPL STATUS: Final					EPA ID: VA3971520751 SIZE: 321 Acre		ADDRESS: JEFFERSON DAVIS HWY; RICHMOND, VA 23297 TYPE: Misc.	
02	AREA 50 SOURCE AREA	(FF)	12/31/97	N	AI; DB; LW; RC; SO; ST	NA	NA	NA
03	NATL. GUARD SOURCE AREA	(FF)	9/30/96	N	SO	NA	NA	NA
04	FIRE TRNG. SOURCE AREA	(FF)	9/30/97	N	AI; RC; SO; ST	NA	NA	NA
05	ACID NEUTRALIZATION PIT	(FF)	2/15/94	Y	SO	NA	METALS; VOCs	Air Stripping Technologies; Surface Capping Only; Disposal of Residual; Leachate Treatment; Monitoring
06	AREA 50/NATL. GUARD GW	(FF)	9/30/97	N	AI; GW	NA	NA	NA
07	FIRE TRNG. AREA GW	(FF)	9/30/96	N	AI; GW	NA	NA	NA
08	ACID NEUT. PIT GW	(FF)	3/31/97	N	AI; GW	NA	NA	NA
SITE NAME: FORT EUSTIS (US ARMY) NPL STATUS: Proposed					EPA ID: VA6210020321 SIZE: NA		ADDRESS: FT EUSTIS; NEWPORT NEWS, VA 23604 TYPE: NA	
01	NA	(FF)	9/30/99	N	NA		NA	NA
SITE NAME: GREENWOOD CHEMICAL CO NPL STATUS: Final					EPA ID: VAD003125374 SIZE: 15 Acres		ADDRESS: PO BOX 26 OFF STATE RTE 690; GREENWOOD, VA 22943 TYPE: Abandoned - No Use	
02	NA	(F/RP)	12/31/95	Y	GW	NA	VOCs	Precipitation; Off-Site Treatment; Steam Stripping; Thermal Treatment with On-Site Placement; Monitoring
SITE NAME: GREENWOOD CHEMICAL CO NPL STATUS: Final					EPA ID: VAD003125374 SIZE: 15 Acres		ADDRESS: PO BOX 26 OFF STATE RTE 690; GREENWOOD, VA 22943 TYPE: Abandoned - No Use	
04	NA	(F/RP)	6/30/98	N	SD; SO	NA	NA	NA
SITE NAME: H & H INC., BURN PIT NPL STATUS: Final					EPA ID: VAD980539878 SIZE: 1 Acre		ADDRESS: 10 MILES N RTE 33; MONTPELIER, VA 23192 TYPE: Abandoned - No Use	
01	NA	(F/RP)	6/30/97	N	GW; SD; SO	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.
[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 6-2 (continued)

NPL Sites in Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: L.A. CLARKE & SON NPL STATUS: Final					EPA ID: VAD007972482 SIZE: 10 Acres		ADDRESS: RTE 608; SPOTSYLVANIA, VA 22553 TYPE: Abandoned - No Use	
04	NA	(RP)	6/30/95	NA	SD	NA	NA	NA
SITE NAME: LANGLEY AFB/NASA LANGLEY RESEARCH CENTER NPL STATUS: Final					EPA ID: VA2800005033 SIZE: NA		ADDRESS: BACK RIVER PENINSULA/MAIL CODE 429; HAMPTON, VA 23665 TYPE: NA	
03	TABBS CREEK	(FF)	12/31/99	N	NA	NA	NA	NA
SITE NAME: NAVAL SURFACE WARFARE - DAHLGREN NPL STATUS: Final					EPA ID: VA7170024684 SIZE: NA		ADDRESS: 2 MI E OF INTER 301 & 206; DAHLGREN, VA 22448 TYPE: Ordnance Testing and Maintenance; Misc.; Recycling Waste Oil; Undeveloped Land (Incl. forests,fields,wetlands)	
01	HG CONTAMINATION	(FF)	3/31/96	N	GW; LW; SD; SO; ST	NA	METALS; PCBs; PAHs	NA
02	DISPOSAL BURN AREA	(FF)	9/30/96	N	NA	NA	NA	NA
03	FENCED ORDNANCE AREA	(FF)	12/31/96	N	NA	NA	NA	NA
04	CHEMICAL BURN AREA	(FF)	9/30/96	N	NA	NA	NA	NA
05	LANDFILLS	(FF)	1/ 3/02	N	NA	NA	NA	NA
06	REMAINING SOURCES	(FF)	1/ 3/03	N	NA	NA	NA	NA
SITE NAME: NAVAL WEAPONS STATION - YORKTOWN NPL STATUS: Final					EPA ID: VA8170024170 SIZE: NA		ADDRESS: US NAVAL WEAPONS STA; YORKTOWN, VA 23690 TYPE: Ordnance Production and Storage	
02	SITES 6,7,12,16,SSA 16 & BCKGD	(FF)	12/31/98	N	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 6-2 (continued)
NPL Sites in Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: RENTOKIL, INC. (VA WOOD PRESERVING DIV) NPL STATUS: Final					EPA ID: VAD071040752 SIZE: 4 Acres		ADDRESS: OAKVIEW AVE & PEYTON STS; RICHMOND, VA 23228 TYPE: Undeveloped Land (Incl. forests, fields, wetlands); Other	
01	ENTIRE SITE	(RP/FE)	3/31/96	Y	DB; GW; SD; SL; SO; SW	NA	METALS; PESTICIDES/ HERBICIDES; VOCs	Decontamination; Off-Site Treatment; Disposal of Residual; Precipitation; Leachate Treatment; Recycling; Monitoring; Surface Capping Only; Incineration with On-Site Disposal of Residual; Steam Stripping; Solidification and Stabilization; Thermal Treatment with On-Site Placement
SITE NAME: RHINEHART TIRE FIRE DUMP NPL STATUS: Final					EPA ID: VAD980831796 SIZE: 5 Acres		ADDRESS: MT FALLS; WINCHESTER, VA 22601 TYPE: Abandoned - No Use	
03	NA	(F)	4/15/98	N	GW; SO	NA	NA	NA
SITE NAME: SALTVILLE WASTE DISPOSAL PONDS NPL STATUS: Final					EPA ID: VAD003127578 SIZE: 125 Acres		ADDRESS: ALLISON GAP RD.; SALTVILLE, VA 24370 TYPE: Abandoned - No Use	
03	DISPOSAL PONDS	(RP/FE)	5/15/98	N	DB; GW; SD; SO; SW	NA	METALS	NA
04	RIVER BIOASSESSMENT	(RP/FE)	8/17/99	N	SD; SO; SW	NA	METALS	NA
SITE NAME: SAUNDERS SUPPLY CO NPL STATUS: Final					EPA ID: VAD003117389 SIZE: 4 Acres		ADDRESS: KINGS HWY BY CRITTENDEN & GODW; CHUCKATUCK, VA 23432 TYPE: Lumber and Other Building Materials	
01	NA	(F)	3/31/96	Y	DB; GW; MS; SD; SL; SO; SW	NA	METALS; PESTICIDES/ HERBICIDES; VOCs	Off-Site Treatment; Solidification and Stabilization; Disposal of Residual; Monitoring; Leachate Treatment; Steam Stripping

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 6-3
RCRA Facilities in Virginia Currently Undergoing Corrective Action[a]

SITE NAME MAILING ADDRESS	EPA ID	SWMU AND UNIT NAMES
AMOCO OIL CO PO BOX 24008 RICHMOND, VA 23224	VAD000607879	ENTIRE FACILITY
AMOCO OIL CO YORKTOWN REFINERY PO BOX 578 YORKTOWN, VA 23690	VAD050990357	ENTIRE FACILITY
BABCOCK & WILCOX - N N F D PO BOX 785 LYNCHBURG, VA 24505-0785	VAD046960449	ENTIRE FACILITY
BAYER CORP. MOBAY ROAD PITTSBURGH, PA 15205	VAD003379062	GROUNDWATER MOBAY-DAMASCUS
BREAZER MATERIALS & SERVICES, INC. 436 SEVENTH AVENUE, SUITE 1150 PITTSBURG, PA 15129	VAD003121977	ENTIRE FACILITY
GENICOM CORPORATION 1 GENICOM DR WAYNESBORO, VA 22980	VAD003132438	ENTIRE FACILITY
I T T ELECTRO-OPTICAL PRODUCTS 7635 PLANTATION RD NW ROANOKE, VA 24019	VAD003123072	ENTIRE FACILITY

[a] Data as of May 1995 from the EPA RCRIS database. See Section 1.8 for a detailed description of data sources.

Table 6-3 (continued)
RCRA Facilities in Virginia Currently Undergoing Corrective Action[a]

SITE NAME MAILING ADDRESS	EPA ID	SWMU AND UNIT NAMES
I T T-EOPD 7635 PLANTATION RD, NW ROANOKE, VA 24019	VAD980550909	ENTIRE FACILITY
NAVAL AIR STATION OCEANA VIRGINIA BEACH, VA 23460	VA2170024606	ENTIRE FACILITY
STAR ENTERPRISE 4 EXECUTIVE PARK EAST, NE ATLANTA, GA	VA988203360	ENTIRE FACILITY

a Data as of May 1995 from the EPA RCRIS database. See Section 1.8 for a detailed description of data sources.

7.0 DEMAND FOR REMEDIATION OF SITES IN WEST VIRGINIA

This section is organized in six sections. The first section discusses the State hazardous waste management program and its regulatory authority. The second and third sections discuss the market at sites addressed through the Federal Superfund program and the Federal Resource Conservation and Recovery Act (RCRA) corrective action sites respectively. The fourth section discusses underground storage tank (UST) sites in the State. The fifth section discusses the market at Department of Defense (DoD) sites in West Virginia that require remediation. The sixth section of the chapter presents further useful information about working in the State.

Figures 7-1 and 7-2 present maps of the State of West Virginia that indicate the locations of sites listed on the NPL and RCRA facilities in the State, respectively[1]. There are only six NPL sites in the State. Four of the six sites are located in the northern part of the State, and the other two sites in the west. The majority of the RCRA facilities in West Virginia are located in the western part of the State, with many located along the Ohio River on the western border.

Some use of innovative technologies has occurred in West Virginia. According to the *Innovative Treatment Technologies: Annual Status Report (Seventh Edition)*, ex situ bioremediation has been applied at a Superfund site in West Virginia.

Summary Information

The U.S. Environmental Protection Agency (EPA) manages six Superfund National Priorities List (NPL) sites in West Virginia. Of those six sites, three are Federal facilities and four are NPL sites that have operable units at which remedial action has not yet begun. There are four RCRA facilities in West Virginia that are subject to a requirement to conduct a corrective measures study (CMS). Three of the State's RCRA facilities are under a requirement to conduct a RCRA facility investigation (RFI). According to the EPA Office of Underground Storage Tanks (OUST), cleanups need to be initiated at 342 confirmed release sites. Finally, there are five active DoD installations and formerly used defense sites (FUDS) located in West Virginia. Of the installations' 53 sites, remediation currently is planned for 50 sites.

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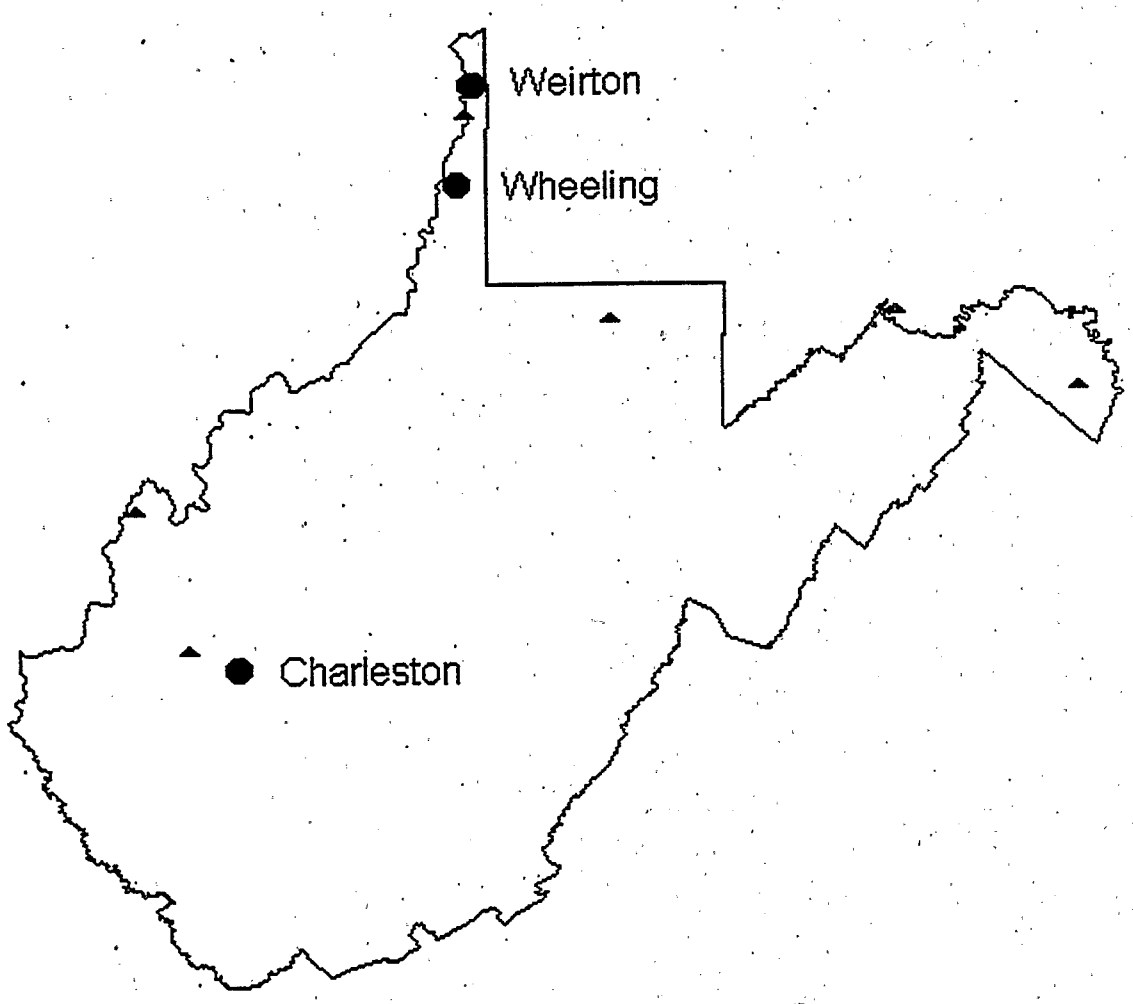
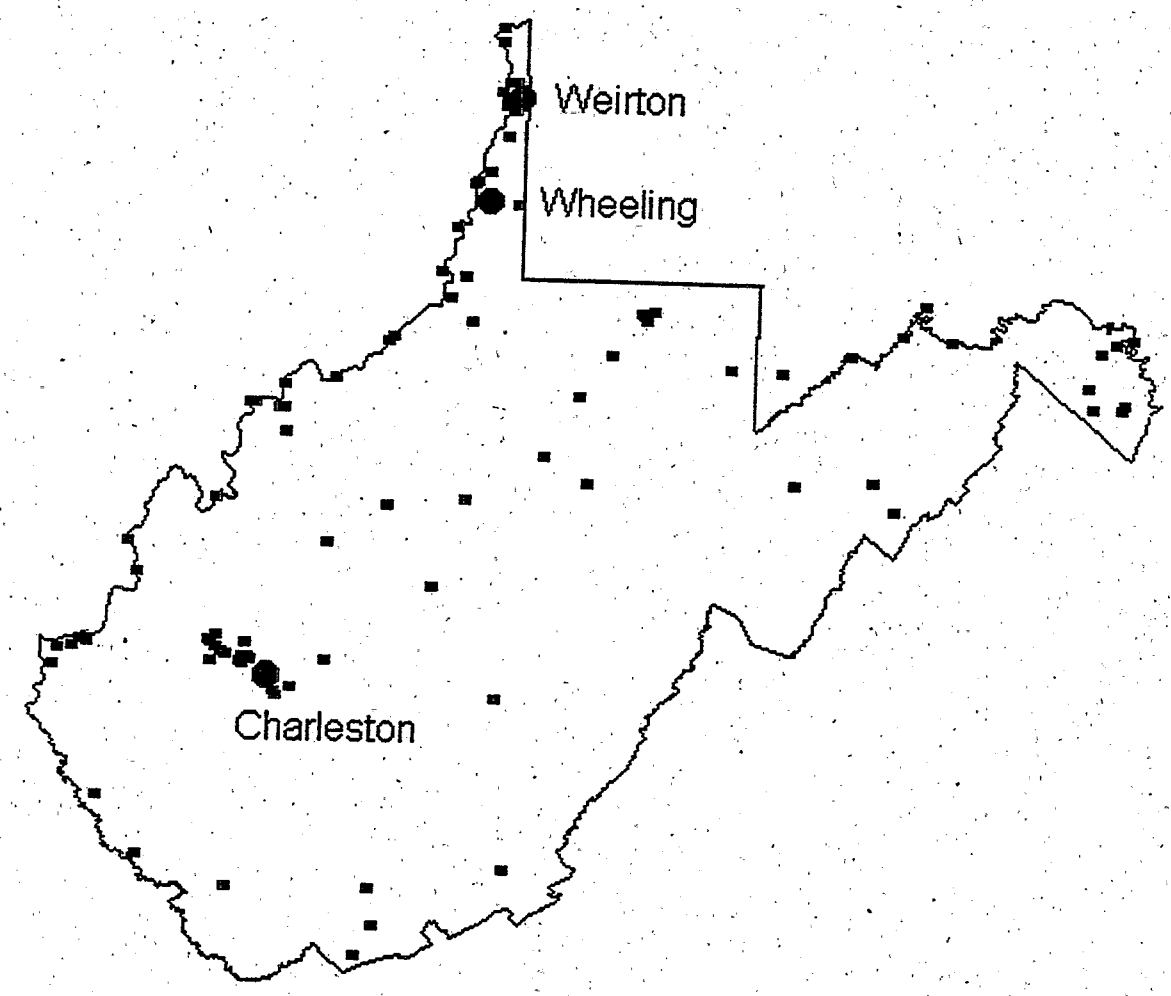
1 Figures 7-1 and 7-2 do not indicate the locations of *all* NPL sites or *all* RCRA facilities located in West Virginia. LandView II™ contains information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on NPL sites and other sites. It also contains information from the Biennial Reporting System (BRS) on treatment, storage, and disposal facilities and major generators of hazardous waste.



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 7-1
NPL Sites in West Virginia



Source: Modified from LandView II, based on data as of September 1994.

Not to Scale

Figure 7-2
RCRA Facilities in West Virginia

7.1 The West Virginia Hazardous Waste Management Program

In 1993, the State of West Virginia established its Bureau of Environment. Within the Bureau of Environment are one division, one commission, and four boards: the Division of Environmental Protection (DEP), the Oil and Gas Conservation Commission, the Solid Waste Management Board, the Air Quality Board, the Environmental Quality Board, and the Surface Mine Board.

Within the DEP are eight offices that report to the director and deputy director, who are supported by other offices. The eight offices are: Abandoned Mine Land, Air Quality, Mining and Reclamation, Oil and Gas, Waste Management, Legal Services, Water Resources, and Administration.

The State of West Virginia has established three statutory authorities governing hazardous waste, all in Volume 8A § 22 Articles 1 through 21 (1981 as amended in 1985, 1989, 1991, and 1994). The *Hazardous Waste Emergency Response Fund Act* establishes a fund for emergency responses and the State's cleanup authorities. According to EPA's *An Analysis of State Superfund Programs: 50-State Study, 1993 Update,* the fund had a balance of $2.2 million at the end of fiscal year 1993. The fund may be used for program administration, site investigation, studies and design, operation and maintenance, emergency response, removals, remedial action, and matching funds under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The *Hazardous Waste Management Act* establishes requirements for disclosure related to property transfer. The *Groundwater Protection Act* establishes groundwater standards that the State may use in establishing cleanup levels.

The West Virginia UST program administers the State's regulations governing USTs and leaking underground storage tanks (LUST), in accordance with Volume 8A § 22 Article 17, effective June 10, 1988. The program is administered by the Office of Waste Management that consists of about 150 administrative, permitting, support, and field staff members throughout the State. The program:

- Requires the registration of tanks and payment of a registration fee
- Establishes standards for USTs
- Provides a certification program for installers and inspectors

- Provides reporting procedures and cleanup requirements for LUSTs
- Provides an insurance fund for cleanups

The management organization of the Office of Waste Management consists of the central office in Charleston and six district offices. The central office is responsible for developing policies, regulations, and procedures; the district offices are responsible for implementing the program.

West Virginia currently is seeking authorization from EPA to implement corrective actions required under RCRA. The State, therefore, has adopted by reference the Federal regulations governing corrective action under RCRA. Currently, the State manages one site under a joint Federal-State agreement.

West Virginia does not have a formal state program that manages abandoned hazardous waste sites, but does on occasion, clean up such sites as deemed necessary to mitigate risks to human health and the environment. These cleanups are funded by the West Virginia Hazardous Waste Emergency Response Fund, which is supported by hazardous waste generator fees.

7.2 The Market at Abandoned Sites Managed Under the Federal Superfund Program

EPA manages six NPL sites in West Virginia. The NPL sites are concentrated in the northern part of the State (see Figure 7-1). **Table 7-1, found at the end of this section,** presents detailed information from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on the four NPL sites in West Virginia at which remediation activities have not yet begun. As of March 1995, no additional sites in the State currently are being considered for listing on the NPL. Of the six sites currently on the NPL, five were listed in the 1980s, and remediation activities are substantially complete at two sites. Table 7-1 indicates that remedial activities at operable units at four NPL sites have not yet begun. Those sites and operable units are of the greatest interest to vendors, as technologies may have been selected, but vendors for the technologies have not. Contamination with metals in both the soil and groundwater is present at the majority of the sites. Contamination with volatile organic compounds (VOC) also is present at several sites. The presence of explosive nitroaromatic compounds also is reported at the West Virginia Ordnance site, a U.S. Army installation.

Several technologies have been selected for use at the sites. Those technologies include, but are not limited to, biodegradation and bioremediation. No data were available on the volumes of contaminated soil or groundwater to be treated.

Table 7-2 summarizes the number of remedial investigations and feasibility studies (RI/FS), remedial designs (RD), remedial actions (RA), and removals that are planned, in progress, or complete throughout West Virginia.

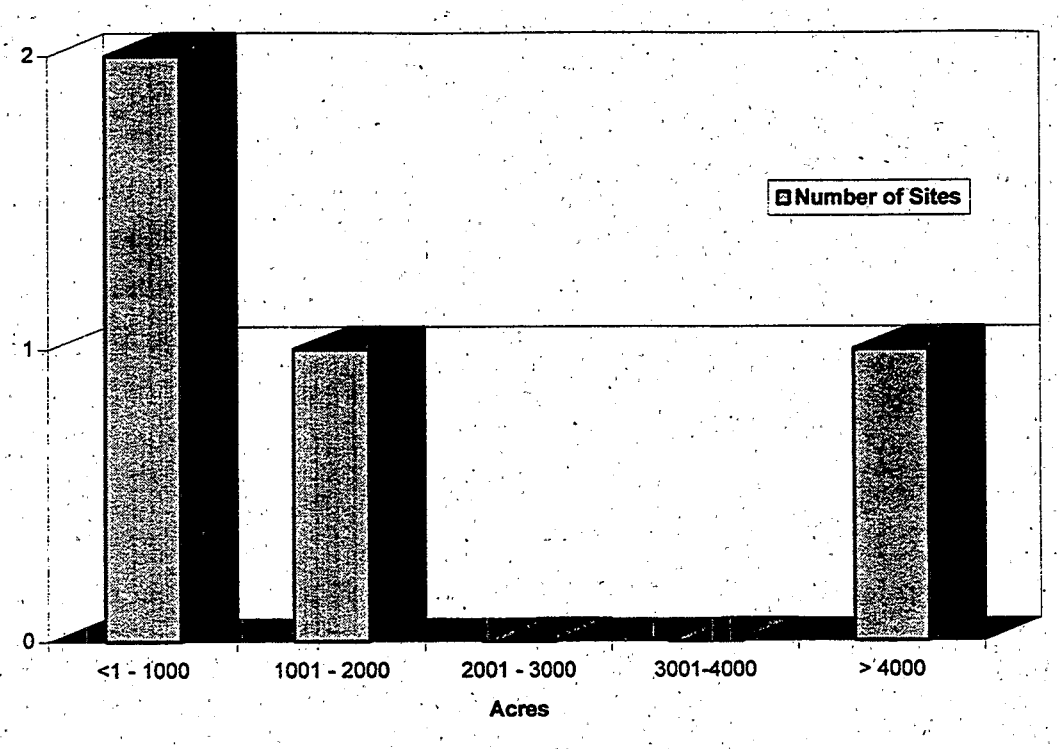
Table 7-2
Number of Sites and Operable Units at Federal NPL Sites in West Virginia

Phase of Activity	Number of Sites	Number of Operable Units
Remedial Investigations/Feasibility Studies		
Planned	2	5
In Progress	4	6
Complete (RD not started)	0	0
Remedial Designs		
Planned	4	11
In Progress	3	3
Complete (RA not started)	0	0
Remedial Actions		
Planned	4	14
In Progress	2	2
Complete	3	5
Removals		
Started	3	3
Complete	3	3

Source: Data as of May 1995 from EPA CERCLIS database; see Section 1.8 for a detailed description of the data sources.

The sizes of the contaminated areas range from 12 acres to as many as 8,000 acres. Figure 7-3 presents the distribution of sizes of NPL sites in West Virginia.

Figure 7-3
NPL Site Size Distribution for the State of West Virginia



7.3 The Market at RCRA Corrective Action Sites

Although West Virginia is authorized to issue RCRA Part B hazardous waste management permits for hazardous waste facilities, it is not authorized to administer the corrective action program; all corrective action activities are managed by EPA Region 3. West Virginia does not have a separate State-mandated corrective action program for operating hazardous waste facilities. Data from the Resource Conservation and Recovery Information System (RCRIS) database indicate there are 35 RCRA facilities in the State: 18 land disposal units, 9 incinerators, and 28 storage and treatment units[2]. Four of the RCRA facilities currently require corrective action. The definition of requiring corrective action used here is that the facility has been required to perform a CMS. The number of facilities with a CMS imposed is not a direct subset of RCRA treatment, storage, and disposal (TSD) facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. **Table 7-3, found at the end of this section,** lists facilities, with

[2] A facility may be included in more than one of these categories.

their mailing addresses, that are scheduled to undergo corrective action in the future. In two cases, the entire facility is listed as subject to corrective action. It is likely that there are many solid waste management units (SWMU) at the two facilities, a circumstance that, in each case, prompted the permit writer to indicate that the entire facility was in need of corrective action.

In addition, three sites are under a requirement to conduct a RCRA facility investigation (RFI). The number of facilities with an RFI imposed is not a direct subset of RCRA TSD facilities, instead it is a subset of TSD facilities and hazardous waste generators. While TSD facilities are statutorily required to address corrective action, EPA has discretionary authority to impose corrective action on generators. As discussed in Section 1.2, these sites may also provide either a long-term opportunity or near-term opportunity where no CMS is necessary to begin corrective action or corrective activity begins in accordance with the stabilization initiative.

No data were available in RCRIS to indicate the media contaminated or the contaminants of concern at the RCRA facilities in the State.

7.4 The Market at UST Sites Managed by the State

As shown in Table 7-4, West Virginia has approximately 8,904 active tanks. Active tanks are defined as tanks still in service. Confirmed releases have been reported at 19 percent of active tanks.

Table 7-4
Underground Storage Tank Corrective Action Measures in West Virginia as of Third Quarter FY95

Active Tanks	Tanks Closed	Confirmed Releases	Cleanups Initiated	Cleanups Completed
8,904	12,865	1,734	1,392	533

As of July 1995, 1,734 confirmed releases were reported by West Virginia to EPA's Office of Underground Storage Tanks (OUST) for which cleanup has yet to be initiated at 342 sites. The number of UST sites identified as marketing opportunities for vendors of innovative technologies will change rapidly, because of the combination of rapid increases in the number of confirmed releases and continuing site closures. In national studies by EPA in 1991 and 1992, it was found that the

majority, or about 87 percent, of tanks are used to manage gasoline or diesel fuel, kerosene, and heating oil. Of the remaining USTs, 13 percent manage other materials and wastes such as used oil (4 percent), hazardous material (2 percent), and other material (5 percent) or are empty (2 percent). The majority of the contamination problems are related to the contamination of soils and groundwater with petroleum products that contain VOCs and semivolatile organic compounds (SVOC) (EPA 1992a, 1992b).

Conversations with representatives of the State indicate that the State currently uses innovative treatment technologies at some of its UST corrective action sites. Those treatment include: air sparging, soil vapor extraction, bioremediation, dual phase extraction, and air stripping.

7.5 The Market at Federal Facility Sites in West Virginia

As is the case with all of the other states in Region 3, there are no Department of Energy (DOE) facilities in the state where remedial actions are planned. There are five active DoD installations and FUDS in the State. At those installations, there are 50 active sites where DoD is planning remediation. The total number of sites at the installations that require remediation may exceed that figure because DoD has not completed its evaluation of all the sites.

The *Defense Environmental Restoration Program Annual Report to Congress for 1994* indicates that a total of about $114 million in funding is estimated to be needed through the year 2015 in all phases of cleanup at the five installations. The bulk of the funds ($73 million) is allocated to West Virginia Ordnance Works, which is listed on the NPL. The smallest amount of funds ($2.8 million) is allocated to Morgantown Ordnance Works, also listed on the NPL. Many of the sites identified at the five DoD installations either are undergoing or are scheduled to undergo RI/FSs and, therefore, are at a relatively early stage of the remediation process.

The majority of the contaminants at the sites at which remediation currently is planned fall into three broad categories: petroleum, oil, and lubricants (POL), VOCs, and metals. No data are available on volumes of soil and groundwater to be treated. Table 7-5 presents information on the individual DoD installations in West Virginia and the sites subject to remediation at those installations. Staff at each installation determine the individual sites at which they plan to perform remedial actions. Cleanup already may be underway at other sites, but those sites are not included in the table because it is unlikely that they will afford near-term opportunities for vendors of innovative technologies. Of the

installations included in the table, Allegany Ballistics Laboratory, Morgantown Ordnance Works, and West Virginia Ordnance Works are listed on the NPL.

Table 7-5
DoD Installations and Sites in West Virginia at Which Cleanup is Planned[a]

Name, Address, and Outyear Funding ($000)	Federal Facility Identification Number	Codes[b]	Number of Sites at Which Cleanup is Planned
Allegany Ballistics Laboratory Outyear Funding FY95-2010 $29,416	WV317002369100	A, N	7
EWVRA Shepherd Field ANGB Outyear Funding FY95-2005 $4,956	WV357282845500	A	2
Yeager Air National Guard Base Charleston 25311-5000 Outyear Funding FY95-2003 $4,281	WV357282589100	A	5
Morgantown Ordnance Works Outyear Funding FY95-2004 $2,766	WV39799F346200	F, N	1
West Virginia Ordnance Works Outyear Funding FY95-2015 $72,989	WV39799F346100	F, N	35
All Other Installations $19,407	-	-	-

Source: *Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994*

[a] Includes installations with funding for cleanup of more than $1 million and with three or more active sites.

[b] Codes:
A = The installation is currently active and covered by Defense Environmental Restoration Account (DERA) funds.
F = The installation is no longer active and is managed by the FUDS Branch.
N = The site is listed on the final National Priorities List.

7.6 Further Market Information for West Virginia

The West Virginia DEP, Financial and Administrative Division provides initiation and administration of contracts. The State requires all contractors working on State-lead remediations to be certified West Virginia vendors.

To apply for certification, vendors may contact:

West Virginia DEP
Financial and Administrative Division
State Capital Complex
Building 1, Room E102
1900 Kanawha Boulevard East
Charleston, WV 25305-0130
(304) 558-2311
(304) 558-3970 (facsimile)

A vendor that wishes to obtain information about sites in West Virginia that are managed by EPA may write to:

U.S. Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

For information on RCRA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of RCRA Programs. For information on CERCLA facilities, the envelope should be marked to the attention of the Freedom of Information Act Officer, Office of Superfund Programs. The requestor will be billed for the information, depending on the volume of information.

Two lists that provide data on UST sites are available to the public from the West Virginia Division of Environmental Protection. The current cost of each list appears below in parentheses. The Public Information Office of the Office of Waste Management, Underground Storage Tank Section and Leaking Underground Storage Tank Section has available a list of active and inactive facilities ($60.00) and a list of active leak sites ($31.25). The list of active and inactive facilities includes the facility identification number, the name and address of the owner, the location and address of the tank, and contact person's name and telephone number. The list of active leak sites contains location of the tank, facility and leak identification numbers, and the name and address of the owner. The office can be contacted at and checks made payable to:

West Virginia DEP
Public Information Office
10 McJunkin Road
Nitro, WV 25142
(304) 759-0515
(304) 759-0526 (facsimile)

The offices of the West Virginia Division of Environmental Protection can be contacted at the following addresses:

Headquarters

West Virginia DEP
Office of Waste Management
1356 Hansford Street
Charleston, WV 25301

District Offices

District 1

West Virginia DEP
1304 Goose Run Road
Fairmont, WV 26554
(304) 367-2720
(304) 367-2727 (facsimile)

District 2

West Virginia DEP
No. 1 Depot Street
Romney, WV 26757
(304) 822-3551
(304) 822-7331 (facsimile)

District 3

West Virginia DEP
P.O. Box 38
French Creek, WV 26218
(304) 924-6211
(304) 924-6781 (facsimile)

District 4

West Virginia DEP
General Delivery
MacArthur, WV 27873
(304) 256-6850
(304) 256-6948 (facsimile)

District 5

West Virginia DEP
694 Winfield Road
St. Albans, WV 25177
(304) 758-0710
(304) 759-0706 (facsimile)

District 6

West Virginia DEP
2311 Ohio Avenue
Parkersburg, WV 26101
(304) 420-4550
(304) 420-4554 (facsimile)

Table 7-1

NPL Sites in West Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: ALLEGANY BALLISTICS LABORATORY (USNAVY) **NPL STATUS:** Final					**EPA ID:** WV0170023691 **SIZE:** 1,572 Acres		**ADDRESS:** ROCKET CT; SHORT GAP, WV 26753 **TYPE:** NA	
01		(FF)	12/31/96	N	GW; SO	NA	VOCs; ACIDS; EXPLOSIVES	NA
02	ALL OTHER FORMER RI/FS SITES	(FF)	6/30/98	N	GW; SO; SW	NA	EXPLOSIVES; VOCs	NA
SITE NAME: FIKE CHEMICAL, INC **NPL STATUS:** Final					**EPA ID:** WVD047989207 **SIZE:** 12 Acres		**ADDRESS:** W 19TH ST; NITRO, WV 25143 **TYPE:** Abandoned - No Use	
03		(F/RP)	3/31/95	Y	AI; DB; LW; SL; SO	NA	OTHER INORGANICS; RADIOACTIVE MATERIALS; VOCs; METALS; PESTICIDES/ HERBICIDES	Monitoring; Off-Site Treatment; Incineration with On-Site Disposal of Residual; Leachate Treatment; Recycling; Temporary On-Site Storage; PH Neutralization; Other Neutralization
04		(RP/FE)	6/30/98	N	GW; SD; SL; SO; SW	NA	NA	NA
SITE NAME: ORDNANCE WORKS DISPOSAL AREAS **NPL STATUS:** Final					**EPA ID:** WVD000850404 **SIZE:** 110 Acres		**ADDRESS:** 1100 DUPONT RD; MORGANTOWN, WV 26505 **TYPE:** Ordnance Testing and Maintenance; Ordnance Production and Storage; Industrial Inorganic Chemicals; Industrial Organic Chemicals; Coke Ovens; Crop Production; Manufacturing - Electroplating	
01	LANDFILL/LAGOON/SCRAPED AREAS	(FE/RP)	12/31/95	Y	AI; GW; SD; SO; SW	NA	METALS; VOCs	Monitoring; Biodegradation and Bioremediation Treatment
02	INDUSTRIAL AREA	(RP/FE)	12/31/99	N	DB; GW; MS; RC; SO; SW	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
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DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 7-1 (continued)
NPL Sites in West Virginia at Which Marketing Opportunities Exist[a]

Operable Unit Number	Operable Unit Name	Operable Unit (Lead)	RA Planned Start Date[b]	RI/FS Completed	Media	Volume	Contaminants	Technology
SITE NAME: WEST VIRGINIA ORDNANCE (USARMY) NPL STATUS: Final					EPA ID: WVD980713036 SIZE: 8,000 Acres		ADDRESS: RTE 1 BOX 125; PT PLEASENT, WV 25550 TYPE: Crop Production; Meat and Dairy Production; Buildings (Residential and Commercial); Dwelling Operators; Mobile Home Site Operators; Nonresidential Building Operators; Refuse Systems--Open Dump; Undeveloped Land (Incl. forests, fields, wetlands)	
04	NA	(FF)	1/27/95	NA	GW	NA	NA	NA
05	NA	(FF)	12/20/98	NA	LW; RC; SD; SO; SW	NA	NA	NA
06	WETLANDS MIT POND 7 AND 11	(FF)	4/08/96	NA	SW	NA	NA	NA
08	NA	(FF)	9/30/99	N	NA	NA	NA	NA
09	NA	(FF)	9/30/99	N	NA	NA	NA	NA
10	NA	(FF)	12/31/99	N	NA	NA	NA	NA
11	NA	(FF)	12/31/99	N	NA	NA	NA	NA
12	NA	(FF)	12/31/00	N	NA	NA	NA	NA

[a] Data as of May 1995 from EPA CERCLIS and RELAI Databases. See Section 1.8 for a detailed description of these data sources.

[b] Some RA planned start dates have passed; the actual RA start date had not been recorded as of March 1995. This circumstance may have occurred because (1) the project is running later than planned or (2) the actual RA start date was recorded after the data were extracted.

Abbreviations:

AI	Air	F	EPA Fund-Financed	MR	Mixed Funding Federal/RP	PS	PRP Response Under State	SD	Sediment	ST	Solid Waste
DB	Debris	FE	Federal Enforcement	MS	Man-made Structures	RA	Remedial Actions	SI	Single Intake	SW	Surface Water
DK	Unknown	FF	Federal Facilities	NA	Not Available	RC	RCRA Hazardous Waste	SL	Sludge	UXO	Unexploded Ordnance
EP	EPA In-House	GW	Groundwater	NO	No Media	RP	Responsible Party	SO	Soil	VOCs	Volatile Organic Compounds
ES	Entire Site	LW	Liquid Waste	OT	Other	S	State, Fund-Financed	SR	PRP Lead Under State		

Table 7-3
RCRA Facilities in West Virginia Currently Undergoing Corrective Action[a]

SITE NAME MAILING ADDRESS	EPA ID	SWMU AND UNIT NAMES
HANLIN CHEMICALS WEST VIRGINIA SOUTH ROUTE 2 MOUNDSVILLE, WV 26041	WVD000765297	GROUNDWATER ENTIRE FACILITY
OCCIDENTAL CHEMICAL CORP PO BOX 615 BELLE, WV 25015	WVD005010277	ENTIRE FACILITY
GE SPECIALTY CHEMICAL INC-SOUTH PLANT 1000 DUPONT RD, BLDG 816 MORGANTOWN, WV 26505	WVD061776977	GE - SOUTH PLANT
GE SPECIALTY CHEMICAL INC - NORTH PLANT 1000 DuPONT RD, BLDG 816 MORGANTOWN, WV 26505	WVD980552384	GE - NORTH PLANT

[a] Data as of May 1995 from the EPA RCRIS database. See Section 1.8 for a detailed description of data sources.

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APPENDIX A

LIST OF ALL REGION 3 DOD INSTALLATIONS EITHER WITH TWO OR FEWER SITES OR ESTIMATED COSTS FOR CLEANUP OF LESS THAN OR EQUAL TO $1 MILLION

List of All Region 3 DoD Installations Either With Two or Fewer Sites or Estimated Costs for Cleanup of Less Than or Equal to $1 Million

Facility Name	FFID	Number of Sites	Estimated Completion Date	FY95 Cost to Complete $000
DELAWARE				
DELAWARE TARGET AREAS	DE39799F133400	2	TBD	70
DOVER AFB PRE BOMB RANGE	DE39799F133500	1	2008	2,003
DOVER SURVIVAL TRAINING ANNEX	DE39799F135800	2	2008	3,773
DRAVO CORPORATION	DE39799F136400	1	TBD	252
FORT DELAWARE	DE39799F134100	2	2008	1,983
LENAPE ORDNANCE MOD CENTER	DE39799F134400	1	TBD	0
US ARMY RESERVE CENTER DOVER	DE3210015C0500	5	TBD	0
US ARMY RESERVE CENTER LEWES	DE3210015C1600	5	TBD	0
Total DELAWARE		19		8,081
DISTRICT OF COLUMBIA				
AAA FORT DUPONT	DC39799F881200	1	2008	1,934
ANACOSTIA NAVALS STATION	DC317000115500	5	TBD	0
CAMP SIMMS	DC39799F131200	2	2008	5,682
CATHOLIC UNIVERSITY, RESERVE STATION	DC39799F812500	1	2008	1,968
FORT DUPONT PARK SITE	DC39799F131800	1	2008	1,934
FORT MCNAIR	DC321002100400	7	TBD	626
NAVAL STATION ANACOST ANNEX	DC39799F132900	1	2008	2,092
SPRING VALLEY	DC39799F833000	1	2008	4,078
WASHINGTON NAVY YARD NAVALSTA	DC39799F133200	2	2008	1,923
WASHINGTON COMNAVDIST	DC317002431000	3	TBD	361
WASHINGTON DC NAVOBSY	DC317002345400	1	TBD	0
WASHINGTON NRL	DC317002431100	3	TBD	0
Total DISTRICT OF COLUMBIA		28		20,598
MARYLAND				
AAA SITE, CENTER BUREAU	MD39799F139400	1	2008	1,923
ADELPHI LABORATORY CENTER	MD321002276200	42	TBD	300
AIR FORCE PLANT 11	MD39799F141700	1	2008	4,000
ANNAPOLIS NRT FAC	MD317002349200	1	TBD	0
ASSATEAQUE ISLAND	MD39799F143900	1	2008	2,113
CHELTENHAM NAVCOMMU	MD317009000700	3	TBD	0
CHESAPEAKE BAY DET NRL	MD317002431100	9	TBD	0
CP SOMERSET	MD39799F141100	2	2008	2,022
EAST COAST RADIO REC STATION	MD39799F141500	2	TBD	443
FORT HOLABIRD	MD39799F139200	1	TBD	0
FORT HOLABIRD CRIMES REC. CENTER	MD321002041900	9	TBD	0
FORT HOWARD	MD39799F140600	2	2008	3,494
FORT RITCHIE	MD321002075800	4	TBD	0
HAWKINS POINT TER FACILITY	MD39799F140500	1	TBD	0
HERMANVILLE GAP FILLER ANNEX	MD39799F142200	1	TBD	118
INDIAN HEAD NAVEODTECHCEN	MD317009000100	14	TBD	0
JOHNS HOPKINS UNIVERSITY LAB	MD39799F812800	1	2008	2,016
MORTON THIOKOL (AMMUNITION PLT)	MD39799F144200	1	TBD	114
NATIONAL-DEF STORAGE DEPOT BALT	MD39799F137300	3	TBD	492
NAVAL RESEARCH LAB WALDORF	MD317000894700	1	TBD	0
NAVAL RESERVE CENTER BALTIMORE	MD317002252600	1	TBD	0
NAVAL STATION ANNAPOLIS	MD317009002200	1	TBD	0
NIKE 03	MD39799F136800	1	TBD	0
NIKE BA-30/31 (TOLCHEST)	MD39799F137700	2	2008	1,905
NIKE BA-43 (FT.SMALLWOO)	MD39799F138000	2	2008	1,706
NIKE BA-79/W-05 (GRANIT)	MD39799F138400	2	2008	1,681
NIKE BA-92 (GRNSPNG/TWS)	MD39799F138600	2	2008	1,560

Source: Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994, Table B-2

List of All Region 3 DoD Installations Either With Two or Fewer Sites or Estimated Costs for Cleanup of Less Than or Equal to $1 Million

Facility Name	FFID	Number of Sites	Estimated Completion Date	FY95 Cost to Complete $000
MARYLAND (continued)				
NIKE BA-W-44 (WALDORF)	MD39799F138100	2	2008	2,372
NIKE BAT W-93 (LAYTON)	MD39799F138700	2	2008	1,845
NIKE W-25 (DAVIDSONVILLE)	MD39799F137500	2	2008	1,560
NIKE W-35 (CROOM)	MD39799F137900	2	2008	1,905
NIKE W-36 (CROOM)	MD39799F137800	2	2008	1,725
NIKE W-54 (POMONKEY)	MD39799F138300	1	TBD	260
NIKE W-92 (ROCKVILLE)	MD39799F138500	2	2008	1,868
NIKE W-93 CONTROL AREA	MD39799F820500	1	TBD	0
PHOENIX MILITARY RESERVATION	MD321002440200	4	TBD	0
POMONKEY TEST RANGE NRL	MD317002431102	1	TBD	22
Total MARYLAND		**130**		**35,444**
PENNSYLVANIA				
AAF INTELLIGENCE SCH	PA39799F147700	1	TBD	49
AIR FORCE PLANT 45	PA39799F153500	1	TBD	0
AMSA 112 LOCK HAVEN	PA32100PA06000	8	TBD	235
AMSA 29 READING	PA32100PA14700	9	TBD	235
ARMY MAP SERVICE	PA39799F887300	0	TBD	10
AVCO	PA39799F145100	2	TBD	205
BIRDSBORO ARMY TK FOUNDRY	PA39799F147800	1	TBD	460
BRISTOL VETERANS US ARMY RESERVE CTR	PA32100PA01000	9	TBD	32
CONNELLSVILLE AIRPORT	PA39799F155900	2	2008	2,577
CROSS AND H/STONE MOUNTAIN	PA39799F148300	2	TBD	90
CROYLAND PLANT	PA39799F825300	1	2008	2,058
EDGEMONT US ARMY RESERVE CENTER	PA32100PA02200	15	TBD	15
ELRAMA ARMORY COMPLEX	PA321004215000	13	TBD	0
ESSINGTON NATIONAL GUARD TARGE RGE	PA39799F154100	2	2008	2,573
FEDERAL LABORATORIES	PA39799F841800	1	TBD	10
HANOVER GAP FILLER ANNEX	PA39799F150600	1	TBD	115
JOHNSTOWN SHELL PLANT	PA39799F808200	1	TBD	10
MARINE CORPS TRAINING CENTER, PA	PA39799F152900	1	TBD	114
MARCO RESERVE CENTER	PA39799F153000	1	TBD	431
MARIETTA AIR FORCE STATION	PA39799F150900	5	TBD	231
MIDDLETOWN AIR DEPOT	PA39799F144500	2	2008	1,598
NAVAL INDUSTRIAL RESERVE GEAR PLANT	PA39799F151700	1	TBD	326
NAVAL RESERVE CENTER	PA39799F152800	1	TBD	80
NAVAL HOSPITAL PHILDALPHIA	PA317002725600	2	TBD	0
NEW CUMBERLAND ARMY DEPOT	PA39799F147200	1	TBD	760
NIKE BAT PH-75/78 MEDI	PA39799F146600	2	TBD	30
NIKE PH-15 (BRISTOL)	PA39799F146400	2	2008	1,582
NIKE PH-67 (CHESTER)	PA39799F146500	2	2008	3,025
NIKE PH-91 (NORRISTOWN)	PA39799F146800	1	TBD	0
NIKE PI-03	PA39799F145700	2	TBD	740
NIKE PI-36 (N.HUNTINGDON)	PA39799F145800	1	TBD	0
NIKE PI-43 (ELRAMA)	PA39799F146000	2	TBD	730
NIRS AM BRIDGE CO	PA39799F154800	1	TBD	10
NORTH PENN US ARMY RESERVE CENTER	PA32100PA13900	5	TBD	15
PLANCOR 400 BETH FGE C	PA39799F155400	1	TBD	75
STATE COLLEGE AIR NATIONAL GUARD	PA357282627300	2	2003	1,861
SUSQUEHANNA ORDNANCE SUB-DE	PA39799F144900	2	2008	4,643
TACONY WAREHOUSE	PA321002279200	13	TBD	296
TOBYHANNA ARTILLERY RANGE	PA39799F147000	2	2008	3,783
US ARMY RESERVE CENTER GERMANTOWN	PA321001HN5400	11	TBD	0

Source: Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994, Table B-2

List of All Region 3 DoD Installations Either With Two or Fewer Sites or Estimated Costs for Cleanup of Less Than or Equal to $1 Million

Facility Name	FFID	Number of Sites	Estimated Completion Date	FY95 Cost to Complete $000
PENNSYLVANIA (continued)				
US ARMY RESERVE CENTER HORSHAM 01	PA321001HN3500	9	TBD	0
US ARMY RESERVE CENTER INDIANA	PA3210016N3800	4	TBD	0
US ARMY RESERVE CENTER HUNTINGDON	PA321001HN3700	6	TBD	0
US ARMY RESERVE CENTER MEADVILLE	PA3210016N4500	1	TBD	0
US ARMY PITTSBURGH 03	PA3210016N6100	4	TBD	0
US ARMY STATE COLLEGE	PA3210012N6900	6	TBD	0
US ARMY RESERVE CENTER WILKES-BARRE	PA3210012N7500	18	TBD	0
US ARMY RESERVE CENTER WILLIAMSPORT	PA3210012N7600	6	TBD	0
Total PENNSYLVANIA		**187**		**28,994**
VIRGINIA				
AIR FORCE PLANT 80	VA39799F164700	1	TBD	0
ALESHIRE QUARTERMASTER DEPOT	VA39799F164800	1	TBD	0
ARMY SUPPLY BASE	VA39799F781000	1	TBD	10
BUCKROE BEACH	VA39799F789100	1	TBD	150
BYRD FIELD	VA39799F165300	2	TBD	541
CAMP ALEXANDER	VA39799F824200	1	TBD	10
CAMP WALLACE	VA39799F775800	2	2008	2,120
CAPE CHARLES AFS BUNK	VA39799F156500	2	TBD	135
CHOPAWAMIC TROOP TRAINING	VA39799F166700	1	2013	2,480
COMFAIR NORFOLK-NAS OCEANA	VA39799F170400	1	TBD	0
DAM NECK FIRE CONTROL	VA317002293800	9	TBD	566
DEFENSE MAPPING AGENCY HERNDON	VA321002135400	3	TBD	20
ENGINEER DEPOT	VA39799F823800	1	TBD	10
FISHERMAN ISLAND NWR-NF	VA39799F157300	1	TBD	512
FORD PLANT	VA39799F821900	1	TBD	10
FORT AP HILL	VA321002041600	19	TBD	362
FORT LEE	VA39799F776900	4	TBD	92
FORT MONROE	VA321002060300	1	2008	1,983
FORT MONROE/FORT WOOL AREA	VA39799F158300	1	2005	1,923
FORT PICKETT A AIRPORT	VA39799F167400	2	TBD	319
JAMES RIVER SHIPBUILDING	VA39799F172700	2	2008	2,015
LAMB POINT GRD BARRACKS	VA39799F823900	1	TBD	10
MANASSAS AF COMMUNICATION FAC	VA39799F171800	2	2008	1,720
MICROWAVE STATION, VA	VA39799F165800	1	TBD	2
MIDLOTHIAN MICRO ST S	VA39799F159800	1	TBD	2
N-FOLK DEFNIK BATN-52	VA39799F161000	1	TBD	385
NAAS CREEDS	VA39799F775200	1	2008	1,923
NAAS PUNGO	VA39799F819800	1	TBD	0
NANSEMOND ORDNANCE DEPOT	VA39799F156700	1	2008	1,070
NAVAL COMMAND FACILITY	VA39799F854400	1	TBD	385
NAVAL HOSPITAL PORTSMOUTH	VA317002481800	2	TBD	1
NAVY YARD	VA39799F173000	1	TBD	0
NEW RIVER ORDNANCE PLANT	VA39799F156900	1	TBD	0
NIKE N-36	VA39799F160900	1	TBD	343
NIKE SITE N-63	VA39799F156600	1	TBD	0
NIKE W-BA-74	VA39799F167500	1	TBD	0
NSY NORFOLK	VA39799F172500	1	TBD	0
OYSTER POINT STORAGE AREA	VA39799F157800	1	TBD	385
PETERSBURG AIRPORT	VA39799F839200	2	TBD	389
PLUM TREE ISLAND RANGE	VA39799F167300	2	2013	2,605
QM MARKET CENTER	VA39799F164900	1	TBD	2
QM DEPOT, NEWPORT NW	VA39799F780800	1	TBD	10

Source: Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994, Table B-2

List of All Region 3 DoD Installations Either With Two or Fewer Sites or Estimated Costs for Cleanup of Less Than or Equal to $1 Million

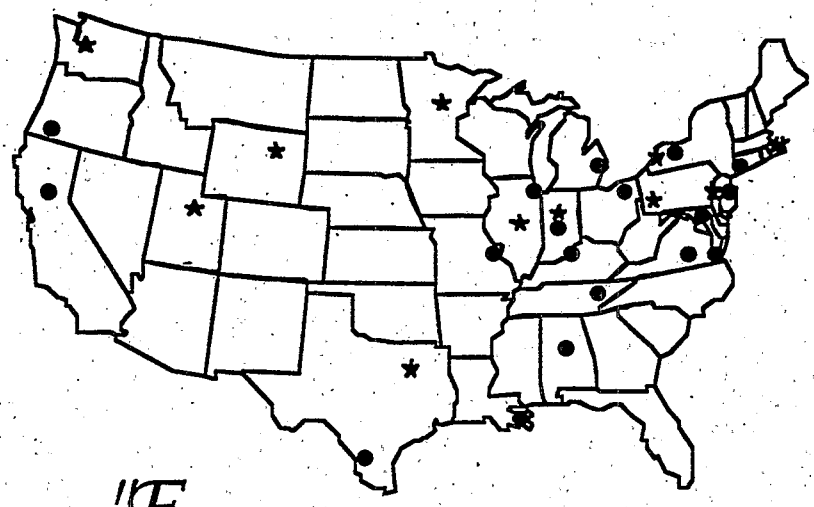
Facility Name	FFID	Number of Sites	Estimated Completion Date	FY95 Cost to Complete $000
VIRGINIA (continued)				
RADIO REC FACILITY	VA39799F775600	1	TBD	0
RES TRN CENTER, USCG	VA39799F854500	1	TBD	395
RHOAD MIC STATION SITE	VA39799F171500	1	TBD	0
US ARC CHINCOTEAGUE (WALLOPS IS.)	VA3210015S1200	5	TBD	0
US ARMY RECRUITING COMMAND	VA39799F163100	1	TBD	35
VIRGINIA MICROWAVE STATION	VA39799F162800	1	TBD	2
VIRGINIA ORDNANCE WORKS	VA39799F163700	1	2011	4,103
W.H. GROUP NO. 2 & 3	VA39799F780900	1	TBD	10
WALLOPS ISLAND	VA39799F169700	1	TBD	0
WASHINGTON/BALTIMORE DEF-NIK W-83	VA39799F163800	1	TBD	470
WOODROW WILSON GENERAL HOSPITAL	VA39799F164300	1	TBD	0
Total VIRGINIA		**97**		**27,505**
WEST VIRGINIA				
DOLLY SODS--NATLANTIFOR	WV39799F346000	1	1999	1,620
FIKE/ARTEL CHEMICAL	WV39799F789200	2	2008	2,228
GUTHRIE AIR FORCE STATION	WV39799F346900	1	TBD	0
JEFFERSON COUNTY RCV	WV39799F346700	1	TBD	0
JEFFERSON COUNTY TRANS	WV39799F347000	1	TBD	0
MARSHALL ARMY CHEMICAL PLANT	WV39799F348000	1	TBD	205
NAVAL ORDNANCE PLANT	WV39799F347700	1	TBD	0
POINT PLEASANT OMS #6	WV321005413500	3	TBD	650
SYLVANIA ELECTRIC PROD	WV39799F347800	1	TBD	0
US ARMY RESERVE CENTER BLUEFIELD	WV3210016U0500	5	TBD	0
US ARMY RESERVE CENTER CLARKSBURG	WV3210016U0800	3	TBD	0
US ARMY RESERVE CENTER EAST RAINELLE	WV3210016U4600	4	TBD	0
US ARMY RESERVE CENTER HUNTINGTON	WV3210016U2000	3	TBD	0
US ARC PARKERSBURG (AMSA 114)	WV3210026U4300	5	TBD	0
US ARMY RESERVE CENTER WEIRTON	WV3210016U6400	3	TBD	0
VETERANS ADMINISTRATION GENERAL HOSP.	WV39799F346600	1	TBD	385
WV MANEUVER AREA	WV39799F346500	1	2015	12,442
YEAGER AIR NATIONAL GUARD BASE	WV357282589100	5	2003	4,281
YEAGER AIR NATIONAL GUARD	WV39799F711600	2	2004	1,877
Total WEST VIRGINIA		**39**		**19,407**
Total		**500**		**140,029**

Source: Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1994, Table B-2

APPENDIX B

EPA REGION 3 BROWNFIELDS ECONOMIC REDEVELOPMENT INITIATIVE FACT SHEETS

U.S. EPA Brownfields Pilots



"Economic development and environmental protection must go hand-in-hand"

- Baltimore, MD
- Birmingham, AL
- Bridgeport, CT
- Cleveland, OH
- Cape Charles-North Hampton County, VA
- Detroit, MI
- Indianapolis, IN
- Knoxville, TN
- Laredo, TX
- Louisville, KY
- New Orleans, LA
- Oregon Mill Sites, OR
- Richmond, VA
- Rochester, NY
- Sacramento, CA
- St. Louis, MO
- Trenton, NJ
- West Central Municipal Conference, IL

* Boston, MA
* Buffalo, NY
* Dallas, TX
* Duwamish Coalition, WA
* Illinois
* Indiana
* Minnesota
* Philadelphia, PA
* Pittsburgh, PA
* Sand Creek Corridor, CO
* West Jordan, UT

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United States
Environmental Protection
Agency

And Public Affairs
(1703)

EPA Environmental News

WEDNESDAY, JULY 26, 1995

CLINTON ADMINISTRATION ANNOUNCES SELECTION OF 15 CITIES AS BROWNFIELDS REDEVELOPMENT PROJECTS

Lauren Mical 202-260-4358

Fifteen cities across the country have been selected as pilot projects that will revitalize communities by redeveloping abandoned, contaminated industrial/commercial land -- known as "brownfields" -- and returning these properties to productive local use. The projects are part of the Clinton Administration's Brownfields Economic Redevelopment Initiative, which was launched in November 1993.

The projects are targeted to receive $200,000 in funding from the U.S. Environmental Protection Agency over two years and are located in: Birmingham, Ala.; Sacramento, Calif.; the West Central Municipal Conference (Chicago suburbs), Ill.; Indianapolis, Ind.; Louisville, Ky.; New Orleans, La.; Baltimore, Md.; Detroit, Mich.; St. Louis, Mo.; Trenton, N.J.; Rochester, N.Y.; Oregon Mill Sites, Ore.; Laredo, Texas; Cape Charles, Va.; and Knoxville, Tenn. Nine of the cities will use the EPA funds in conjunction with Empowerment Zone/Enterprise Community grants, another Clinton Administration initiative.

Brownfields pilot cities are national models for revitalizing urban contaminated properties. Developers will be sought to restore abandoned sites to new uses -- creating jobs, accelerating economic growth, increasing property values, stimulating tax revenues, and revitalizing inner-city neighborhoods. The projects yield economic benefits and protect the environment by encouraging development on existing sites, rather than in undeveloped areas.

EPA Administrator Carol M. Browner said, "This program is a cornerstone of the Clinton Administration's efforts to help our nation's cities in ways that make economic and environmental sense. By returning abandoned industrial properties into thriving, productive centers of activity, we are protecting our health -- the health of our families, the health of our communities, and the health of our economy."

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(more)

City officials, community residents and organizations, financial institutions, developers and others in the participating cities will work together in each project to:

- assess contamination at abandoned inner-city sites,
- involve community residents in all aspects of assessment, cleanup and redevelopment including review of how the land will be used in the future,
- leverage other public and private funds to attract economic activity,
- resolve liability concerns, and
- serve as models for other communities seeking effective redevelopment approaches.

The pilots were selected from over 100 applicants after evaluation by a panel that included representatives from EPA headquarters and regional offices, as well as from the Department of Commerce's Economic Development Administration.

The 15 new projects join pilots already in progress in Bridgeport, Conn.; Cleveland, Ohio; and Richmond, Va. Browner has committed to funding a total of 50 Brownfields pilot projects, with 25 to be funded this year. Applicant cities not selected in this round will be considered again in the next three rounds of applications. The application period for the second round of pilots has closed and applications are being evaluated by the selection panels. The third and fourth rounds of applications will be announced starting in fall 1995. The pilots are a major part of a four-part approach to addressing Brownfields Economic Redevelopment including issues relating to liability barriers, strengthening partnerships and job development and training.

For more information about the pilot projects, reporters should call Lauren Milone Mical, EPA Press Office, at 202-260-4358. Public inquiries should be directed to the RCRA/Superfund Hotline at 1-800-424-9346 or 703-412-9810.

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# # #

Summary of Brownfields Pilot Projects
July 26, 1995

- The Detroit pilot will marry empowerment zone activities with case studies of assessment, cleanup and redevelopment. The city will develop a manual explaining how to successfully redevelop brownfields areas.

- Laredo, Texas, will develop an inventory of brownfields areas and determine extent of contamination in the Paso del Indio site as well as develop remediation plans, which will encourage commercial redevelopment. These efforts will also meet objectives of NAFTA by cleaning up areas in the Rio Grande watershed.

- The Louisville, Ky., project will use geographic information systems to target areas for investment and redevelopment and establish streamlined processes to achieve voluntary cleanups.

- The Sacramento, Calif., pilot will focus on developing a streamlined system with all levels of government and the community to develop a future land use planning and permitting process in conjunction with cleanup planning, including a streamlined permit process.

- The St. Louis, Mo., pilot will complete assessment of a variety of properties in an incomplete business park and assist in building a fund to finance cleanups and redevelopment. St. Louis will form a citizens advisory council to ensure community involvement in the pilot.

- The Trenton, N.J., pilot will develop a council to advise on assessment, cleanup and redevelopment, perform neighborhood outreach and target job opportunities where market analyses show industries suitable for targeted areas.

- The Cape Charles, Va., pilot funds the development of a 55 acre eco-industrial park that has been chosen as a demonstration pilot by the President's Council on Sustainable Development.

- The Knoxville, Tenn., pilot focuses on 25 sites in the inner city that have been targeted by the city for an urban business park.

- The Birmingham, Ala., pilot will help to revitalize 1,000 acres of former steel and iron industry property.

- The Rochester, N.Y., pilot will establish a user fee structure for doing environmental assessments. If the program pays for an assessment of a Brownfield, and that assessment leads to redevelopment, the beneficiary would be obligated to repay the fund, thereby continuing to spark redevelopment and leverage public-private dollars.

- The Indianapolis, Ind., area has already been active in the Brownfields arena and will use the funding to hire a Brownfields coordinator to implement redevelopment efforts and communicate results.

- The West Central Municipal Conference pilot will combine the efforts of 36 municipalities in the Chicago area to create a regional council of government approach to brownfields redevelopment.

- The New Orleans, La., pilot will address environmental justice and community involvement and outreach issues, which will serve as a model for other cities looking to begin work in this area.

- The Oregon Mill Sites pilot (around seven cities) helps focus EPA's brownfields effort toward more rural brownfields issues and looks at ways to assess, cleanup and reuse old lumber mills as well as examines the associated cost and benefits.

- The Baltimore, Md., pilot will create a "Brownfields Redevelopment Council" which will develop a cleanup strategy that is in line with the city's Empowerment Zone revitalization plan.

United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | Publication: XXXX.X-XXXX | July 1995

EPA

Brownfields Pilots

Office of Outreach and Special Projects (5101)

Quick Reference Fact Sheet

EPA's Brownfields Economic Redevelopment Initiative is designed to empower States, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields. A brownfield is a site, or a portion thereof, that has actual or perceived contamination and an active potential for redevelopment or reuse. EPA's Brownfields Initiative strategies include funding pilot programs and other research efforts, clarifying liability issues, entering into partnerships, conducting outreach activities, developing job training programs, and addressing environmental justice concerns.

OVERVIEW

EPA is awarding 50 Brownfields pilot cooperative agreements to States, cities, towns, counties, and Tribes by the end of 1996. The pilots, each funded up to $200,000 over two years, will test redevelopment models, direct special efforts toward removing regulatory barriers without sacrificing protectiveness, and facilitate coordinated public and private efforts at the Federal, State, and local levels. These funds are to be used to generate interest by bringing together community groups, investors, lenders, developers, and other affected parties to address the issue of assessing and cleaning up brownfields and returning them to appropriate and productive use.

Findings and experience from these pilots will help guide EPA's efforts to stimulate environmental cleanup through economic redevelopment. These findings will be captured in the specific activities outlined in EPA's evolving Brownfields Action Agenda. The pilots will also provide a series of models for States and localities struggling with similar efforts.

EVALUATION CRITERIA

States, cities, towns, counties, and Tribes that have an interest in environmentally sound redevelopment of brownfields are invited to apply for pilot grants. Pilot applications should address the following criteria:

- Environmental and economic impacts of brownfields on the community;
- Existing community commitment to brownfields cleanup and redovelopment;
- Proposed use of the cooperative agreement
- National replicability of the proposed project;
- Assurance of the necessary legal authority and government support for Brownfields efforts;
- Proposed cleanup funding mechanisms;
- Flow of ownership plan;
- Community involvement plan
- Environmental justice plan;
- Proposed measures of success; and
- Environmental assessment plan.

ACTIVITIES

EPA Headquarters awarded the first pilot to Cuyahoga County, OH in November 1993. Two additional pilots were awarded in 1994 and are currently underway in Bridgeport, CT and Richmond, VA.

EPA announced 15 additional pilots in July 1996 and plans to announce 32 more by September 1996.

CONTACT

For more information call:

The Superfund Hotline
(800) 424-9346

EPA

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Washington, DC 20460

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Brownfields Pilot – Baltimore, MD

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OVERVIEW

EPA has selected the City of Baltimore for a Brownfields pilot. Many old industrial sites in Baltimore have been abandoned, causing Baltimore to lose over 50% of its manufacturing jobs between 1970 and 1990. The threat of contamination and liability at these sites has inhibited reuse and redevelopment. The City estimates that 3,500 to 5,300 acres of land zoned for heavy manufacturing contains environmental problems that impair their marketability. In particular, the City is concerned about sites located in Baltimore's Empowerment Zone, where contamination could present an additional obstacle to economic revitalization.

OBJECTIVES

The ultimate goal of Baltimore's brownfields effort is to encourage economic growth and redevelopment in urban areas while continuing to provide appropriate and sufficient protection of the environment, especially the Chesapeake Bay. Redevelopment of urban areas will promote efficient land-use patterns, reduce the air and water pollution associated with urban sprawl, and expand job opportunities in locations that are accessible to lower-income populations. To satisfy these objectives, the incentives and disincentives for redevelopment must be identified, evaluated, and modified.

ACTIVITIES

Activities planned as part of this pilot include:

- Identifying the sources and scope of the brownfields problem;
- Defining the legal and regulatory obstacles to redevelopment;
- Exploring the use of new financing mechanisms to assist in assessing and remediating sites;
- Exploring the development of a new intermediary organization to promote assessment, cleanup, and redevelopment of brownfields;
- Promoting voluntary cleanups;
- Developing models for site remediation agreements;
- Promoting new technologies for remediation;
- Conducting educational and information-exchange programs to improve understanding of brownfields issues; and
- Focusing brownfields efforts and resources on sites within the Empowerment Zone.

The cooperative agreement for this pilot has not yet been negotiated; therefore, activities described in this fact sheet are subject to change.

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Brownfields Pilot – Cape Charles - Northampton County, VA

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OVERVIEW

EPA has selected the Town of Cape Charles/County of Northampton for a Brownfields pilot. Cape Charles is located at the Southern tip of Virginia's Eastern Shore on a narrow strip of land between the Chesapeake Bay and the Atlantic Ocean. The area boasts rich farmlands, productive waters, vast wetlands, and miles of unspoiled coastline. However, 27% of the 13,000 people in the area, 47% of whom are of African-American heritage, live below the poverty level.

The President's Council on Sustainable Development recently selected Cape Charles as one of four sites for a national Eco-Industrial Park demonstration project, the Cape Charles Sustainable Technologies Industrial Park, which will demonstrate advanced facilities in resource efficiency and pollution prevention. A 55-acre portion of this eco-industrial park is a redevelopment area surrounding Cape Charles Harbor on the Chesapeake Bay. The site includes a former municipal dump, dockside, and railyard, and the remains of abandoned industrial operations. The site is critically located at the gateway to the proposed eco-industrial park. This site may contain hazardous substances which threaten public health and the marine environment and must be addressed before the eco-industrial park can be developed.

OBJECTIVES

The goal of the City's brownfields effort is to facilitate the development of the Port of Cape Charles Sustainable Technologies Industrial Park as a means of creating sustainable economic development while protecting the community's unique natural, cultural, and historic resources. Specifically, the pilot will assess the extent of contamination on the 55-acre former dump and railyard site and design a remediation strategy that will enable the development of the eco-industrial park to go forward.

Once the pilot project is completed, the redeveloped brownfield will include the eco-industrial park, restored wetlands, a nature trail and environmental education facility, and a tertiary sewage treatment system.

ACTIVITIES

The primary focus of this pilot is to provide a full environmental assessment and remediation strategy to enable cleanup of this 55-acre site and development of the Port of Cape Charles Sustainable Technologies Industrial Park. Specific activities planned as part of this pilot include:

- Conducting a phase one assessment of the site;

- Conducting a phase two assessment of the site; and

- Formulating a complete remediation strategy for any contamination found on the site.

The cooperative agreement for this pilot has not yet been negotiated; therefore, activities described in this fact sheet are subject to change.

CONTACTS

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Brownfields Pilot – Richmond, VA

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OVERVIEW

In November 1994, EPA selected the City of Richmond for a Brownfields pilot. Richmond is considered the birthplace of industrial development in the South. In recent times however, its older industrial areas and neighboring residential communities have experienced private disinvestment due to environmental risk, among other factors. The results of this disinvestment have included population loss, relatively high percentage of low-moderate income persons, loss of business and industry, and vacant and underutilized commercial and industrial properties.

In January 1993, approximately 5,800 acres of city land in South Richmond was designated by the Commonwealth of Virginia as a State Enterprise Zone. Several other neighborhoods in the East and North sectors of Richmond also meet the Commonwealth's "distress criteria" and include sizable amounts of commercial and industrial properties.

OBJECTIVES

The City of Richmond Office of Economic Development has focused on brownfields economic redevelopment for several years and has already generated business interest in using or developing sites in targeted areas of the city. The objective of the Federal support of the city's Brownfields pilot project is to serve as a catalyst in moving the process of reclaiming vacant business sites forward. The city is initiating its Brownfields pilot project through the "comprehensive community and human development" concept espoused by the Federal Empowerment Zone/Enterprise Community program. The city is seeking to integrate private business investment and reuse of inner-city sites with solutions to crime, housing, education, and health.

ACTIVITIES

Planned activities funded under Richmond's pilot cooperative agreement include:

- Developing a systematic and cost-effective means to inventory and market " problem sites" with development potential;
- Conducting pre-development studies of specific sites to:
  - Isolate environmental mitigation alternatives and costs;
  - Evaluate commercial and industrial market reuse options and potential to inform planning for environmental response;
  - Compare brownfields projects to competing "greenfields" development options in the local marketplace to determine the feasibility of environmental response;

- Determine financial shortfalls and mitigate barriers toward achieving brownfields redevelopment; and

- Utilize existing and new financial incentives to stimulate brownfields assessment, cleanup, and redevelopment.

- Developing site-specific property recycling strategy in partnership with current/future site owners and users, government regulatory agencies, and the city's development staff;

- Utilizing Richmond's Neighborhood Teams Process, a citizen empowerment program, to bring host residential communities into the reuse decision making process; and

- Developing and implementing a local program performance evaluation system.

CONTACTS

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Brownfields Pilot – Philadelphia, PA

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BACKGROUND

In May 1995, U.S. EPA Region 3 entered into a cooperative agreement with the Philadelphia City Planning Commission (PCPC) and provided $200,000 to fund a Brownfields pilot project. The pilot project plans to undertake a site investigation and environmental assessment program of abandoned industrial and commercial sites in the City of Philadelphia.

A decline in Philadelphia's manufacturing industry has lead to a tremendous loss of industrial jobs and the abandonment of many former manufacturing plants. Redevelopment of these properties is difficult because potential buyers are hesitant to purchase them for fear of unknown contamination and associated liabilities. Because there are only a few tracts of undeveloped land remaining for development in Philadelphia, the City would prefer to recycle the many brownfields throughout the city.

GOALS

The goal of the PCPC pilot project is to assist in the conversion of abandoned brownfields into productive land parcels by developing a timely and flexible procedure for assessing abandoned sites in areas targeted for redevelopment. The City of Philadelphia is seeking to improve community involvement and outreach in these site assessment activities. The pilot program will be conducted in two phases and will attempt to identify five sites in the first year for assessment and up to five additional sites the second year. PCPC will use the EPA cooperative agreement to cover project management costs and consulting services for technical assistance directly related to specific Environmental Site Assessments (ESA).

ACTIVITIES

Activities planned under this pilot include:

- Selecting 10 eligible ESA sites by creating an inventory of proposed sites and developing site selection criteria. The selection criteria will be based on an analysis of former site uses, the potential for existing contamination, and the redevelopment and marketing potential of the site.

- Hiring a contractor to perform ESAs of the selected sites. Each ESA will identify the nature and extent of the environmental contamination and the site's geotechnical subsurface conditions. If warranted, remedial action strategies will be prepared based upon these findings. A descriptive report (a complete Phase I ESA) of each site will be prepared and submitted to EPA.

- Creating a formal ESA review process by establishing an interagency Environmental Audit Review (EAR) team that will include city agencies such as the PCPC Environmental Unit, Environmental Health, the Fire Department, Public Property, Air Management Services, Water Department, and the U.S. EPA. All selected sites will undergo an

EAR. A descriptive report will be prepared by the Planning Commission using results from one of the first five ESA sites. The report will include a description of the obstacles and problems encountered during the various stages of the ESA and development process.

- Coordinating with the Commerce Department, the Philadelphia Industrial Development Corporation (PIDC), and the Redevelopment Authority in an effort to market the selected sites. PCPC will make site planning recommendations to development agencies, based on environmental conditions and constraints, and will provide guidance regarding specifications for the preparation of necessary plans (e.g., site, stormwater, construction, etc.).

- Establishing a City-wide EAR procedure upon completion of the pilot program.

To facilitate the success of the pilot program, PCPC has plans to: (1) Coordinate ESA site selection activities with EPA to eliminate the potential for a duplication of efforts; (2) Obtain EPA Region 3 technical assistance for the City of Philadelphia on cleanup standards and technologies; and (3) Ensure that EPA Region 3 reviews and comments on all project deliverables.

Public participation in the planning for the reuse of individual tracts will be consistent with good planning practices and will be in accordance with existing Comprehensive District plans and/or Neighborhood Plans. Many of the proposed ESA sites will be located in areas within established urban renewal areas. Reuse plans for many of these areas were developed, in large part, by neighborhood groups in conjunction with PCPC Community Planners.

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Brownfields Pilot – Pittsburgh, PA

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BACKGROUND

In February 1995, U.S. EPA Region 3 entered into a cooperative agreement with the City of Pittsburgh and the Urban Redevelopment Authority of Pittsburgh and provided $200,000 to fund a Brownfields pilot project in the City of Pittsburgh. Pittsburgh is a mature city that is almost completely developed. Its industrial base has experienced a tremendous loss due primarily to the closing of steel mills and related metals industries. Many of these sites now lie vacant and abandoned. Currently, there are no interested buyers who are willing to invest in these properties due to the unknown extent of environmental hazards and liability and the costs associated with addressing these problems.

OBJECTIVES

The City of Pittsburgh and the Urban Redevelopment Authority of Pittsburgh seek to develop a process for conducting timely and flexible environmental assessments of contaminated, abandoned sites that the City hopes to target for redevelopment. The targeted areas are the industrial and commercial sites within the areas designated by Pittsburgh as Federal Empowerment Zone and State Enterprise Zone and within other major industrial corridors of the City. The City and Authority seek to establish a cooperative funding agreement with EPA for the investigation and assessment of the proposed sites, and to use the Brownfields cooperative agreement to cover project management costs and consulting services for technical assistance directly related to site-specific environmental assessments.

ACTIVITIES

Activities planned under this pilot include:

- Developing an inventory of sites that have development potential;
- Identifying environmental problems associated with each site;
- Identifying remediation alternatives and costs based on the findings of the site environmental assessments;
- Evaluating commercial or industrial market reuse options and potential to inform environmental response planning;
- Using financial incentives to stimulate site assessment, cleanup, and redevelopment;
- Developing site-specific reuse strategies with future site owner(s)/user(s) and relevant government regulatory personnel to inform environmental response planning;

- Developing a Brownfields pilot project performance evaluation system;
- Integrating citizen input throughout the Brownfields redevelopment process; and
- Developing public/private partnerships through capital formation for financing the assessment, cleanup, and redevelopment of brownfields.

CONTACTS

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APPENDIX C

GOVERNMENT CONTRACTS OF POTENTIAL INTEREST TO VENDORS OF INNOVATIVE REMEDIATION TECHNOLOGIES

GOVERNMENT CONTRACTS OF POTENTIAL INTEREST TO VENDORS OF INNOVATIVE REMEDIATION TECHNOLOGIES

The typical vendor of innovative technologies will act as a subcontractor on larger prime contracts, providing the specialized expertise and technology they sell. Listed below are some of the major Federal contract vehicles that are used to perform remediation. Included are contracts let by EPA, the Naval Facilities Engineering Command, the U.S. Army Corps of Engineers (USACE), and the Air Force. Where available, the name and address of the prime contractor is provided below. Based on discussions with the various prime contractors, information is provided regarding the marketing approach each company prefers.

Alternative Remedial Contract Strategy (ARCS). This is an EPA regional contract vehicle that is used to investigate and clean up abandoned hazardous waste sites. It is used to support remedial investigations, feasibility studies, remedial alternative evaluation and design, construction management, and other activities. In Region 3, there are five ARCS prime contractors: NUS/Brown & Root, Black & Veatch, CH_2M Hill, Ecology & Environment, and Tetra Tech. Vendors can contact the EPA Region 3 office for information about the vehicle.

Superfund Technical Assistance and Response Team (START). This, too, is a regional vehicle that supports the investigation and cleanup of abandoned hazardous waste sites. Vendors can contact the EPA Region 3 office for information on the contract.

In Region 3, EPA has awarded the START contract to Roy F. Weston, Inc. Opportunities for the application of innovative technologies may be available through this contract. Vendors may forward information to:

Roy F. Weston, Inc.
5 Underwood Court
Delran, NJ 08075
Attn: Greg Janiek

Technical Support to the Superfund Innovative Technology Evaluation (SITE) Program. This is a national contract designed to help in the testing and development of innovative technologies. There are two programs: the emerging technologies program, which funds vendors in small-scale tests, and

the technology demonstration program, which funds full-scale technology evaluations and expects vendors to share costs. Vendors are encouraged to apply to the SITE Program at the National Risk Management Research Laboratory (NRMRL) of EPA's Office of Research and Development in Cincinnati, Ohio. The address for both program offices and contact name and phone numbers appear below.

EPA Office of Research and Development
26 West Martin Luther King Drive
Cincinnati, OH 45268

Emerging Technology Program
Randy Parker, Norma Lewis
(513) 569-7665

Demonstration Program
Annette Gatchette
(513) 569-7697

Total Environmental Restoration Contracts (TERC). These vehicles are managed by the operating divisions of the U.S. Army Corps of Engineers (USACE). As the name suggests, the intent is to provide complete remediation services. Any U.S. Army installation may use the vehicle.

The USACE Omaha District has awarded a TERC contract to IT Corporation, which provides a vehicle for investigation and remedial work to be done predominantly on Air Force bases in Georgia, North Carolina, South Carolina, and Virginia. IT Corporation accepts information from vendors and based on a preliminary review of the technology type, responds by sending vendors a pre-qualification package for approved vendor listing. Information should be sent to:

IT Corporation
312 Directors Drive
Knoxville, TN 37923
Attn: Dan Duncan

The USACE Baltimore District has awarded a contract for work to be done especially for Picatinny Arsenal (New Jersey) and Aberdeen Proving Ground (Maryland) and other Region 3 states to ICF Kaiser Engineers.

Technical Support to the Comprehensive Long-Term Environmental Action Navy (CLEAN). This vehicle is managed by the Naval Facilities Engineering Command (NAVFACENGCOM) Field Divisions. It provides engineering and technical support for all aspects of the Navy's environmental program, including remedial action.

In Region 3, the Atlantic Division (LANTDIV) in Norfolk, Virginia, has awarded a CLEAN contract to Michael Baker Corporation/Baker Environmental. Baker Environmental invites innovative technology vendors to its Coraopolis, Pennsylvania, facility for presentations. Vendors can arrange presentation dates with Ray Wattras at (412) 269-2016, Daniel Bonk at (412) 269-2063, Tammi Halapin at (412) 269-2023, or Art Robb at (412) 269-6008. Information can be forwarded to:

Baker Environmental
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, PA 15108

The Northern Division (NORTHDIV) in Philadelphia, Pennsylvania, has awarded a CLEAN contract to Brown & Root Environmental. Opportunities for the application of innovative technologies may be available through this contract. Vendors may forward information to:

Brown & Root Environmental
993 Old Eagle School Road, Suite 415
Wayne, PA 19087
Attn: Daniel Braccia
(610) 971-0900

These contracts represent some of the major vehicles available that support remediation work and therefore can use innovative technologies. Since most of the contracts are regional, vendors may wish to identify the prime contractor in the region of interest to present the capabilities of their technologies.

APPENDIX D

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REFERENCES

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