



INTERSTATE TECHNOLOGY & REGULATORY COUNCIL

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INTERSTATE TECHNOLOGY & REGULATORY COUNCIL



*Case Studies of Selected States'
Voluntary Cleanup/Brownfields
Programs*

Volume One
Report

by Interstate Technology and Regulatory Cooperation
Work Group
and
Colorado Center for
Environmental Management

September 1997



ABOUT ITRC

Established in 1995, the Interstate Technology & Regulatory Council (ITRC) is a state-led, national coalition of personnel from the environmental regulatory agencies of some 40 states and the District of Columbia; three federal agencies; tribes; and public and industry stakeholders. The organization is devoted to reducing barriers to, and speeding interstate deployment of, better, more cost-effective, innovative environmental techniques. ITRC operates as a committee of the Environmental Research Institute of the States (ERIS), a Section 501(c)(3) public charity that supports the Environmental Council of the States (ECOS) through its educational and research activities aimed at improving the environment in the United States and providing a forum for state environmental policy makers. More information about ITRC and its available products and services can be found on the Internet at www.itrcweb.org.

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Case Studies of Selected States'
Voluntary Cleanup/Brownfields Programs

Volume 1
Report

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for

Interstate Technology and Regulatory Cooperation
Work Group
and
Colorado Center for Environmental Management

September 1997

Foreword

This report is one of a series of case studies reports prepared by the Interstate Technology and Regulatory Cooperation Work Group (ITRC). This report is a joint effort between ITRC and the Colorado Center for Environmental Management (CCEM). Other ITRC case study reports include *Case Studies of Regulatory Acceptance of In Situ Bioremediation Technologies* (1996) and *An Analysis of Performance Based Systems for Encouraging Innovative Environmental Technologies* (1997). These case studies reports are intended for a broad audience that ranges from the general reader to state and federal agencies, tribes, policy makers, project managers, scientists and engineers, and other stakeholders.

ITRC is a coalition of 27 states, federal agencies, industry representatives, stakeholders, technology developers and other interested parties devoted to reducing barriers and creating incentives for the interstate development, demonstration and deployment of environmental technologies. ITRC commenced its activities in February 1995. The Department of Energy, Office of Science and Technology, in large part, has funded ITRC efforts.

During 1996, ITRC expanded its technology-oriented focus by forming a Policy Team to examine pertinent emergent environmental regulatory approaches. The Policy Team focused on two areas -- state Voluntary Cleanup/Brownfields (VC/BF) programs and performance-based contracting and regulation. The Policy Team formed a task group for each focus area to investigate and report its findings. Each task group used an approach, modeled largely after the original case study regarding *in situ* bioremediation.

The key objective of this project was to document successful, diverse VC/BF state programs to gain an understanding regarding how they function and their implications on innovative technology needs. Seven states were selected. Teams consisting of a CCEM and ITRC representative conducted in-depth, personal interviews of state program managers and others using these programs.

No study -- particularly one focused on environmental policy -- is without controversy. ITRC and CCEM have made every effort to be objective and even-handed in this report. In furtherance of this goal, the report was the subject of a review process designed to obtain input from a broad range of points of view, including local, state and federal agencies, trade associations and consultants, and public interest advocates.

The voluntary cleanup and redevelopment of tens of thousands of contaminated sites nationwide is influenced significantly by numerous and cumbersome government processes, uncertainty in cleanup requirements and the acceptability of solutions, and marketplace disincentives. Due to the number of sites involved, small efficiencies can make an enormous difference in the numbers of sites restored to economic productivity. The VC/BF Task Group hopes that the sharing of lessons learned from state VC/BF programs will further responsible environmental cleanup -- particularly for sites that would not normally be addressed under enforcement-driven remedial programs. The Policy Group also hopes that the results of this initiative will help the ITRC define further technology-related efforts in support of these evolving programs.

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Acknowledgments

The Interstate Technology and Regulatory Cooperation Work Group (ITRC) and the Colorado Center for Environmental Management (CCEM) wish to acknowledge the individuals and organizations that contributed to this report.

We owe a debt of gratitude to the individuals who generously gave their time to tell about their experiences and insights. Their willingness to speak frankly was essential to being able to share with others the lessons learned in creating and implementing Voluntary Cleanup/Brownfield (VC/BF) programs. The names of the persons interviewed in each case study state are listed in the reports for each state in Volume 2, Appendix A.

In each of the seven states, one state representative assumed the responsibility for providing information, selecting the case study sites, arranging interviews, and coordinating reviews of drafts. This was a tremendous effort, by each of the following:

- *Michael Arnold*, Pennsylvania Department of Environmental Protection;
- *Barbara Coler*, California Department of Toxic Substances Control;
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- *Mark Pedersen*, New Jersey Department of Environmental Protection; and
- *Nancy Worst*, Texas Natural Resources Conservation Commission.

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- *David Ostrander*, Brownfields Coordinator, USEPA Region VIII
- *Steve Werner*, AIG, New York City, New York

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Executive Summary

BACKGROUND

State Remedial Programs

States have identified tens of thousands of contaminated sites, which are not listed on the Superfund National Priorities List (NPL) that potentially are in need of cleanup. State and federal enforcement-driven programs (e.g., Superfund and hazardous waste) focus on the high-priority sites and can remediate only a small fraction of the total number of sites. Moreover, these enforcement-driven programs feature disincentives to cleanup, including what some stakeholders believe to be cumbersome regulatory procedures, onerous liability schemes, expectations of pristine cleanups and expensive treatment. State VC/BF programs can provide an alternative for cleanup of the smaller, less seriously contaminated sites.

Defining State Voluntary Cleanup and Brownfield Programs

The seven state programs addressed in this report are referred to jointly as Voluntary Cleanup/Brownfields programs. The programs exhibit a continuum between purely voluntary cleanup programs (VCPs) (e.g., Colorado) and purely Brownfields programs (BFPs) (e.g., Michigan), with most states' programs possessing characteristics of both.

State VCPs generally address smaller sites with less serious contamination. Project proponents are able to clean up individual sites outside the context of an enforcement action by state or federal regulators. Activities at those sites are often prompted by impending property transactions. A typical state VCP will provide a streamlined process for oversight of a cleanup, limitations of liability for persons conducting the cleanup and for subsequent owners, and defined cleanup standards based on actual or proposed land use.

State BFPs generally address larger areas consisting of abandoned, idled, or underutilized industrial or commercial facilities. Redevelopment is usually spurred by a combination of economic forces and community concerns. A typical state BFP provides lender liability relief, tax incentives, and loan and grant programs.

Barriers to Voluntary Cleanup

Three primary barriers to voluntary cleanup are the following.

- *Legal.* Under federal and state Superfund-type laws, all "responsible parties" (i.e., site owners and operators; and generators, transporters and those who arrange for transport of wastes that ultimately contaminate a site) can be liable for cleanup regardless of whether a party actually caused the contamination and liability can extend indefinitely. Also, parties can be liable to regulatory agencies and third parties under other environmental laws and to third parties for personal injury and property damage claims.
- *Technical.* Without state oversight or guidance, there are technical uncertainties regarding the adequacy of cleanup and acceptability of remedial methods.
- *Financial.* There are tremendous financial uncertainties associated with investigation and remediation costs, environmental liabilities, and the value of the property after cleanup (both with and without residual contamination).

The degree to which a state can provide a mechanism for voluntary cleanup, regulatory streamlining and procedural flexibility, and can overcome the legal, technical and financial barriers to voluntary cleanup, will determine, in part, the success of a state's VC/BF program.

The Federal Brownfields Initiative

EPA commenced a Brownfields Initiative in January 1995 to mitigate some of the disincentives to cleanup and to support the sustainable use of Brownfields. The initiative, which has evolved since its inception, includes features that address streamlining, liability relief, technical guidance, and financial incentives. Many states have similar features in their VCP programs that generally are applicable to non-NPL sites.

State/EPA Relationship Regarding State VCPs

State VC/BF programs have been established by the states and operate independently from EPA's Superfund or Brownfields programs. As of April 1997, EPA had entered into separate memoranda of agreement (MOAs) with 10 states regarding state VC/BF programs. Significant controversy surrounds the signing of MOAs regarding conditions in EPA guidance documents, eligibility criteria, and enforcement conditions. The MOAs do not relieve a site from federal liability, but are intended to provide some comfort to responsible parties that EPA, generally, does not anticipate taking removal or remedial action at a site that is involved in an approved state VC/BF program. During fiscal year 1997, EPA will distribute \$10 million to the states for development or enhancement of their VC/BF programs.

FINDINGS

Common State VC/BF Elements

The creation of VC/BF programs is a state-by-state response to the local marketplace and the need for redevelopment of blighted neighborhoods. As a result, a high degree of variability exists among the VC/BF programs. However some common features of the seven state VC/BF programs covered in this report include the following.

- Many of the VC/BF programs emerged in the early 1990's, first at an administrative level and later supported by legislation.
- Most of the VC/BF programs are fully funded by fees paid by the project proponents. This limits staff size and the amount of technical guidance available.
- Each state puts a remarkably high number of sites through its VC/BF program in comparison with the few cleanups completed under the federal and state enforcement programs. In some cases, no actual cleanup is taking place -- no serious site contamination was found and liability relief was granted.

Elements of the seven case study state VC/BF programs are reviewed in this report in relation to (1) impetus to create the program and enter the program, (2) procedural flexibility, (3) liability relief, (4) technical guidance, and (5) financial incentives. The table on the following page summarizes the elements of the state VC/BF programs reviewed.

Impetus

The impetus for states to develop VC/BF programs is economic in nature. However, the drivers for creating these programs differ somewhat between the eastern and western states. In the eastern states, more emphasis is placed on economic redevelopment of large areas or of municipalities. Often environmental concerns are far overshadowed by economic and social concerns. In the western states, the impetus for VC/BF programs is to support transfers of operational control of facilities or ownership of land.

Procedural Flexibility

Shift From Enforcement To Cooperation. The attitude of the state staff has shifted from one of enforcement to cooperation.

Regulatory Streamlining. Although most of the states interviewed follow the state or federal Superfund-type processes in their VC/BF programs, they tend to collapse requirements, use presumptive remedies, or accelerate the process in some other manner. Two states wholly abandoned the Superfund procedures. Agency response times were limited in most states.

Public Participation. The levels of public participation required in the VC/BF programs covered in this report ranges from no required participation to a Superfund-type public participation process. Because many voluntary cleanup actions require land use changes, opportunity for public input is often available through local zoning and land use processes. In the case studies covered, the level of public participation was not raised as an issue. Neighbors of voluntary cleanup sites located in blighted communities were often appreciative of the benefits of redevelopment and tended not to significantly involve themselves in the cleanup decisions.

Cleanup And Post-Cleanup Review. Most states verify that the cleanup occurred in accordance with an approved cleanup plan. None of the states audit the post-cleanup commitments, such as operation and maintenance requirements or land use controls.

Liability Relief

Superfund-Type Liability. Most of the states interviewed have retained the liability scheme of strict, joint and several liability from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Liability extends to all "responsible parties," regardless of fault. Only Michigan limits liability to those who actually caused the contamination, leaving cleanup at approximately half the sites, to the public sector.

Liability Relief. State VC/BF programs can limit liability only under state law. All of the states provide some liability relief for possible enforcement actions by the state. Only Pennsylvania provides liability relief from citizen suits. Most of the states tend to provide liability relief through well-defined statutory defenses. Recent statutory amendments typically cover lenders and involuntary acquisitions by government entities. All states, except Michigan, also provide liability relief based upon the condition of the property.

Lender Reaction. Lenders remain hesitant to lend on contaminated property, especially if there is residual contamination or if there are significant reopeners in the no further action letters or covenants not to sue provided by the state agencies.

Technical Guidance

Cleanup Standards. Cleanup standards in all of the states interviewed are shifting away from cleanup to background concentration levels. The trend also appears to be away from resource protection to use protection. For ground water, cleanup levels tend to be premised on drinking water standards. However, in all but two states, cleanup to levels that protect actual or potential use of the ground water is permitted under limited circumstances. All of the states are allowing cleanup levels for soil to be based on actual land use.

To provide some certainty in voluntary cleanups, most of the states have published state-wide generic cleanup levels for soil and/or ground water based on specified land use scenarios. Parties may also develop site-specific cleanup levels based on health risk.

Remedy Selection. The preference for treatment of contaminated media is diminishing. At voluntary cleanup sites this is especially true because (1) these sites are often the subject of the transfer of ownership where time is of the essence, (2) cost of treatment affects the profit upon resale of the property, (3) these sites tend to be less contaminated and treatment may not be necessary, and (4) treatment often is unnecessary if the land use is non-

residential. Presumptive remedies are evolving, formally and informally. Often the remedies of choice are "dig and haul" and "wrap and cap."

All of the case study states allow the use of institutional controls, such as fencing and land use restrictions, to meet land use- or resource use-based cleanup levels. The use of institutional controls in VCPs is increasing.

Financial Incentives

Regional differences among the states covered in this report are reflected in the financial incentives offered. The eastern states, in order to get blighted lands back into the economy, tend to offer financing in the form of low-interest loans and grants to local units of government and have legislation that allows municipalities and districts to use tax increment financing or issue bonds. Often, funding is provided by non-environmental agencies. The western states reviewed do not provide similar incentives.

Evolving Issues

Federal Liability

A major hurdle for developers and lenders of contaminated property under the state VC/BF programs is the remaining potential federal liability. State/EPA MOAs, which indicate EPA's plans to take a hands-off approach to state VC/BF sites, provide some comfort. The effect of the recent EPA comfort/status letters is not yet known. Nevertheless MOAs and comfort letters do not provide any guarantee that federal liability is eliminated.

Federally-required Permits

A few states waive requirements for state and local environmental permits at voluntary cleanup sites. Permit waivers allow for fast-track cleanup without unnecessary delay. However, states are without authority to waive the requirement to obtain permits required under federal law. Federal Superfund sites are exempt from the requirement to obtain a permit for activities conducted entirely on-site, because CERCLA procedures are intended to assure environmental protection. Yet, there is no analogous permit exemption for the less contaminated voluntary cleanup sites.

Public Participation

Public participation was not raised as a concern at any of the case study sites. However, as state VC/BF programs are used to address larger, more contaminated and high-profile sites, requests for public participation in land use and remedy selection decisions can be anticipated.

Area-wide Contamination

State VC/BF programs effectively address contamination on a parcel-by-parcel basis; but like enforcement-driven remediation programs, may have deficiencies in addressing area-wide ground water plumes or ground water contamination that migrates from an upgradient source. However, the cooperative nature of state VC/BF programs may provide an opportunity for utilizing a collaborative approach to finding solutions to voluntary cleanup of area-wide ground water contamination.

Cleanup and Post-Cleanup Monitoring and Review

Most states verify compliance with the cleanup work plan. Although, many voluntary cleanup sites use non-permanent remedies, such as engineering controls (e.g., capping), institutional controls (e.g., fencing) or land use or ground water use restrictions, post-cleanup environmental monitoring often is not required, nor is compliance with commitments for such controls and restrictions verified.

Innovative Technologies

Use of innovative technologies was limited at the case study sites. Interviewees indicated that it is doubtful that innovative technologies would be financially attractive for remediation but that a market for their use may be available for site characterization and post-cleanup monitoring. The primary disincentive for using innovative remediation technologies at voluntary cleanup sites is the compressed time frames of real estate transactions. In regards to both investigation and remediation innovative technologies, owners of single voluntary cleanup sites usually do not have the financial resources to test such technologies or the opportunities for cost savings at a particular site. However, owners of multiple voluntary cleanup sites (e.g., federal agencies) or of large areas undergoing voluntary cleanup (e.g., municipalities) may find the testing and use of innovative technologies to be cost effective.

VC/BF Program Implications at Federal Facilities

In Pennsylvania, the United States Department of Defense (DOD) has initiated discussions regarding the possibility of using the state land recycling program in combination with the state's multi-site agreement program to pursue cleanup of a large number of DOD sites. Federal environmental requirements may impose some limitations on the use of state VCPs to facilitate transfer and cleanup of contaminated properties owned by federal agencies.

RECOMMENDATIONS

The following recommendations are offered for consideration as possible enhancements to state VC/BF programs.

- Exposure to federal enforcement and liability should be eliminated or at least minimized at sites that are participating in a state VC/BF program, particularly at smaller, less contaminated or complex sites (via state/EPA MOAs, EPA comfort letters, Congressional action, or other mechanisms).
- Federal requirements to obtain federal environmental permits for cleanups conducted entirely on-site should be waived, particularly at smaller, less contaminated or complex sites that are participating in a state VC/BF program.
- States should devise procedures within their VC/BF programs that enable public participation requirements to be tailored to site-specific circumstances.
- States should explore how their VC/BF programs can be expanded to clean up area-wide ground water contamination.
- States should consider development of flexible requirements for post-voluntary cleanup environmental monitoring and regulatory review of monitoring results and compliance with operation and maintenance and land use commitments.
- In order to facilitate the use of innovative technologies at voluntary cleanup sites, state and federal agencies need to work together in developing a strategic action plan to provide incentives for their use.
- State and federal agencies should explore if and how state VC/BF programs could be used to clean up federal facilities.

1.0

Introduction

1.1 Background

During autumn, 1990, the Western Governors' Association (WGA) approached federal agencies with the idea of developing a project to improve the overall process for cleaning up environmental contamination of federal lands in western states. The result was a Memorandum of Understanding (MOU) to establish a more cooperative approach to developing technical solutions to environmental restoration signed by WGA, the United States (US) Environmental Protection Agency (EPA), the US Department of Energy (DOE), the US Department of Defense (DOD) and the US Department of Interior (DOI). To implement the MOU, a federal advisory committee, the Develop On-Site Innovative Technology (DOIT) Committee, was created in 1992.

The DOIT Committee was composed of five work groups, one of which was the Interstate Technology and Regulatory Cooperation (ITRC) Work Group. The federal DOIT committee sunset in June 1996. At that time its recommendations were issued in a final report entitled "Collaborative Approaches that Save Time and Money in Western Federal Site Cleanup." One of the DOIT Committee's recommendations was to continue the support of the ITRC Work Group. By resolution of the Western Governors, the ITRC Work Group has been continued. The continuation of the ITRC Work Group is due, in large part, to funding from the DOE Office of Science and Technology.

1.1.1 The ITRC Work Group

The ITRC Work Group is a coalition of state agencies, federal agencies, industry representatives, stakeholders, technology developers and other interested parties focusing on reducing state-to-state barriers to demonstration of innovative environmental technologies. Since its first meeting in Denver in February 1995, the ITRC Work Group has grown to include 27 states, stakeholders from across the country, and representatives of several Fortune 100 companies.

The work of the ITRC Work Group is accomplished largely by task groups devoted to issues and subjects important to development, demonstration and deployment of environmental technologies. To date, most task groups have dealt with issues and technologies related to site remediation and hazardous waste treatment. Activities of the ITRC Work Group include development of reports on subjects pertinent to environmental technology, participation in state/federal/industry partnerships, review and evaluation of technical and regulatory aspects of emerging technologies, and activities related to communicating with a broad constituency.

1.1.2 Colorado Center for Environmental Management

The Colorado Center for Environmental Management (CCEM) has been involved with both the DOIT Committee and the ITRC Work Group in a variety of tasks. These activities have included regulatory analysis utilizing the case study approach, DOE technology development, and collaborative decision-making (i.e., stakeholder involvement) processes involving hazardous waste, mixed radioactive and hazardous waste, and mining waste.

1.1.3 Case Studies

In 1995, a Case Studies Task Group was formed to select and review programs and projects employing *in situ* bioremediation to clean up soil and ground water. This effort was accomplished jointly by staff from CCEM, representatives from ITRC Work Group states, and both federal agency and industry members of the ITRC Work Group. The task group published its report in February 1996, entitled, *Case Studies of Regulatory Acceptance of In Situ Bioremediation Technologies*. The path to regulatory approval and the key components and issues associated with these case studies were evaluated and summarized in the report. A significant observation in this first report was that the case study approach elicited significant participation and candor from person, and that this approach was useful to gain insight into complex subjects.

1.2 Objectives

The vision of the ITRC Work Group is to improve environmental cleanup by encouraging the use of innovative environmental technologies, while reducing regulatory paperwork and overall costs. During the July 1996 planning meeting, the ITRC Work Group expanded its ongoing technology-oriented focus by forming a Policy Team to examine pertinent emerging changes in regulatory approaches. The Policy Team examined various activities for the 1996-97 year, and chose (with ITRC concurrence) the following three focus areas.

- Voluntary cleanup/Brownfields (VC/BF) programs
- Performance-based contracting and regulation
- Voluntary consensus standards

Because of the success achieved in the previous case studies effort, the same approach - direct interviews with persons from a variety of backgrounds who are involved with programs and projects - was selected for conducting studies of both performance-based regulation and contracting as well as VC/BF programs focus areas.

1.2.1 Objectives for Voluntary Cleanup/Brownfields Case Studies

The primary objective of the task group formed for the VC/BF case study (Case Studies Task Group) was to document and report how state VC/BF programs are used for environmental remediation. The intent was to document the elements of VC/BF programs, the motivation and impetus for forming such programs, and the effects of VC/BF programs on the remediation industry.

1.2.2 Potential Benefits

State VC/BF programs are relatively new. An early identification of what works - and what doesn't work - in VC/BF programs could accelerate programmatic development at the state and federal levels where no such programs now exist, and might allow successful mid-course corrections for existing programs in search of solutions to issues and problems within their control. Cataloging the elements and experiences of VC/BF programs through case studies provides a snapshot of the ever-changing profile of environmental remediation programs, and allows information sharing across state and jurisdictional boundaries.

1.2.3 Study Approach

The Case Studies Task Group elected to use the case study approach to interview state officials and to examine state VC/BF programs. However, because of the emergent nature of state VC/BF programs, the Task Group added other stakeholders in the economic

redevelopment of contaminated properties (e.g., owners, buyers, lenders, insurers, community activists, etc.). Such interviews provide a real-world test of success from more than the regulators' perspective. The VC/BF Case Studies Task Group hoped that the additional perspectives would better inform states during the evolution of their VC/BF programs.

1.2.4 Study Population

VC/BF programs were identified by members of the Case Studies Task Group using reports by the Association of States and Territories Solid Waste Management Officials (ASTSWMO) and the Environmental Law Institute (ELI). State programs were selected to optimize geographic and programmatic diversity. State VC/BF programs selected as case studies in this report were approved by the ITRC Policy Team. Programs from the following states are addressed in this report:

- California
- Colorado
- Michigan
- New Jersey
- Oregon
- Pennsylvania
- Texas

2.0

State and Federal Remedial Programs

2.1 Traditional Enforcement-Driven Remedial Programs

Typically, states address cleanup of contaminated sites through a variety of enforcement-driven remedial programs including: federal-Superfund programs; state-Superfund programs; EPA-delegated programs under the Resource Conservation and Recovery Act (RCRA) (including solid waste, hazardous waste, and underground storage tank (UST) programs and the Clean Water Act); property transfer provisions; and other programs unique to each state. However, it is the federal Superfund law that has the greatest impact on whether a site is cleaned up voluntarily or not.¹ Additionally, many state legislatures have adopted mini-Superfund statutes patterned after the federal Superfund law. Thus, an understanding of the federal Superfund cleanup process and liability scheme is important to an understanding of state traditional enforcement-driven remedial programs, the limits of these programs, and the aspects of state VCPs that fill the gaps left by the enforcement driven programs.

2.1.1 State and Federal Superfund Programs²

Congress adopted the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) in 1980 and has amended it several times. CERCLA creates a revolving fund (hence, the name "Superfund") that can be used by EPA, state, and local governments to clean up sites that have been contaminated by hazardous substances and that have been listed by EPA on the National Priorities List (NPL). Each state also may have a list of priority sites for purposes of a state Superfund program.

Regulatory Procedures

Most state Superfund programs and many state VCP procedures are patterned after the CERCLA procedures. An important point regarding cleanups conducted under state or federal Superfund statutes is that permits are not required for such cleanups conducted entirely on-site. However, the CERCLA procedures operate in lieu of permitting requirements.

All steps of the CERCLA cleanup process are governed by detailed regulations in the National Oil and Hazardous Substance Contingency Plan (NCP). Often the CERCLA process is commenced by EPA listing a contaminated site on a database referred to as the "CERCLA Information System" (CERCLIS). Generally, the lead governmental agency (EPA, federal agency or state) will perform a preliminary assessment (PA) and site investigation (SI) to determine whether further investigation or remediation of the site is required. If necessary, a more detailed remedial investigation (RI) may be performed by the lead agency or responsible parties and a feasibility study (FS) is undertaken to evaluate options for remediation. The remedy is selected using an evaluation process and nine criteria enumerated in the NCP. The selected remedy is provided in a Proposed Plan that is subject to public review and comment. Thereafter the selected remedy is documented in a Record of Decision (ROD). A remedial action plan (RAP) details the requirements for

¹ Liability also may accrue under the federal Resource Conservation and Recovery Act (RCRA) and analogous state statutes. However RCRA liability rarely extends to parties that have not actually caused the contamination (e.g., prospective purchasers and lenders).

² A more detailed discussion of CERCLA is provided in Volume 2, Appendix B to this report.

implementing the remedy. If cleanup levels are not yet attained or will not allow unlimited use, then CERCLA requires five-year reviews by the lead agency to assure that the remedy remains protective of human health and the environment.

Liability

Most state Superfund liability schemes are patterned after CERCLA. Liability under CERCLA and similar state statutes extends to the cost of cleanup and oversight and damages for injuries to natural resources. Given the broad scope of state remedial statutes, there is some variation regarding liable parties, the retroactivity of liability, the standard of liability, and the allocation of liability.

Liabile Parties. Parties that may be liable under CERCLA and similar state Superfund statutes for the costs of investigating and cleaning up a site and for injuries to natural resources are referred to as "potentially responsible parties" (PRPs). Potentially responsible parties include generators and transporters of hazardous substances, as well as past and present owners and operators of the sites

Retroactivity. Liability under CERCLA and analogous state statutes generally is considered by the courts to be retroactive (e.g., a party may be liable for cleanup of releases of hazardous substances that predate the passage of the relevant law even though the releases may have been legal at the time). Only nine states do not impose retroactive liability under state law, including California and Colorado, which are case studies in this report (ELI 1996).

Standard of Liability. Liability under the federal Superfund and in most states is strict (e.g., if a party qualifies as a responsible party, the party is liable regardless of fault). As of 1995, 41 states had a strict liability standard. In the remaining states, negligence, recklessness or willful intent must be proven. All states covered by these case studies, except Colorado and Michigan, impose strict liability. The liability is not specified in Colorado (ELI 1996).

Allocation of Liability. Liability under CERCLA and in most states is considered to be joint and several (e.g., if there are numerous responsible parties, but only one with a deep pocket, that responsible party can be liable to the government for the entire cost of cleanup, regardless of the degree to which that party contributed to the contamination, so long as its contribution to the environmental harm is not distinct and divisible). The alternative to joint and several liability is proportional liability, which requires the government to allocate liability among responsible parties by proving proportional responsibility. Only five states specify a proportional liability standard, including California, which is the subject of a case study in this report.

Defenses to Liability. Congress recognized the onerous nature of the retroactive, strict, joint and several liability scheme of CERCLA and provided some limited defenses to liability. Most states have adopted some version of these defenses in their statutes. These are: (1) an "innocent landowner defense" for purchasers who have made all appropriate inquiry into previous ownership and use of the property; (2) the "secured creditor defense" for lenders who, without participating in the management of a facility, hold indicia of ownership primarily to protect a security interest, and (3) a defense for involuntary acquisition by governmental entities of contaminated sites through tax delinquency and the like. The courts have variously construed these defenses, and therefore, many prospective purchasers, prospective lenders, and governmental entities are reluctant to become involved with a contaminated site.

2.1.2 Limitations of Traditional Enforcement-Driven Remedial Programs

The vast majority of contaminated sites are left to state remedial programs (both enforcement-driven and voluntary) for cleanup. State remedial programs NPL. There are approximately 1,300 sites listed on the NPL, for which EPA has primary jurisdiction for remediation. However, the states have identified approximately 30,000 non-NPL sites in need of some type of cleanup and approximately 85,000 known or suspected non-NPL sites that have not been investigated (ELI 1996).

Traditional state and federal enforcement-driven remedial programs are limited in their ability to address the numerous non-NPL caliber sites in need of cleanup and may even encourage abandonment of such sites. Many of the traditional state remedial programs are patterned after federal remediation programs, such as CERCLA or RCRA, that were intended to remediate large, complex sites. These enforcement-driven programs feature and cumbersome regulatory procedures, onerous liability schemes and expectations of pristine cleanups.

Regulatory Procedures and Delays

Under Superfund-type programs, many states employ the cumbersome remedial investigation, remedy selection and public participation requirements of the federal regulations that implement CERCLA. At non-Superfund cleanup sites a permit(s) may be required. For example, a permit may be required for treatment of media (e.g., ground water or soil) containing hazardous wastes or for discharges resulting from cleanups to surface water bodies. Permit requirements can at best delay a cleanup and at worst prohibit a cleanup altogether.

The enormous amount of oversight required under traditional enforcement-driven cleanup programs may itself create delays. Overworked state agencies cannot provide the detailed oversight for numerous sites in a timely manner or to meet the timeframe of a real estate transaction. The NCP, permitting and other oversight procedures may be important at large sites with complex contamination or geology, and where potential for human exposure is high. However, for many, if not most sites, rigorous regulatory procedures may needlessly delay cleanup.

Cleanup Levels

Under enforcement-driven programs, most states have required cleanup to pristine levels, although there appears to be a trend away from such stringent requirements. Many states have required cleanup to background concentration levels for soil, to background or to water quality standards for ground water, and to water quality standards for surface water. Alternatively, states required site-specific risk assessments that assumed cleanup for residential use. States are devising to achieve more flexibility in developing cleanup standards, both within their enforcement-driven programs and through their VCPs.

2.2 Primary Barriers to Voluntary Cleanup

The need for state voluntary cleanup programs (VCPs) arises out of (1) the aspects of the traditional state and federal enforcement-driven remedial programs that discourage cleanup, (2) the sheer number of contaminated sites that can not be addressed in the near future by these programs, and (3) the barriers to voluntary cleanup. This has been further exacerbated by the desires of parties to property transactions for timely state review of environmental analyses and cleanup.

There are significant barriers to voluntary cleanups that are performed outside of a state-sanctioned remedial program. These are associated with legal, technical and financial

uncertainties. The barriers associated with uncertainties presented below are identified, in part, by the federal Office of Technology Assessment (OTA) as barriers to redevelopment of Brownfields (OTA 1995). They are presented here as barriers to voluntary cleanups, generally.

2.2.1 Legal Uncertainties

Perhaps the most significant barrier to voluntary cleanup is the potential legal liability for the cost of environmental cleanup. Because the net of environmental liability at any contaminated site is wide and the mesh is so fine, it can capture parties who did not cause the contamination. Liability, in and of itself, would not be so onerous, but for the enormity of cleanup costs at many sites, sometimes far outstripping the unpolluted value of the property.

Potential environmental liability is complicated by the maze of environmental regulation. State and federal agencies regulate the cleanup of contaminated sites. Environmental laws, regulations and programs overlap at both the state and federal levels. A party can be liable for cleanup under state and federal Superfund, hazardous waste, water quality and miscellaneous environmental laws. Even if a state agency accepts a cleanup, EPA is still free to pursue additional cleanup or penalties under its separate authorities. Assuming a regulatory agency does not institute enforcement actions, a responsible party also may become the litigation target of third parties under citizen suit provisions of environmental laws, or under toxic tort or property damage theories.

2.2.2 Technical Uncertainties

Voluntary cleanup of a contaminated site is inhibited by technical uncertainties associated with the adequacy of the site assessment, clarity and sufficiency of cleanup levels, and acceptability of the remedies. These issues are generally determined on a site-specific basis in an enforcement-driven regime. A complicating factor is that in many states, cleanup standards and the acceptability of certain types of remedies are the subjects of significant change. Without the oversight and/or concurrence of a regulatory agency, or at least without its detailed guidance, responsible parties, lenders, and others involved in a transaction have little or no certainty that potential liability is erased.

2.2.3 Financial Uncertainties

Financial uncertainties relative to voluntary cleanups include investigation costs, cleanup costs, potential environmental liability, value of the property after cleanup (both with and without residual contamination), and availability of funding. The cost of investigating the nature and extent of contamination can be prohibitive (e.g., monitoring systems); which may not be understood until a party embarks upon the investigation. Predicting the costs of remediation can be difficult; investigations can never be certain, technologies may not perform as anticipated, and additional contamination may be found. Moreover, a parcel may not be worth the cost of investigation and cleanup if these costs prove to be excessive or the property is burdened with other market disincentives. Given these uncertainties, funding for investigation and cleanup may not be available through private sources.

2.3 Remediation Reform

2.3.1 State Voluntary Cleanup/Brownfields Programs

Voluntary Cleanup/Brownfields (VC/BF) programs can provide states with an alternative to address the tens of thousands of contaminated sites that remain outside of state and

federal enforcement-driven remedial programs. At least 31 states have established VC/BF programs.

Defining State Voluntary Cleanup and Brownfields Programs

The state programs addressed in this report exhibit a continuum between purely voluntary cleanup programs (i.e., Colorado) and purely Brownfields programs (BFPs) (i.e., Michigan), with most states' programs possessing characteristics of both VCPs and BFPs. The boundary delineating a state VCP from a state BFP would be difficult to locate; thus, the state programs that are the topic of this report are referred to jointly as Voluntary Cleanup/Brownfields programs.

State VCPs generally address smaller sites with less serious contamination, often prompted by property transactions. Such programs allow a project proponent to clean up a contaminated site outside the context of an enforcement action by state or federal regulators. A typical VCP will provide a streamlined process for oversight of a cleanup conducted outside of an enforcement action, limitations of liability for persons conducting the cleanup and subsequent owners, and defined cleanup standards based on actual or proposed land use.

There are numerous definitions of the term "Brownfield." The definition used by EPA is helpful in understanding the scope of the term for purposes of this report.

Brownfields are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination (EPA 1996a).

A typical Brownfields program provides lender liability relief, tax credits, and loan and grant programs.

A state VCP may be used to clean up areas that are not considered Brownfields. For example, state VCPs may be used to clean up individual sites that the owner intends to sell. Also, in order to limit potential future liability, such programs may be used to cleanup one or more sites that an owner is actively operating.

Conversely, programs other than VCPs may be used to clean up Brownfields (e.g., Colorado is using a mining permit to cleanup Brownfields created by a century-old mining legacy). Also, Brownfields typically have problems additional to environmental contamination, which impede redevelopment. Thus, state VC/BF programs may include non-environmental aspects, such as tax incentives, economic stimulation, jobs creation, and infrastructure rehabilitation. The primary focus of this report is upon the environmental attributes of state VC/BF programs.

State Incentives for Voluntary Cleanup

The degree to which a state overcomes limitations of traditional enforcement-driven programs and the barriers to voluntary cleanup of contaminated sites, in part, determines the success of the state's VC/BF program. The following is a general discussion of incentives that states offer the participants of their VC/BF programs that are relevant to these case studies (OTA 1995). A discussion of the manner in which each case study state uniquely applies these incentives is provided in Section 3.

Procedural Flexibility. States typically use a more cooperative attitude in working with voluntary cleanup proponents than in an enforcement context. The approach is more results oriented with less emphasis on procedure. The voluntary cleanup process tends to be more streamlined and responsive to the deadline of the participants.

Liability Relief. State VC/BF programs remove uncertainties relative to liability under state law only. Liability may remain uncertain under federal environmental law unless the state has a memorandum of agreement (MOA) with EPA or the party executes a separate agreement with EPA. Liability also may remain relative to third-party lawsuits under the citizen suit provisions of state or federal environmental laws or for toxic torts.

States typically limit liability from state enforcement actions (e.g., penalties, cost of cleanup, and natural resource damages). States may limit liability based upon (1) the nature of the party, or (2) condition of the site.

In the first category, states typically use statutes or regulations to define responsible parties. A law or rule may wholly exempt specified types of parties, such as local governmental entities that involuntarily acquire contaminated property (e.g., tax sale). Alternatively, statutes or regulations may establish clearly defined defenses to liability, such as for innocent landowners and lenders who do not participate in management. States may acknowledge these defenses on a site-specific basis via a letter or other form of written documentation.

In the second category, states may provide liability relief based upon the condition of the property. Liability relief is provided on a site-specific basis; the state documents that remedial action is not necessary or that the cleanup conducted is sufficient. Assurances may take the form of "no further action (NFA) letters," "certificates of completion," "covenants not to sue" and the like. Sometimes the state documents compliance with statutes or regulations, which in turn, provide relief from liability. Typically, the assurances (whether in the form of a letter or statute) contain reopener provisions that reserve a state's right to enforce under specified circumstances. The number and breadth of the reopeners directly impact the willingness of lenders and developers to become involved with a contaminated site.

Technical Guidance. When states remove technical uncertainties associated with state requirements, parties are more likely to engage in a voluntary cleanup. Investigation and remediation costs can be more accurately predicted. Time spent negotiating cleanup levels and remedies is minimized. The manner in which states remove technical uncertainties may not be unique to a VC/BF program, but may well be an outgrowth of the needs of responsible parties to contain costs and expedite a voluntary cleanup.

States provide technical guidance primarily in regards to cleanup levels, site investigation and remedy selection. Regarding cleanup levels, states may promulgate regulations or issue guidance that provide numerical constituent concentration limits for specified uses of land or water. Alternatively, states may prescribe risk assessment methodology and assumptions for calculating cleanup levels. With respect to site investigation, state statute, regulation, or guidance often detail the constituents and nature of investigation required to obtain a no further action letter or other certification of cleanliness. Regarding remedy selection, many states have statutes or regulations that allow engineering controls (e.g., ground water pollution containment) and/or institutional controls (e.g., deed restrictions) that are dependent upon the designated uses of land or water. Also, some states, by guidance or otherwise, have established "presumptive remedies," which are boilerplate remedies for standard environmental conditions (e.g., capping of a municipal solid waste landfill).

In the context of a VC/BF program, most states provide program participants with technical assistance in the form of guidance documents and staff review during all phases of the investigation and remediation. The states will also provide some certainty that the cleanup is

complete using certified environmental professionals or information provided by the program participant.

Financial Incentives States may offer grants, low-interest loans, loan guarantees, and tax credits to entice participation in a state VC/BF program. Frequently, grants and loans are limited to the investigation or remediation phase. Tax credits may be limited to economically distressed areas or other designated districts (e.g., land fill reclamation districts or ports). Also, states may pay for orphan shares at a VC/BF site (ASTSWMO 1996).

Other Incentives. Other incentives offered by states to participate in their VC/BF programs include:

- Removal of a site from a state inventory of contaminated sites, thereby removing a stigma affecting marketability; and
- Refusal to submit sites undergoing voluntary cleanup for inclusion on the NPL or to concur with EPA's proposed listing on the NPL.

2.3.2 EPA's Brownfields Initiative

Incentives for Brownfields Cleanup

In an effort to reverse the downward spiral of properties languishing for want of cleanup, EPA Administrator Carol Browner announced the Brownfields Action Agenda on January 25, 1995. The agenda, evolving since then, includes incentives to Brownfields cleanup.

Procedural Flexibility. To speed up cleanup at CERCLA sites, EPA created the Superfund Accelerated Cleanup Model (SACM) in the early 1990s. Presumptive remedies were, and continue to be, adopted under SACM and are now incorporated as part of EPA's Brownfields Initiative. Presumptive remedies are preferred technologies for common categories of sites and are based on a history of commonly selected remedies for these sites.

Liability Relief. Although a party may obtain relief from liability under state law through participation in a state VC/BF program, the specter of liability under federal environmental laws remains. As part of the Brownfields Initiative, EPA is attempting to clarify liability issues under CERCLA.

- During February 1995 and January 1996, EPA removed approximately 27,000 sites from the CERCLIS list. Most of these sites were sites that had been designated "No Further Remedial Action Planned" or were being addressed under state cleanup programs. Removal from the CERCLIS list indicates that EPA is not likely to have any further CERCLA interest in these sites.
- On May 24, 1995, EPA issued its policy regarding enforcement against owners of property overlying contaminated ground water (EPA 1995b). That policy provides assurance that EPA does not anticipate suing a property owner for ground water contamination underlying the property if the owner did not cause or contribute to the contamination
- The most direct way for a prospective purchaser to resolve federal liability under CERCLA is by entering into an Prospective Purchaser Agreement (PPA) with EPA.

The PPA provides the United States' covenant not to sue for costs or performance of a cleanup. According to an EPA policy document, EPA will enter PPAs only if EPA otherwise anticipated taking action at the site facility (i.e., the site is listed or proposed to be listed on the NPL or EPA is conducting, or plans to conduct, a removal action) (EPA 1995a).

- In a memorandum, dated October 20, 1995, EPA and the US Department of Justice both stated their policy that they will not seek costs or cleanup under CERCLA if state or local governments acquire property involuntarily (EPA 1995c). EPA clarified that the term "involuntary acquisition" includes tax delinquency foreclosure, abandonment and escheat but does not include condemnation and eminent domain.
- On January 30, 1997, EPA four model comfort letters (EPA 1997d). These letters, while not eliminating federal liability, can provide some comfort in the knowledge of what EPA knows about the property and what its intentions are under CERCLA.

Technical guidance. EPA is attempting to remove technical uncertainties in CERCLA cleanups through guidance documents addressing (1) land use in the remedy selection process, (2) soil cleanup and (3) innovative technologies.

- On May 25, 1995, EPA issued a directive requiring increased consideration of land use in the remedy selection process at NPL sites (EPA 1995c). EPA encouraged discussion with local land use planning authorities and the public during the scoping of the remedial investigation and feasibility study with the intent of developing remedial alternatives that are consistent with reasonably anticipated future land use.
- During July 1996, EPA issued soil screening guidance to help standardize and accelerate the evaluation and cleanup of contaminated soils at NPL sites where future residential land use is anticipated. It provides soil screening levels for determining when further investigation and/or remediation is necessary; it does not provide cleanup levels.
- EPA has draft copies available of publications relating to the use of innovative technologies at Brownfields sites (EPA 1997e and 1997f). These documents draw upon EPA's experiences with Superfund, RCRA corrective action and UST sites. The documents link emerging, innovative and established technologies to the site assessment, site investigation, remedy selection and remedy design and implementation phases of a site cleanup. The documents also provide detailed references for information regarding the technologies.

Financial Incentives. As part of the Brownfields Action Agenda, EPA funded approximately 78 Brownfield pilot projects through April 1997. Pilot grants of up to \$200,000 went to state and local governments. The pilots are intended to "test redevelopment models, direct special efforts toward removing regulatory barriers without sacrificing protectiveness, and facilitate coordinated environmental cleanup efforts at the Federal, State, and local levels" (EPA 1996b).

EPA has created a Brownfields Cleanup Revolving Loan Fund. For fiscal year 1997, only entities that were awarded Brownfields assessment pilot grants prior to October 1995 will be eligible to apply (i.e., the first 29 grant recipients). Eligible entities will need to demonstrate (1) an ability to manage a revolving loan fund and environmental cleanups;

(2) a need for cleanup funds, (3) commitment to creative leveraging of EPA funds with public-private partnerships and in-kind services, and (4) a clear plan for sustaining the environmental protection and related economic development activities (EPA 1997a).

EPA Relationship with State VC/BF Programs

As of September 1997, EPA has entered into separate MOAs with ten states regarding state VC/BF programs. These memoranda will not relieve a site from federal liability, but are intended to provide some comfort to responsible parties that EPA does not anticipate taking removal or remedial action at a site that is involved in an approved state VC/BF program, unless EPA determines that there may be an imminent and substantial endangerment to the public health, welfare, or the environment.

On November 14, 1996, EPA issued a memorandum to Superfund National Policy Managers regarding relations with state VCPs (EPA 1996c). The memorandum sets forth interim baseline criteria for evaluating the adequacy of state VC/BF programs for purposes of (1) providing funding for such programs and (2) negotiating MOAs with the states.

3.0 Case Studies

3.1 Objectives

The objective of the VC/BF case studies is to document the elements of such state programs and their success in order to share successful programs with other states and interests and to gain insight regarding implications of those programs on future innovative technology needs.

3.2 Selection Criteria

The Policy Team and Case Studies Task Group identified and screened state VC/BF programs using a series of information sources. Initial state information gathered through use of an ITRC questionnaire (ITRC 1996) reinforced the interest in having the ITRC Work Group pursue investigation of state VC/BF programs. The Case Studies Task Group refined that information using surveys conducted by ASTSWMO and ELI (ASTSWMO 1996 and ELI 1996).

Screening criteria included: whether a state had voluntary cleanup or Brownfields programs or some mixture of each; the number of sites that had entered and completed the program; the scope of voluntary cleanup incentives offered; and the nature of cleanup funding provided. Overall geographic and programmatic diversity was sought. States were then contacted to assess their willingness to participate and to organize interviews with state employees and other stakeholders. A final list of states was assembled by the Case Studies Task Group and approved by the ITRC Policy Group. The seven states selected as case studies for this report are the following.

- California
- Colorado
- Michigan
- New Jersey
- Oregon
- Pennsylvania
- Texas

3.3 Case Study Methodology

The method of the Case Studies Task Group was to collect data through personal interviews with stakeholders in each state. The approach taken was that of a neutral survey; no single hypothesis was being tested.

The first step was to assemble a generic list of questions for each type of anticipated stakeholder including state employees, EPA employees, past and present owners and operators, lenders, insurers, and community representatives. Guidance was sought from representatives of each type of stakeholder in assembling the generic list of questions. The list was forwarded to each state prior to the interviews.

A representative from each state took primary responsibility for organizing the interviews and selecting one or more VC/BF sites to showcase as successful examples of the state program. Typically, state program and site managers, owners and operators, and lenders

were interviewed. Miscellaneous stakeholders that were designated by the state were also interviewed such as, city representatives, community leaders, attorneys, and environmental consultants. Also, the Case Studies Task Group, on its own initiative, interviewed representatives of the Environmental Banking Association and EPA. Interviews of the stakeholders were conducted by teams of two, consisting of a representative of the Case Studies Task Group and a representative from CCEM.

Individual case study reports for each state were drafted and are included in Appendix B to this report. These reports contain data collected through the interviews, information from written materials provided by the state (e.g., statutes, regulations, guidance, fact sheets, applications and model releases from liability), and observations of the Case Studies Task Group. The individual case study reports were provided to the relevant state contact and other interviewees for review and comment before they were finalized and appended to this report. The main report summarizes and reviews the elements of each state program in regards to: the impetus for the program; procedural flexibility; liability relief; technical certainty or guidance; and financial incentives. Evolving issues in each state program and nationwide are also noted.

Although the Case Studies Task Group provided advice on the entire case studies report, it focused primarily on the structure and content of the main report through a combination of conference calls and a March 1997 meeting in Denver. The ITRC Management Team was kept apprised of the work of the Case Studies Task Group through periodic reports from the Policy Team leader.

3.4 Highlights

Highlights of individual state programs are provided below. Detailed descriptions of the case studies are provided in Volume 2, Appendix A.

3.4.1 California

Background

The California VC/BF program is multi-jurisdictional and is housed in various state and local agencies, each with their own set of legal authorities. The central state Department of Toxic Substances Control (DTSC) and Water Quality Control Board (WQCB) each have a VC/BF program. This report focuses on the VC/BF of DTSC because it is the primary program, but the program provided by the state WQCB is quite relevant. The DTSC and WQCB each have regional offices that implement the VC/BF programs of the central agencies.

The DTSC VC/BF program is a mix of statutory and administrative initiatives developed since the late 1980s. Legislative initiatives cover funding mechanisms for local units of government, coordination among agencies with VC/BF programs, outsourcing of oversight to local agencies and private parties, and an experiment in VCP incentives and regulatory streamlining. DTSC administrative initiatives include policies that EPA has subsequently adopted in its Brownfields Initiative. DTSC administers its VC/BF programs through policies developed in 1989 and replaced in 1996.

Program Summary

Most sites are eligible to enter the DTSC VCP unless they are listed on, or proposed to be listed on the NCP or are contaminated with only petroleum. The program is entirely self-funded through oversight fees. Approximately 280 projects have entered the program, and approximately 150 sites have been completed, state-wide.

Program Features

Procedures. Following submittal of a brief application, the project proponent meets with DTSC to negotiate a voluntary cleanup agreement. The agreement details investigation and remedial activities and requires payment of 50% of the estimated DTSC oversight costs up front. Either party may terminate the agreement with 30 days written notice. If cleanup is completed commensurate with the agreement, DTSC issues a "Certificate of Completion." If a party performs a cleanup without DTSC oversight, the proponent may submit a final cleanup report and receive a NFA letter. Requirements for public participation are similar to NCP requirements under the federal Superfund program. These are attached to the voluntary cleanup agreement.

Liability Relief. DTSC will enter into a PPA under somewhat limited circumstances. The PPA contains a covenant not to sue with numerous reopeners and reservations of rights. DTSC will also issue a conditional comfort letter if a party completes a cleanup under WQCB VCP. There is a significant number of reopeners in the NFA letters, Certificates of Completion, and PPAs in comparison to the other states covered in this report.

Cleanup Standards. Cleanup standards are common to all of the environmental remedial programs within the jurisdiction of DTSC. Cleanup levels are determined by the intended use of the land (consistent with prevailing zoning) using a risk-based approach. Ground water levels are generally based upon water quality standards promulgated by the regional WQCBs. These are usually maximum contaminant levels (MCLs). However, one regional WQCB allows contaminant zones (i.e., areas where ground water does not comply with MCLs). This is under review by the State WQCB.

Remedy Selection and Innovative Technologies. Using land use controls to limit future exposure to contaminants is used extensively in the DTSC VC/BF program. Cleanup for other than residential use must be accompanied by restricted uses that are noticed as deed restrictions and filed with the county recorder. According to DTSC guidance, the use of presumptive remedies and innovative technologies is emphasized in the VC/BF program.

Financial Incentives. California's VC/BF program is intended for use by financially viable parties who are able to pay for the cleanup. State funding is unavailable to local units of government or to private parties.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. Negotiations of memoranda of agreement are underway with EPA.

EPA Brownfields. EPA has awarded Brownfields Pilot grants to six cities. DTSC is the lead agency in assisting these cities with their pilot activities.

Other State Programs. DTSC complies with the ground water cleanup requirements defined by the regional WQCBs. The approach to cleanup of soil contamination differs between DTSC and WQCBs. The WQCBs define cleanup of soils by the impacts to ground water, whereas DTSC defines cleanup levels based upon exposure to the contaminated soil, as well as impacts to ground water. Where hazardous wastes are encountered, compliance with substantive requirements RCRA is required.

Findings

Impetus. The California DTSC VCP is a forerunner among the states included in this report. The program began administratively in the late 1980s within DTSC in response to

"walk-in" business (i.e., requests for help in regards to real estate transfers). It has since evolved among various state and local agencies and at a legislative and administrative level.

Procedural Flexibility.

- There is a unique competition for VCP services between two state agencies (DTSC and WQCB), which enables project proponents to shop between them for the best deal in terms of oversight costs and liability relief. This may keep costs in check, but raises questions regarding duplication of state services.
- DTSC follows the federal NCP process for investigation, remediation and public participation. However, the agency asserts that it streamlines that process in voluntary cleanups, which was borne out at the case study sites.
- DTSC urges its staff to work with the responsible parties in a cooperative, service-oriented way.

Liability Relief.

- If a project proponent obtains relief from liability from one agency under that agency's VCP, it may remain liable to another agency for cleanup of residual contamination. However, the legislature provided the opportunity to request unified agency review to inhibit the whipsawing of voluntary cleanup participants.
- California is making inroads with lenders and is starting to reap the benefits of recent VCP outreach efforts over the past few years. DTSC believes that NFA letters and Certificates of Completion increasingly are viewed as important in gaining loans for investments in these properties.
- In comparison to other states covered in this report, the NFA letter, Certificate of Completion, and PPA contain far greater reservations of rights and reopeners.

Technical Guidance.

- The trend in California is a shift away from cleanup meeting background concentration levels to health risk-based levels premised on land and resource use. This trend has been accelerated by a recent Governor's executive order, which should minimize divisiveness among state and local regulatory agencies and provide greater certainty to project proponents.
- One regional WQCB is experimenting with "blue-lining," (i.e., establishing areas of ground water non-attainment). This approach is also used in other states such as New Jersey and Michigan.

Financial Incentives. The DTSC VC/BF program caters to financially viable parties. No state grants or loans are provided for investigation or cleanup.

Evolving Issues.

- At the Emeryville case study site, the city has assumed the liability and responsibility for regional ground water cleanup under the VC/BF program. No other similar approach was found in the other case study states, where regional ground water contamination is either not addressed under the VC/BF program or is addressed on a parcel-by-parcel basis. The outcome of this novel approach, should be observed by other states and regions as a possible means to cleanup of regional ground water contamination under other VC/BF programs.

- If RCRA hazardous wastes are encountered during a voluntary cleanup, they must be managed in a manner consistent with the hazardous waste requirements, but a hazardous waste permit is not required for activities that occur on-site.

3.4.2 Colorado

Background

The Colorado state legislature created the Voluntary Cleanup Program (VCP), effective July 1, 1994. The legislature intended to foster transfer, redevelopment and reuse of contaminated sites, in part by minimizing administrative processes and costs. The Colorado Department of Public Health and the Environment (CDPHE) administers the VCP to be non-bureaucratic and user-friendly.

Program Summary

Colorado's VCP is created by statute; rulemaking is not authorized. The VCP is administered by one or two staff members. Approximately sixty sites have entered the program since it commenced in July 1994. The program is intended to be funded wholly through the \$2,000 application fee for each site.

Program Features

Procedures. The Colorado VCP does not admit sites that are otherwise subject to cleanup under other state environmental programs or that are listed or proposed for listing on the NPL. Only the owner or owner's representatives are eligible to participate. Parties may apply for (1) approval of a voluntary cleanup plan or (2) a "no action determination," (i.e., that cleanup is not necessary). CDPHE must respond to an application within 45 days. An environmental professional provides a certificate of completion after implementation of the voluntary cleanup plan. Compliance with the voluntary cleanup plan is not verified by CDPHE. No public involvement is mandated in the statute or required in practice by CDPHE. The MOA between CDPHE and EPA mandates public notice (but not comment) of an approved voluntary cleanup plan in order to receive EPA's commitment not to pursue enforcement.

Liability Relief. Little, if any, liability relief is afforded by the Colorado VCP. By definition, if a site is within the VCP, it is not within the enforcement authority of an environmental agency. Also, voluntary cleanup plans are not enforceable.

Cleanup Standards. Cleanup standards are not defined under the authorizing legislation. CDPHE uses a risk-based approach premised on current or planned land use. Risk assessments are discouraged in favor of published concentration limits for constituents in soil or ground water.

Remedy Selection and Innovative Technologies. An applicant is not required to present an assessment of multiple remedial alternatives. Engineering controls may be considered co-equally with treatment options. Land use controls are not required to be recorded in county records nor included in deed restrictions. The voluntary cleanup statute does not create incentives or barriers to the use of innovative technologies. However, CDPHE observed that the short time-frames involved with real estate transactions create disincentives to using innovative technologies.

Financial Assistance. No financial assistance is provided to public or private entities for voluntary cleanup.

Unique Features. The legislation provides that if CDPHE approves a voluntary cleanup plan or issues a NFA letter, that CDPHE will actively pursue a determination by EPA that it will not enforce against the site until cleanup is complete. Also, the statute prohibits financial institutions from requiring a purchaser of commercial real estate to participate in the VCP as a precondition to lending. Enforcement of this provision is questionable.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. During April 1996, CDPHE and EPA entered into an extensive MOA regarding the VCP. The MOA creates additional requirements for a site owner, beyond those required by the statute, in order to obtain EPA's agreement not to enforce against a site that has substantially complied with a state-approved voluntary cleanup plan. Additional requirements include public participation and verification that cleanup has been performed in accordance with the plan. EPA's agreement not to enforce applies only to "non-NPL-caliber" sites.

EPA Brownfields. An EPA Brownfields Pilot grant was provided to CDPHE to cover four sites and additional activities. None of the sites have gone through the VCP.

Other State Programs. Sites with RCRA hazardous wastes may enter the VCP if (1) the release is minimal, (2) there is no off-site migration, and (3) there are no dense non-aqueous phase liquids (DNAPLs) released.

Findings

Impetus. The Colorado VCP arose primarily in response to requests for assurance that sites involved in real estate transactions either did not need to be cleaned up or that a proposed cleanup would be sufficient.

Procedural Flexibility. Because of the cap on state services of \$2,000 per site and the lack of authority to promulgate VCP regulations, the Colorado VCP process is remarkably flexible -- perhaps the most flexible and streamlined of all the case study programs evaluated in this report. Also, staff was picked, in part, based upon their ability to approach cleanup in a creative and non-regulatory manner. The flexibility of the staff was demonstrated in the case study site by their ability to respond to the numerous surprises that arose during excavation and cleanup.

Liability Relief. Little liability relief is afforded by the Colorado VCP due to several factors. Only sites that would not otherwise be under the jurisdiction (i.e., enforcement authority) of another environmental program or agency are eligible to enter the VCP. Also, the state staff do not verify that cleanup occurred according to the approved cleanup plan. Finally, approved land use is not ensured because deed restrictions or other controls are not required. The impact of little liability relief was demonstrated in the case study site, where the developer refused to take title to the land.

Technical Guidance.

- Cleanup levels are suggested by project proponents, but risk assessments are discouraged because of state funding limitations.
- Any informal technical support provided by state staff is limited by the \$2,000 limit per site.

Financial Incentives. No financial incentives are provided through the Colorado VCP.

Evolving Issues.

- The CDPHE/EPA MOA requires public participation and cleanup verification in order to obtain EPA's agreement not to pursue enforcement under CERCLA.
- The severe statutory limitation on funding allows cost-compliant state review and support at only the smaller, least complex sites.
- The Colorado VCP remains untested in regards to ground water remediation.
- CDPHE has clearly defined the circumstances regarding sites, which are subject to RCRA authority, for deferral to the VCP.

3.4.3 Michigan

Background

The VC/BF program has evolved since the 1982 Michigan Environmental Response Act. The 1995 amendments created a philosophical shift away from an enforcement/polluter pays approach towards an emphasis on site remediation. Highlights of those amendments include:

- Limiting liability for cleanup to persons who caused the contamination;
- Requiring "due care" on the part of a non-culpable land owner; and
- Removing excess conservatism from cleanup standards.

In 1988, a state bond referendum passed that provided \$425,000,000 for remediation at sites where a responsible party could not be found. By 1996, most of the funds has been spent. Additionally, the 1995 amendments, by limiting liability to those who had caused contamination, reduced the number of private parties responsible for cleanup by one-half. A follow-up legislative package in 1996 provided a permanent ongoing funding mechanism for site cleanup and means by which local governments could fund cleanup of contaminated lands.

Program Summary

The VC/BF program, managed by the Michigan Department of Environmental Quality (MDEQ), is implemented through a combination of the 1995 amendments and previous regulations. MDEQ is drafting program regulations, which it anticipates promulgating Summer 1997. About 50 employees in the Environmental Response Division work on VC/BF issues, of which about one-half are located throughout the six regional offices.

Program Features

Procedures. Because the Michigan statute eliminates liability for non-culpable parties who owned or operated the site before the effective date of the amendments (June 5, 1995), the voluntary cleanup program pertains primarily to non-culpable parties who acquire the contaminated property after that date. Only sites where contamination is greater than MDEQ's residential criteria are eligible to enter the program.

A new owner or operator is exempted from liability if (1) a adequate baseline environmental assessment (BEA) is conducted prior to, or within 45 days after the date of purchase, occupancy, or foreclosure, and (2) the BEA is disclosed to MDEQ. The new owner or operator must also exercise due care to prevent exacerbation of existing contamination, prevent unacceptable exposure to contamination and take reasonable precautions against actions of third parties.

A new owner or operator may petition MDEQ to (1) approve the adequacy of a BEA (i.e., assure that the liability exemption will apply), and/or (2) determine that the new owner or operator is in compliance with the due care obligations. The petition must be accompanied by a fee of \$750. MDEQ has 15 days to respond.

MDEQ does not require public notice and comment regarding proposed cleanup plans unless: the remedy will be state-funded; there is significant public interest; engineering or institutional controls are required; or ground water standards are waived. More direct opportunities for public input often is available locally through zoning and land use actions associated with these sites.

Cleanup Standards. Parties undertaking cleanup at a facility may choose from four categories of land use or use site-specific cleanup criteria. Land use must comply with existing and probable land use. The 1995 amendments reduced the acceptable level of excess cancer risk from 1×10^{-6} to 1×10^{-5} relative to cleanup of soils. The 1995 amendments require cleanup of ground water to drinking water standards, although this requirement may be waived under certain circumstances. Also, whether there is a pertinent pathway to drinking water sources may be considered.

Remedy Selection and Innovative Technologies. According to the statute, permanent remedies are preferred over institutional controls. Land use and resource use restrictions must be imposed on sites that are not cleaned up to residential criteria and these restrictions must be recorded with the county. The 1995 amendments states that "MDEQ shall encourage the use of innovative cleanup technologies." However, any combination of response actions that meets the cleanup criteria is acceptable.

Liability Relief. In addition to liability relief afforded to new owners or operators who perform and disclose BEAs, the statute exempts from liability: local governments that acquire contaminated properties involuntarily; owners of property onto which contamination has migrated; and all parties who loan money for purchase or improvements at a site.

Financial Assistance. Financial support is a major feature of the Michigan VC/BF through (1) use of the remaining bond fund, and (2) the new loans available to both local governments and the private sector. Indirect financial help is provided to local governments and private parties via various tax relief measures associated with property reuse. Approximately \$380 million have been used for cleanup of orphan sites, including VC/BF sites.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. In July 1996, MDEQ and EPA entered an MOA, wherein EPA agrees not to plan or anticipate a CERCLA action against a new owner or operator who performs and discloses an adequate BEA to MDEQ, complies with the due care obligations, and did not otherwise cause contamination at the site. The MOA appears to help allay concerns with those parties and the investment community.

EPA Brownfields. EPA awarded Brownfields grants to several cities in Michigan. In those areas, local officials are working with MDEQ to gain support and concurrence with the cleanup and redevelopment activities.

Other State Programs. The risk-based approaches used for VC/BF decisions are also being used in the state UST and Superfund programs. Hazardous wastes encountered during

a voluntary cleanup are being remediated consistent with the substantive requirements of RCRA.

Findings

Impetus. Apparently, Michigan was losing business to neighboring states due, in part, to blighted urban areas and in part due to environmental enforcement activities. The 1995 legislative amendments were a response to the Governor and mayors and to the regulated community.

Procedural Flexibility. Michigan does not have a separately defined voluntary cleanup program. If it requires cleanup, there is flexibility in determining land use, cleanup levels, points of compliance, etc.

Liability Relief.

- Michigan has moved away from strict liability for owner/operators of facilities to a causation-based liability. This factor has reduced the number of parties who would otherwise be responsible for cleanup by about one-half.
- Liability relief for new owners or operators provided by the statute, as long as the BEA is disclosed to MDEQ. The BEA must be adequate to distinguish a new release from existing contamination. Because the liability relief is not provided in a no further action letter or a prospective purchaser agreement as occurs in other states, the statute -- rather than the document -- contains the reopening provisions that allow MDEQ to require cleanup. These reopeners are in the form of the due care requirements imposed on the new owner and are relatively limited. Reopeners also exist if the new owner or operator is responsible for a subsequent release.
- Unlike most other states in this report, the lender liability exemptions apply to all types of lenders.

Technical Guidance.

- With causation-based liability, cleanup could be delayed or may not occur at all. Contamination coming from off-site or historical on-site contamination is not the responsibility of an owner or operator who did not cause the contamination. Cleanup could occur if (1) the lender or market required it, or (2) MDEQ requested cleanup by a responsible party or performed the cleanup itself.
- MDEQ has developed a "no-action alternative" for cleanup of ground water in instances where there is risk to human health and the environment below cleanup criteria.
- Soil cleanup is defined by using a "pertinent pathway analysis" that determines impacts to ground water considering actual geologic conditions.
- Cleanup levels are defined by actual land use.
- The cumulative result of the technical changes made by MDEQ under the 1995 amendments is that cleanup is occurring to less onerous standards at each site. This has resulted in cost savings at existing bond-funded cleanups of 70-80% and at most cleanups of about 50%. It is unknown whether this means that more lands have been returned to economic productivity.

Financial Incentives.

- Because causation-based liability has cut the number of responsible parties in half, the burden is shifted to the taxpayers to pay for cleanup. The Governor and Legislature have responded to this shift in burden by providing general funds, mechanisms for municipalities to raise cleanup dollars, and tax incentives to private parties who redevelop contaminated property.
- Many lenders are still reluctant to finance a project if there is residual contamination.

Evolving Issues.

- MDEQ does not require a RCRA permit for on-site cleanups of hazardous waste occurring under Part 201.
- Michigan has an MOA with EPA for cleanups that occur under the 1995 legislative amendments to Part 201. However, in the past, the regulated community has not been as concerned regarding EPA enforcement as it has in regards to the historically vigorous enforcement posture of MDEQ. Although the MOA has alleviated some concern, the financial community, in particular, has adopted a wait-and-see approach in regards to MDEQ.

3.4.4 New Jersey

Background

In 1983, New Jersey embarked upon a major initiative for the cleanup of industrial property under the Environmental Cleanup Responsibility Act (ECRA). That legislation required that the Department of Environmental Protection (NJDEP) concur regarding the adequacy of site cleanup as a prerequisite to transfer of industrial sites. Onerous requirements (e.g., cleanup to background levels) hindered property transactions at many of these sites, particularly in the existing urban centers.

The 1993 Industrial Site Recovery Act (ISRA) replaces ECRA, retains property transfer requirements, but streamlines the regulatory process. ISRA allows for voluntary cleanups and limits liability. ISRA stresses a cooperative approach on the part of NJDEP and included the following features along with authority for the current VC/BF program.

- Increased NJDEP flexibility in setting cleanup standards
- Liability relief
- State loan program to assist communities to conduct investigative activities of contaminated properties acquired by default

Program Summary

The VC/BF program is a separate program within NJDEP, administered through detailed regulations. Since the program began in 1993, over 5,000 sites have submitted applications; about 3,000 of them have been completed. An average of 150 applications are submitted monthly. The program is funded entirely through fees.

Program Features

Procedures. NJDEP oversight is not required for purely investigative activities and for soil remediation using state cleanup standards. However, remediation of surface water and ground water requires state oversight. Parties in need of or requesting NJDEP oversight negotiate an MOA with NJDEP. The MOA is a contract that may be terminated at any time.

The investigation and remedy selection generally conforms to the CERCLA process. The incentive for participating in a cooperative agreement with NJDEP is the receipt of a "no further action" letter once cleanup has been approved. That letter is valuable for financing property transactions. The VC/BF program does not have specific public involvement requirements.

Liability Relief. When a party completes remediation in accordance with the MOA, NJDEP will issue a NFA letter. The NFA letter contains only two standard reopeners: (1) if a cleanup standard that was applied at the site has decreased by more than a factor of 10; and (2) if new information related to the site is found. Once an NFA letter is issued, NJDEP removes the site from its state list. New Jersey statutes also limit liability for lenders who maintain indicia of ownership and who do not participate in management of the facility, innocent landowners, and local governments who involuntarily acquire title to property.

Cleanup Standards. The 1993 legislation allows for cleanup based on prospective land use. NJDEP has adopted residential and non-residential soils remediation standards, although site-specific levels may be used. Cleanup levels for ground and surface water are defined by state standards based on the resource use. Variances are frequently granted in large plumes of contamination, where ground water cannot be restored to drinking water standards.

Remedy Selection and Innovative Technologies. There is a statutory preference for permanent over non-permanent remedies. Contaminants may be left on-site if institutional and engineering controls are included and are recorded with the county clerk. NJDEP shares innovative technologies with VC/BF participants. It also provides responsible parties with some regulatory relief and credits for use of innovative technologies provided by a New Jersey-based vendor.

Financial Assistance. State grants and loans are available to municipalities for investigative work for properties obtained involuntarily. Municipalities may also establish "Environmental Opportunity Zones" where local property tax incentives will be provided for a 10-year period to developers of contaminated property. Private parties may apply for loans if they are unable to obtain private funding to cover investigation costs.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. NJDEP has requested that EPA recognize state-approved voluntary cleanups as compliant with federal remedial requirements. NJDEP is in the early stages of negotiating an MOA with EPA.

EPA Brownfields. Coordination of the EPA Brownfields grants with the NJDEP VC/BF program appears to be occurring. NJDEP has created an advisory committee to provide guidance for Brownfields sites. In addition, NJDEP works closely with local officials in integrating environmental cleanup into urban renewal efforts.

Other Programs. All remedial programs follow the overall provisions of the 1993 legislation, particularly related to ground water protection, risk protection for soils cleanup, and use-based cleanup criteria.

Findings

Impetus. The overarching need in New Jersey is to get blighted lands back into economic redevelopment. The problems of urban blight are not limited to environmental concerns. New Jersey is engaged in a Brownfields redevelopment effort that includes renovation of

infrastructure, job creation, community safety, and aesthetics, as well as environmental concerns. Environmental conditions may not be the primary impediment to redevelopment in a community. The VC/BF program is merely one tool in New Jersey's Brownfields redevelopment effort.

Procedural Flexibility. The case study site confirmed NJDEP's assertion that it has moved from a regulatory framework to a service-oriented approach. There was a high degree of cooperation between NJDEP and the city of Trenton. The VC/BF program was not used to skip steps in the cleanup process, but was used to accelerate the process.

Liability Relief.

- Lenders prefer to lend on contaminated properties in New Jersey versus other states because of the limited number and scope of the reopeners. Unlike other states in this report, a site need not be reopened for cleanup in New Jersey in the event a cleanup standard becomes more stringent, unless the standard changes by more than an order of magnitude.
- At the case study site, the dire need for redevelopment dwarfed environmental liability issues.
- Concern regarding EPA enforcement at VC/BF program sites is low because NJDEP traditionally has been the primary enforcement authority. Thus, negotiation of an MOA between NJDEP and EPA is not a high priority.

Technical Guidance. In areas of regional contamination, cleanup to ground water standards is the goal, although NJDEP recognizes that this may not always be practicable or possible. This was borne out in the case study site, where ground water standards were waived.

Financial Incentives. In blighted areas, environmental remediation is insufficient to restore monetary value to the site. In the case study area, Trenton still needed to subsidize the housing development.

Evolving Issues.

- Public involvement at many of these sites relates to aesthetics and job creation; the level of environmental remediation is not of high interest.
- Although the VC/BF program is self-funded, NJDEP is unable to hire additional staff it believes are necessary to address adequately the number of sites in the VC/BF program.

3.4.5 Oregon

Background

In 1991, the Oregon Department of Environmental Quality (ODEQ) initiated the VC/BF program administratively under its broad statutory authorities. During the 1995 session, the state legislature enacted significant changes to the ODEQ's cleanup authorities that impacted the VC/BF program. These changes include the following.

- Defining "protective" cleanup levels, using a risk-based analysis and protection of beneficial uses of water
- Limiting the statutory preference for treatment to "hot spots;" institutional and engineering controls are permissible in other areas
- Requiring balancing of factors in remedy selection

- Considering land use in cleanup levels and remedy selection decisions

Program Summary

The VC/BF program is a separate program within the ODEQ's Waste Management and Cleanup Division. Since 1991, the program has operated under the general direction and policies set up by ODEQ. Program regulations are being promulgated in 1997. Staff support has grown from four to twenty with almost all of the staff located in the three regional offices. A program coordinator facilitates policy development and the sharing of experiences and common approaches. Most of the program is funded through fees recovered from the applicant. Through April 1997, approximately 86 sites had been cleaned up under the program, another 150 were currently in the program, and 15 were on the waiting list.

Program Features

Procedures. Participation in the program is initiated by the applicant through submission of an application. That application may be placed on a waiting list for up to six months. Once ODEQ is ready, the applicant submits \$5,000 as an advancement of oversight costs and enters into a voluntary cleanup agreement that defines technical and process requirements. Cleanup activities typically range from one to two years, although it can be longer for more complex sites. Upon acceptable completion, ODEQ will issue a NFA letter. ODEQ generally requires that site investigation and remedy selection follow the NCP. ODEQ insists that the NCP public involvement requirements be used for individual sites. A four-week public notice and comment period is required for the proposed remedy.

Liability Relief. ODEQ will issue a NFA letter to document that no further action will be taken. ODEQ reserves the right to require additional remediation if previously unavailable information indicates that the site poses a threat to human health and the environment. Oregon also provides exemptions for lenders who maintain indicia of ownership primarily to protect a security interest. ODEQ will enter into agreements with prospective purchasers to limit liability at a site, if a substantial public benefit will result.

Cleanup Standards. Under the 1995 legislation, ODEQ is to eliminate the previous cleanup goal of attaining background quality and to attain risk-based standards. Acceptable risk levels can be achieved by either reducing hazardous substance concentrations or by blocking or preventing exposure. For drinking water sources, cleanup more stringent than MCLs may be required to achieve an excess cancer risk of 1×10^{-6} .

Remedy Selection and Innovative Technologies. The 1995 legislation establishes a preference for treatment at "hot spots" only. All remedies are evaluated using a set of balancing criteria including effectiveness, reliability, implementability, implementation risk, and cost-effectiveness. Those recent statutory amendments also require ODEQ to create generic remedies for common types of cleanup.

ODEQ speculates that the 1995 legislation will probably have a dampening effect on the use of innovative technologies at all cleanup sites including those under the VC/BF program. Two features in particular foster this view -- the removal of preference for treatment for all releases other than at "hot spots" and the presumptive remedy provisions.

Financial Assistance. No financial assistance is provided by the state except where State Hazardous Substance Remedial Action funds may be used for remedial and removal actions at orphan sites.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. EPA is supportive of the Oregon VC/BF program. Presently, there is no MOA between EPA and ODEQ. EPA's intent is not to intervene in a voluntary cleanup unless the site becomes listed on or proposed to be listed on the NPL.

EPA Brownfields. Although Oregon does not have a Brownfields program, EPA has awarded two Brownfields grants -- one to Portland and the second jointly to several sites located at several dispersed communities.

Other State Programs. The VC/BF program generally follows water quality requirements for drinking water protection. The use protection features of the 1995 legislation is common among all state remedial programs. Hazardous wastes encountered at VC/BF program sites are cleaned up under the VC/BF program to RCRA standards.

Findings

Impetus. The Oregon VC/BF program was created administratively in 1991 to handle contaminated sites that were unaddressed by the state and federal Superfund programs. The legislature specifically authorized PPAs to facilitate property transactions.

Procedural Flexibility.

- ODEQ follows the state cleanup statutes and rules for voluntary cleanup actions. These tend to be fairly rigorous procedures for investigation, remediation and public participation. ODEQ maintains oversight in a detailed manner, however, it believes that it has streamlined the cleanup process for voluntary cleanups.
- ODEQ acknowledges occasional difficulties in being responsive enough to the business community and indicates that it needs greater staff to accommodate the number of sites in the voluntary cleanup program in a more timely fashion.

Liability Relief. The liability relief afforded by the Oregon VC/BF program and statute appears to be insufficient to assuage lender concerns. Lenders at both case study sites failed to provide funding. The lenders were concerned regarding: (1) potential liability to parties other than the state; and (2) the impact of residual contamination on the market value of the collateral. This changes the perception of the regulatory agency as the barrier to property transfer and reuse. ODEQ is responding by providing lender outreach programs.

Technical Guidance. There is a statutory preference for cleanup only of hot spots. This should streamline the remedy selection process in all remedial programs, including the VC/BF program.

Financial Incentives.

- Oregon is funding the cleanup of orphan sites through its state Superfund program and not under its VC/BF program.
- The state statute provides for loans to parties engaged in environmental cleanup who are unable to find private financing and are likely to repay the loan. Unlike most of the other case study states, these loans are available for remedial activities, as well as investigation, as long as the remediation occurs pursuant to an agreement with ODEQ. However, to date, one loan has been provided to a city for site assessment work.

Evolving Issues.

- It is not evident from the case studies how well Oregon's VC/BF program works in responding to ground water issues. At both sites, ongoing ground water quality monitoring continues, pending future resolution of those issues.
- The 1995 legislation requires the development of generic (i.e., presumptive) remedies. This should be a disincentive to use innovative technologies in the state.

3.4.6 Pennsylvania

Background

The Pennsylvania state legislature created the Land Recycling Program (LRP) by statute in 1995, commonly referred to as "Act 2." That statute provided uniform cleanup standards, standardized review procedures, releases from liability, and financial assistance mechanisms. Concurrently, with a change in the administration, the Pennsylvania Department of Environmental Protection (PADEP) culture changed from command-and-control to cooperative relationships with cleanup project proponents.

Program Summary

PADEP implements the LRP through interim technical guidance documents; regulations will be promulgated in 1997. A staff of about 50 people, most of whom are located in six regional offices, manage the LRP. PADEP LRP staff are funded primarily through legislative appropriations. Since the LRP program began in July 1995, owners of hundreds of contaminated properties have declared their intent for site cleanup. Through 1996, about fifty sites have been approved; four have been denied.

Program Features

Procedures. A project applicant provides PADEP with a notice of intent to remediate (NIR) that explains the nature of the contamination, selects one of four cleanup options and describes present or future land use. The extent of PADEP review and approval is dependent on the level of cleanup selected. Approval of the final report, verifying the cleanup, is required regardless of the level of cleanup selected.

The responsible party must furnish a copy of its NIR and the final report to the relevant municipality and to the public through a local newspaper. For sites being cleaned up to Site-specific standard or under the Special Industrial process, the local municipality may elect to be involved in the remediation and reuse plans for the site. A public involvement plan is prepared by the site owner, which includes public participation in the cleanup and use of the property.

Liability Relief. Upon PADEP approval of the final report, Act 2 provides automatic liability relief from actions by: the state for additional remediation of disclosed contamination; citizen suits under environmental laws; and third party suits for contribution. Liability protection can be withdrawn if, among other matters, remediation fails, new information about an exposure condition or a constituent indicates intolerable health risk, and treatment becomes economically or technically feasible. Lenders or economic development agencies would only be held liable to the extent that they caused or exacerbated the release of regulated substances.

Cleanup Standards. The LRP provides four cleanup standards. One or any combination of the four may be chosen. These are the following.

- Background - concentration levels unrelated to releases at the site
- Statewide Health - medium specific concentration levels that are defined by water quality criteria, and for constituents or media (e.g., soil) without criteria, are defined using a risk-based analysis
- Site-specific - Developed using a site-specific risk analysis considering current and planned land use and effectiveness of institutional and engineering controls
- Special Industrial - allows cleanup of abandoned properties to levels only necessary to abate an immediate health threat to workers on the site

Remedy Selection and Innovative Technologies. Land use restrictions may not be used to attain Background or Statewide Health standards, but may be used to maintain them after remediation occurs. Remediation to Site-specific standards may include institutional and engineering controls, but may not be the sole remedy unless based upon exposure scenarios applicable at the time the contamination was discovered. State officials did not seem encouraged over the prospects of innovative technologies under the LRP, because of the market-driven, time-sensitive approach in administering this program.

Financial Assistance. Act 2 establishes the Industrial Sites Cleanup Fund to help innocent persons conduct voluntary cleanups. State grants or low-interest loans are available to help fund the cost of completing an environmental study and cleanup plan and in assisting with remedial activities.

Unique Features. Multi-site agreements are available in Pennsylvania for companies (e.g., pipelines, railroads and utilities) that have numerous sites throughout the state. Since the passage of Act 2 in 1995, the multi-site agreements have been negotiated in a manner that facilitates collaborative voluntary cleanups and that include concepts from the LRP. These agreements are used to establish generic processes for site characterization and to select presumptive remedies for groups of sites that cross regional office boundaries. DOD and PADEP are exploring use of multi-site agreements in Pennsylvania to address non-NPL facilities.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. PADEP does not have an MOA with EPA for the LRP.

EPA Brownfields. Little coordination is taking place between the EPA's Brownfields Initiative and PADEP regarding the LRP sites. Some coordination is occurring at the local level.

Other State Programs. State and local permits are not required for LRP activities unless mandated under federal programs delegated to the state, in which case permits can be obtained through streamlined procedures.

Findings

Impetus. The Pennsylvania LRP was created by the legislature in an effort to get blighted lands back into economic productivity. The legislative efforts were coupled with the new

administration of Governor Ridge to rid the disincentives (real and perceived) of former state environmental policies for the private cleanup of old industrial site.

Procedural Flexibility. The voluntary cleanup process does not demand much state oversight. Once either the Background or State-wide health cleanup levels are agreed upon, the project proponent need not interface with PADEP until the final report is submitted. Cleanup under the Site-specific standard or Special Industrial Area procedures require somewhat more interaction with PADEP.

Liability Relief.

- Pennsylvania is unique in that the liability relief provided under the statute includes, not only relief from enforcement by the state, but also eliminates law suits by third-parties under state law.
- At least at the case study site, the liability relief was insufficient to entice the future user of the property to purchase the property outright; instead, electing to enter into a lease arrangement with the development authority in order to limit liability (1) from possible EPA action, and (2) the reopeners in the NFA letter provided by PADEP. Nevertheless, stakeholders indicated that the parcel probably would not have been redeveloped without the LRP.

Technical Guidance.

- Pennsylvania is providing generic, pre-determined cleanup levels for soil and ground water based upon land use.
- The generic cleanup levels are developed by a legislatively-created Science Advisory Board that has used less conservative methodologies than previously used by PADEP.
- The state legislature has made the policy choice to accept quite limited cleanup or containment in "special industrial areas" in order to get them back into economic productivity.

Financial Incentives.

- The conclusion that economic redevelopment is the primary driver behind the Pennsylvania LRP is evidenced by the role assigned to the Pennsylvania Department of Community and Economic Development in the legislation regarding financial assistance. That department designates the special industrial areas (that use more lenient cleanup standards and limitations on cleanup) and awards and manages the low interest loans and grants provided by the state.
- Lenders are more inclined than previously to lend on contaminated properties that have been through the Act 2 cleanup process. They like the certainty in cleanup levels and the shift in the state attitude from enforcement.
- One-stop-shop "Brownfield" entities are emerging that will purchase contaminated properties, remediate, insure, and resell the properties. At least one of these entities has targeted properties in Pennsylvania because Act 2 provides enough assurances for this type of speculation.

Evolving Issues.

- Pennsylvania's LRP provides for more public involvement than do most states covered in this report. However, public involvement is limited to public notice for all types of cleanups, and for cleanups to site-specific standards and for special industrial areas, public involvement occurs only if the municipality elects to be involved.
- There seems to be a disconnect between Pennsylvania and EPA. PADEP has entered into discussions with EPA regarding the scope of an MOA necessary to support the LRP. Although an agreement may not be reached, some stakeholders indicated that the liability relief afforded by an MOA would be welcome. Also, PADEP is uninvolved with the municipalities that received the Brownfields grants.
- The sentiment among some stakeholders was that Pennsylvania may have swung too far towards leniency from over-conservatism, and that now there is little incentive to enter the LRP. It is not clear yet whether this concern has been validated, given the numbers of sites entering the LRP.

3.4.7 Texas

Background

In response to requests by those involved in real estate transfers, the Texas state legislature created the voluntary cleanup program in 1995 "to provide incentive to remediate property by removing liability of lenders and future landowners." The VC/BF program was initiated during September 1995 and regulations were promulgated during March 1996.

Program Summary

Sites are eligible to enter the VC/BF program if they are not under a permit or order of other administrative, state, or federal environmental agencies or are not under the jurisdiction of the Texas Railroad Commission. Since inception of the program, 120 parties have requested state review. About 15% of the sites did not require cleanup. Texas Natural Resources Conservation Commission (TNRCC) has issued Certificates of Completion for approximately 70 sites for which cleanup was required.

Program Features

Procedures. Entrance into the Texas VC/BF program is initiated by submittal of an application and \$1000 fee. The parties negotiate a voluntary cleanup agreement that describes required work plans and reports, a schedule of deliverables, and the applicable standards. Upon approval of a completion report, the TNRCC will issue a Certificate of Completion. If continuing operation, maintenance or monitoring is necessary, TNRCC will issue a conditional certificate. Notice of contaminant levels and availability of reports is required to affected parties off-site, if constituent concentrations in media exceed residential standards.

Liability Relief. A Certificate of Completion releases a party from liability so long as that party did not cause the contamination. Additionally, all future landowners and lenders are released from liability. If the land use is changed from that contained in the certificate and there is a resulting increase in risk, the release from liability does not apply.

Cleanup Standards. Cleanup levels are derived from the state hazardous waste and the petroleum storage tank programs. The applicant can designate one of four levels, these being: (1) background; (2) generic risk-based levels that rely on land use; (3) site-specific risk-based levels that do not rely on engineering or institutional controls; and (4) site-

specific risk-based levels that do rely on such controls. Texas is harmonizing its cleanup standards across all environmental programs, including the state hazardous waste program.

Remedy Selection and Innovative Technologies. Cleanup to background levels does not require post-closure care or deed restrictions. If generic levels are used, post-closure care is not required, but deed restrictions are necessary for non-residential cleanups. Typically, both post-closure care and deed restrictions are required with the use of site-specific cleanup levels. Interviewees indicated that use of innovative technologies at voluntary cleanup sites is not well accepted because of potential economic, technical, and schedule risk.

Financial Assistance . Texas does not provide financial assistance or tax relief.

Relationship of the VC/BF Program to Other Agencies and Programs

EPA. On May 1, 1996, TNRCC and EPA entered into an MOA to support the Texas VCP. The agencies agreed that sites listed on the NPL or proposed to be listed on the NPL could not enter the VCP. They further agreed that sites listed on the RCRA corrective action priority list could enter the VCP to the extent they were not undergoing corrective action.

EPA Brownfields. EPA has awarded Brownfields pilot grants to three cities in Texas. In addition, EPA has awarded a grant to TNRCC to develop site assessments of municipal properties.

Other State Programs. State or local permits are not required for remedial action conducted on a voluntary cleanup site. However, compliance with the substantive requirements of the permitting program is required.

Findings

Impetus. The Texas VCP was created in response to requests for state confirmation that contaminant levels and cleanup actions are sufficient to support real estate actions. Also, there was a need for a programmatic means for conducting cleanup in the context of property transfer.

Procedural Flexibility.

- Each voluntary cleanup agreement is separately negotiated, which is resource intensive for TNRCC.
- The VC/BF program was a major paradigm shift within TNRCC; from a more traditional enforcement approach to a more cooperative means of working with the regulated community. The VCP personnel were selected based upon their desires to work in such a cooperative manner.
- The Texas VC/BF program statutes, regulations and technical guidance were the clearest and most concise of all the case study states. They provide clear guidance regarding eligibility, process, cleanup expectations and liability relief without undue complexity.

Liability Relief. Lenders and developers want more liability relief and believe that Texas is lagging behind other states in providing legislative fixes. They believe that deed restriction requirements are too onerous and suppress the market value of affected properties.

Technical Guidance. Texas is harmonizing its cleanup standards across all environmental programs, including the VC/BF program.

Financial Incentives. Before entering the VCP, applicants must affirm that they have the financial wherewithal to complete a cleanup. Texas does not provide funding for site investigation or cleanup. Consequently, an EPA Brownfields grant was awarded to the state for performance of site investigations at publicly-owned sites. However, non-NPL, privately-owned sites may remain unremediated without state financial assistance.

Evolving Issues.

- TNRCC is assessing the need to field-verify compliance with the voluntary cleanup agreement and deed restrictions.
- Public notice is required for persons with interests in land that is contaminated, which is more than is required in some of the other case study states' VCPs. However, the Texas VCP is silent as to opportunities for public review and comment.
- The TNRCC/EPA MOA covers forbearance of federal enforcement under RCRA, as well as under CERCLA and should give greater comfort to developers and lenders. The other state MOAs do not address RCRA liability.
- Innovative technologies have not been used at voluntary cleanups in Texas. Field screening technologies being developed under the petroleum storage tank program may have relevance at voluntary cleanup sites.

4.0 Conclusions

4.1 Common State VC/BF Elements

State VC/BF programs are a reaction to (a) the need for timely state response to environmental contamination issues associated with property transactions at numerous sites, (b) the onerous liability schemes imposed by federal and state environmental legislation and regulation, (c) the need for economic redevelopment of contaminated and blighted properties, and (d) the desire to reduce urban sprawl and preserve open space and farmland. To the extent that liability under federal law can be mitigated, EPA and Congress must take the initiative to provide relief. To some extent, federal relief recently has been provided. EPA commenced its Brownfields Initiative in 1995 and Congress passed lender liability legislation in 1996. However, many states needed to return lands to the economy long before the federal government took action. Thus, the states have led the charge in creating voluntary cleanup and Brownfields programs (e.g., California informally began its voluntary cleanup program in the late 1980s).

The creation of VC/BF programs is a state-by-state response to the local marketplace and the need for redevelopment of blighted neighborhoods; there is no federal template. These actions have created a high degree of variability between the VC/BF programs as each state has sought to respond to its unique set of circumstances. The variability is evident in Table 1, on the next page, that compares the elements of the VC/BF programs in the seven states addressed in this case studies report.

However, some common elements also are revealed in a comparison of the seven state programs covered in this report. Common elements under the topics in the table are discussed in the following subsections of this report. Common program features follow.

- Many of the state VC/BF programs in this report emerged in the early 1990's, first at an administrative level and later supported by legislation.
- Most of the state VC/BF programs are funded by fees paid by the project proponents. In response to the funding limits, several states have streamlined their VC/BF programs so they do not require as much staff time and resources to administer as the traditional cleanup programs. Consequently, the amount of technical guidance available from the state to a project proponent is limited.

Each state puts a remarkably high number of sites through its VC/BF program in comparison with the few cleanups completed under the federal Superfund law and state enforcement programs. Most of these sites are smaller and have less complex contamination (i.e., non-NPL caliber or secondary sites), although this is not always the case. In some cases, no actual cleanup is taking place -- no serious site contamination was found and liability relief was granted.

Table 1. Common Elements of State Voluntary Cleanup/Brownfield Programs

Elements	CA ¹	CO ²	MI ³	NJ	OR	PA	TX
Program Summary							
Commenced	~1989	1994	~1995	1993	~1991	1995	1995
Authority	law policy	law	law regs	law regs	policy	law regs policy	law regs policy
Funding	Fee	Fee	State	Fee	Fee	Fee State	Fee
Staff	?	1.5	~75	45	20	50	10
Sites Entered	280	60	447	6500	170	280	350
Sites Complete	150	60	385	~4000	65	110	70
Procedural Flexibility							
Contract required	Yes	No	n/a	Yes	Yes	No	Yes
Cleanup Review ⁴	Yes	No	n/a	Yes	Yes	Yes	Yes
Post-cleanup Review ⁵	?	No	n/a	Yes	?	Yes	No
NCP-Type Process	Yes	No	n/a	Yes	Yes	No	Yes
Public Participation	Yes	No	n/a	No	Yes	Y/N ⁶	notice
Liability Relief							
Limit Liable Parties ⁷	No	n/a	Yes	No	No	No	No
Retroactive	No	n/a	Y/N ⁸	Yes	Yes	Yes	Yes
Causation based	No	n/a	Yes	No	No	No	No
Proportional Liability	Yes	n/a	No	No	No	No	No
Property Condition	Yes	n/a	No	Yes	Yes	Yes	Yes
Non-state Liability Relief	No	n/a	No	No	No	Yes	No
EPA MOA	No	Yes	Yes	No	No	No	Yes
Technical Guidance							
Cleanup Standards							
• Statewide	No	No	Yes	Yes	Yes	Yes	Yes
• Site-specific / Risk-based	Yes	No ⁹	Yes	Yes	Yes	Yes	Yes
• Land-use based	Yes	Yes	Yes	Yes	Yes	Yes	Yes
• Ground water use based	No ¹⁰	No	Yes	Yes	Yes	Yes	?
Remedy Selection							
• Inst. Controls / Recorded	Yes	Yes ¹¹	Yes	Yes	Yes	Yes	Yes
• Preference for permanent treatment	Yes ¹²	n/a	Yes ¹³	Yes	No ¹⁴	No	No
• Presumptive Remedies	Yes ¹⁵	No	No	Yes	Yes	No	No
• Encourage ITs ¹⁶	Yes ¹⁷	No	Yes ¹⁸	Yes	No	No	No
Financial Incentives							
Private Parties							
• Grants	No	No	No	Yes	No	No	No
• Loans	No	No	No	Yes	No	Yes	No
• Tax Incentives	No	No	Yes	Yes	No	No	No
Local Government							
• Grants	No	No	Yes	Yes	No	Yes	No
• Loans	No	No	Yes	Yes	No	Yes	No
• Tax Incentives	Yes	No	Yes	Yes	No	No	No
Other Incentives							
Fast response required	No ¹⁹	Yes	n/a	Yes	No	Yes	Yes
Remove from state list	Yes	n/a	n/a	Yes	?	Yes ²⁰	?
No NPL concurrence ²¹	?	Yes	n/a	No	?	Yes	?

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- ¹ Several state and regional agencies provide voluntary cleanup programs in California. This chart reflects the program offered by the state Department of Toxics Substances Control.
 - ² Colorado does not provide relief from liability under state law because only sites that would not otherwise be regulated by the state are eligible to enter the program.
 - ³ Michigan does not have a separate voluntary cleanup program. "Sites entered" refers to the number of environmental assessments submitted and "sites complete" refers to the number of environmental assessments approved.
 - ⁴ This row questions whether cleanup is reviewed by the state via approval of a final report, site visit, or other means.
 - ⁵ This row questions whether post-cleanup activities, such as operation and maintenance and compliance with deed restrictions, is reviewed by the state.
 - ⁶ In Pennsylvania, public notice is required if cleanup is to generic standards. Public participation must be offered for sites with site-specific cleanup levels.
 - ⁷ This row questions whether the state limits the types of parties that would be considered potentially responsible parties under the federal Superfund law.
 - ⁸ Michigan does not impose retroactive liability on owners who acquire property after July 1995.
 - ⁹ In Colorado, cleanup levels for soil are based upon recommendations by the project proponent based upon material published by EPA or other states. Site-specific risk assessments are discouraged.
 - ¹⁰ One regional water quality control board in California has deviated from requiring cleanup to background or water quality standards and is basing cleanup on the use of the ground water.
 - ¹¹ Colorado will allow use of institutional controls but does not require deed restrictions to assure maintenance of the controls.
 - ¹² California generally has a preference for treatment of contamination. However in its voluntary cleanup pilot program under the Expedited Remedial Action Reform Act, the preference for treatment is removed.
 - ¹³ Michigan statute requires permanent treatment. However, not apparent in the VC/BF program.
 - ¹⁴ Oregon has a preference for treatment in hot spots only.
 - ¹⁵ California voluntary cleanup program guidance emphasizes the use of presumptive remedies.
 - ¹⁶ "IT" means innovative technology
 - ¹⁷ California voluntary cleanup program guidance emphasizes the use of innovative technologies.
 - ¹⁸ Michigan statute requires the encouragement of innovative technologies. However, not apparent in the VC/BF program.
 - ¹⁹ California does not have a written requirement to respond quickly to project proponent submittals. However, in its voluntary cleanup pilot program under the Expedited Remedial Action Reform Act, there is such a requirement.
 - ²⁰ Part of the state Superfund law; not found in the state voluntary cleanup laws.
 - ²¹ This row questions whether a state will concur in a listing of the site by EPA on the NPL.

4.1.1 Impetus

State Impetus

The impetus for states to develop VC/BF programs generally is economic in nature. However, the drivers for creating these programs differ somewhat between the eastern and western states.

Eastern States. In the eastern states, more emphasis is placed on economic redevelopment of large areas or of blighted areas in municipalities. Often environmental concerns are far overshadowed by other concerns relevant to redevelopment (e.g., creation of jobs). However, environmental concerns are recognized as an important facet of economic redevelopment. There is a significant effort afoot to redirect development away from the uncontaminated Greenfields of suburbia to the Brownfields of the inner city. Eastern states and cities hope that the benefits of using existing infrastructure, revitalizing the city core and returning it to the tax base will outweigh the costs of environmental cleanup.

Western States. In western states, the emphasis is less on urban blight and almost entirely on property transactions. Voluntary cleanup programs were created primarily to address the walk-in business of developers and buyers requesting some assurance that either no further action was required or that a cleanup plan was adequate. The value of the VC/BF program often lies in providing a procedure for obtaining that assurance in a timely manner.

Project Proponent Impetus

Usually the project proponents who enter a VC/BF program are those involved with the transfer of the ownership or operation of real property or of a facility. In most cases, they want some relief from liability for cleanup costs under state (and federal) law. In a few states, such as New Jersey, they may be required to clean up the property prior to transfer. Less frequently, a site owner or operator may be concerned with impending enforcement by the state or suit by third parties.

4.1.2 Procedural Flexibility

Shift from Enforcement to Cooperation

Because a voluntary cleanup is "voluntary," the attitude of the state staff has shifted from enforcement to cooperation. Several states hand-picked their voluntary cleanup program staff for their ability to work cooperatively with what would otherwise be the "regulated community." Each state interviewed took great pride in its ability to foster good working relationships with and provide a service to the project proponents. In most cases, these sentiments were echoed by the stakeholders at the case study sites.

Regulatory Streamlining

As revealed in Table 1, the Superfund investigation and remediation processes outlined in the NCP still influence the procedures used in many of the state VC/BF programs reviewed. However, while the NCP procedures may be useful at the limited number of highly contaminated sites for which Superfund was created, the procedures are too cumbersome at the less complex secondary sites that typically enter state VC/BF programs. Also, NCP procedures are too lengthy to accommodate the time frames of most real estate transactions.

Most states indicated that they are attempting to focus on results and not procedures. They are streamlining their oversight activities and the cleanup process. Although some still follow the NCP process, they tend to collapse requirements, use presumptive remedies, or accelerate the process in some other manner. Two states wholly abandoned the NCP

process. Also, at least four of the states' laws or regulations limit agency response times in recognition that time is of the essence in most business or real estate contracts.

4.1.3 Liability Relief

CERCLA-type Liability

Most of the states interviewed have not altered their CERCLA-type liability scheme. Except for Michigan, liability for cleanup under federal and most state Superfund statutes is strict, joint and several, and retroactive. Responsible parties include anyone who is an owner/operator, generator, transporter, and arranger.

Michigan limits liability only to those who actually caused the contamination. According to those interviewed, this statutory limitation removes about one-half of the parties potentially responsible for the costs of cleanup. This may shift the burden of cleanup to the public sector (which can be addressed in Michigan through sizable public funds) or may result in historical contamination that remains unremediated. However, these ramifications must be balanced against the public benefits of getting properties back into use.

Scope of Liability Relief

State VC/BF programs can only limit liability under state law. All of the states provide some liability relief for possible enforcement actions by the state. Only Pennsylvania provides liability relief from third-parties who sue under state citizen suit, tort, property damage or personal injury theories.

Liability to the EPA or for citizen suits filed under federal environmental laws remain. EPA will enter a prospective purchaser agreement containing a covenant not to sue for NPL-caliber sites. For non-NPL caliber sites, parties can get some level of assurance from an EPA MOA with the state or EPA-issued comfort letters. While these avenues may provide some comfort, they do not foreclose EPA enforcement. Moreover, a party would remain liable in the event of citizen suits or for contribution actions.

Liability Relief

Most of the states tend to provide liability relief through well-defined statutory defenses. Recent statutory amendments typically cover lenders and involuntary acquisitions by government entities. All states, except Michigan, also provide liability relief based upon the condition of the property after cleanup. They provide some kind of NFA letter, covenant not to sue, certificate of completion or the like. Colorado will also provide a NFA letter stating that a property is not in need of cleanup for the proposed land use.

Lender Reaction

Lenders remain hesitant to lend on contaminated property. They recognize the outstanding potential for federal enforcement, third-party lawsuits or depressed collateral value of the property. If there is residual contamination (e.g., cleanup based on industrial use of the property), lenders are even more reluctant to provide funding. They also will hesitate if there are significant reopeners in the NFA letters or covenants not to sue provided by the state agencies. New Jersey appears to have the most limited reopeners in its NFA letter of the states in this report and the financial institutions are more willing to lend there than in other states. Foreign banks and private Brownfield redevelopment entities are moving in to fill the gap left by the hesitancy of domestic banks.

Lenders will review other factors, in addition to environmental concerns, before lending funds. The credit worthiness of the buyer is always paramount. But, other factors that impact the market value of the site after cleanup may be determinative. Sometimes lenders will deny loans based on other factors, using environmental conditions as the excuse.

4.1.4 Technical Guidance

Cleanup Standards

Cleanup standards in the seven states interviewed are shifting away from a requirement to clean up to background concentration levels. The trend also appears to be away from resource protection to use protection.

For ground water, cleanup levels tend to be premised on drinking water standards -- typically MCLs. However, in all but two of the states, cleanup to levels that protect the actual or potential use of the ground water is permitted under certain circumstances. Also, at least two of the states allow points of compliance with water quality standards to extend beyond the site boundary.

All of the states are allowing cleanup levels for soil to be based on the actual land use (e.g., residential, industrial, commercial). Impacts to ground water may also be considered in some states.

To provide some certainty in voluntary cleanups, most of the states have published state-wide generic cleanup levels for soil or soil and ground water. The generic cleanup levels are calculated using specified land use scenarios. A project proponent can select its land use (often subject to zoning requirements, etc.) and clean up to the specified generic level.

The states also allow a party to develop site-specific cleanup levels. These are generally based upon risk assessment guidelines provided by the state. Michigan will allow a "pertinent pathway analysis" to assess whether contaminants in the soil will actually impact ground water.

Remedy Selection

Preference for Treatment Disappearing. In practice, the preference for treatment of contamination is disappearing. This is true in spite of statutory language in some states that treatment is the preferred remedial alternative. Oregon acknowledged this trend in its 1995 statutory amendments when it removed the preference for treatment except for hot spots.

It is especially true in voluntary cleanups that the preference for treatment is becoming extinct. Reasons for this include the following.

- Voluntary cleanup sites are often the subject of a transfer in ownership or operation; treatment typically cannot be performed within the tight time frames of a property transfer.
- The cost of a selected remedy must be offset by the enhanced value of the property after cleanup. Often the costs of treatment, at least in the short-term, can impact the profit made from resale of the property. (On the other hand, residual contamination can lessen the fair market value of the property).
- Often the contamination is less significant at the secondary sites within the voluntary cleanup program and treatment may not be necessary.
- Cleanup levels within the state VCPs is driven by land use and treatment often is unnecessary if the land use is non-residential.

Increased Use of Institutional Controls. All of the case study states allow the use of institutional controls, such as fencing and land use restrictions, to meet land use or resource use-based cleanup levels. Unlike the other case study states, Pennsylvania prohibits the use of institutional controls to meet background or generic cleanup standards, but will allow their use to meet site-specific or special industrial area standards. Other than Colorado, the case study states require some kind of notice or deed restriction to be recorded in the county real property records. Two states also require recordation of any requirement for ongoing operation and maintenance (e.g., ground water monitoring, cap inspection and maintenance).

Evolution of Presumptive Remedies. Presumptive remedies are evolving in the VC/BF programs -- formally or informally -- that are adequate to address the less complex environmental problems posed by the bulk of the voluntary cleanup sites. In Oregon, the statute requires that generic (i.e., presumptive remedies) be considered. As interviewees indicated, often the remedies of choice are "dig and haul" and "wrap and cap." State agencies are more willing to consider natural attenuation as a remedy than they have been in the past.

4.1.5 Financial Incentives

Regional differences among the states covered in this case study are reflected in the financial incentives offered.

Eastern States. The eastern states reviewed have a higher need to get blighted lands back into the economy. They tend to offer financing in the form of low-interest loans and grants to local units of government and have legislation that allows municipalities and districts to use tax increment financing or issue bonds. Until recently, local government could only use loans and grants for investigation; use of these moneys now is expanding into cleanup. New Jersey and Pennsylvania will also provide low-interest loans to private parties and Michigan provides tax breaks to private parties who redevelop contaminated lands. Often funding is provided through non-environmental agencies, such as state economic development agencies (e.g., New Jersey). This trend parallels what is occurring at the federal level, where agencies are coordinating to redevelop Brownfields (e.g., Department of Housing and Urban Development provides some funding).

Western States. The western states reviewed provide no loans or grants to local government or private parties. Furthermore, no tax incentives are provided to private parties. Only California provides tax incentives to local units of government.

4.2 Evolving Issues

State VC/BF programs are relatively new and are "works in progress." Several issues are on the horizon with which states are beginning grapple.

4.2.1 Relationship with Other Agencies and Programs

Federal Liability

A major hurdle for developers and lenders of contaminated property that is remediated under the state VC/BF programs is the potential liability under federal environmental regulations that remains outstanding. EPA/State MOAs, which indicate EPA's plans to take a hands-off approach to state VC/BF sites, provide some comfort. The effect of the recent EPA comfort/status letters is not yet known. Nevertheless, neither of these provide any guarantee that federal liability is eliminated.

The states and EPA are making efforts to alleviate some of the concern through outreach efforts. They are attempting to assure developers and lenders that EPA has little or no interest, at least in the non-NPL caliber sites or lower risk sites. The success of these outreach efforts is yet to be determined.

Some states argue that Congress should provide a release of federal liability at state VC/BF sites (Seif 1997). These states believe that federal Superfund liability is out of all proportion to the secondary sites in the state programs. They further believe that EPA is attempting to exert too much control over the state programs through EPA's "approval" of state VC/BF programs (for purposes of entering MOAs with the states), wholly negating possible lessons learned from the states' programs. Finally, they argue that these secondary sites are not appropriate for federal intervention; redevelopment of these sites is a matter of local concern. Other parties argue that without some level of federal influence or control, the states will engage in a "race to the bottom," creating VC/BF programs that will entice economic development at the expense of environmental restoration. There is a concern that some states will push large, more complex sites through the VC/BF pipeline.

Federally-required Permits

A few states waive requirements for state and local environmental permits at voluntary cleanup sites (e.g., Pennsylvania). This allows for a fast-track cleanup without the unnecessary delay caused by permitting processes. Also, voluntary cleanups, unlike operating facilities, typically do not have ongoing treatment, discharges or emissions. Such activities are generally for a limited time period so that a requirement for a permit can encourage containment or land use controls in lieu of treatment.

Some states are requesting that Congress waive federal permitting requirements at state VC/BF sites (Seif 1997). For voluntary cleanups that occur outside of the CERCLA context, states probably are without authority to waive requirements for permits in programs that are delegated by the federal government (e.g., discharge and pretreatment permits under the Clean Water Act and Part B permits for treatment, storage and disposal of hazardous waste under RCRA). These states argue that Federal CERCLA sites are exempt from the requirement to obtain a permit for activities conducted entirely on-site, yet at smaller voluntary cleanup sites, the procedural requirement to obtain a federal permit remains. The counter-argument is that CERCLA's rigorous procedures more than compensate for loss of environmental protection assurances that would otherwise be provided through permit approvals. State VC/BF programs are intended to provide relief from the burdensome CERCLA procedures; the requirement for permits provides continued assurance of protectiveness.

4.2.2 Public Participation

The levels of public participation required in the VC/BF programs covered in this case study covers a wide range. In two of the states, an NCP-type public participation process is used. In Colorado, the statute does not provide for any public participation. However, the Colorado MOA with EPA requires public participation if the project opponent wishes to obtain EPA's forbearance from enforcement at the relevant site. In other states, public notice may be all that is required. In Pennsylvania, public notice is required for all cleanups, and the opportunity for public participation must be offered for cleanups to site-specific cleanup levels. Because many VC/BF actions require land use changes, opportunity for public input is often available through local zoning and land use processes.

In the case studies covered by this report, public participation was not identified as a concern. Environmental groups were not involved. Neighbors tended to be pleased to get rid of the blight, and were more concerned with aesthetics than the constituent

concentration levels used for cleanup standards. At one site, the citizens guarded the bulldozers and nurtured the reseeded, yet did not question the cleanup decisions.

Public participation is included as an evolving issue in this report for several reasons. Although public participation was not raised as an issue in the case study interviews, it was identified by ITRC members in their comments on drafts of this report. Also, in its draft memorandum regarding approval of State/EPA MOAs, EPA lists “meaningful opportunity for community involvement” as its first criterion for approval of state VC/BF programs, and thus, it becomes an issue for any state seeking an MOA (e.g., Colorado). Finally, the Government Accounting Office (GAO) also addresses public participation as an issue with which states are grappling (GAO, 1997).

Initially, sites that entered state voluntary cleanup programs tended to be small, private, less contaminated, and did not use controversial treatment methods, such as incineration therefore, these sites were not of high public interest. Many sites that enter a state VCP are the subject of a real estate or operational transfer; a Superfund-type public participation process (e.g., comment period and public hearing) does not lend itself to the compressed time frames of such transactions. However, as state VCP’s evolve to address area-wide contamination, more significantly contaminated sites and Brownfields-type sites in inner cities, public participation in land use and remedy selection decisions becomes more pertinent.

4.2.3 Area-wide Contamination

State VC/BF programs effectively address contamination on a parcel-by-parcel basis; the programs provide liability relief for site owners/operators, prospective purchasers, and the like. Thus, state VC/BF programs can address soil contamination and a ground water contaminant plume that emanates from the site. However, state VC/BF programs are not well equipped to address area-wide ground water plumes or ground water contamination that migrates from an upgradient source. To date, state VC/BF programs reviewed in this report have not effectively cleaned up extensive ground water contamination electing, instead, to extend points of compliance and waive ground water quality standards.

Emeryville, California is the one case study site that is beginning to confront how to clean up area-wide ground water contamination within the VC/BF program. Emeryville has severed the ground water unit from the parcel-by-parcel cleanup and accepted responsibility for the ground water remediation, thus reducing liability for the landowners. The city applied for and obtained a Brownfields pilot grant from EPA. A multi-stakeholder task force is working to develop a city-wide ground water remediation plan under the pilot. The remediation plan will include incentives to developers and current land owners to undertake remediation, expedited dispute resolution procedures, cost sharing formulas, and a streamlined regulatory review process. A mitigation fund will be created to finance specific projects.

4.2.4 Cleanup And Post-Cleanup Monitoring And Review

Most states verify that the cleanup occurred in accordance with an approved cleanup plan. The verification occurs through review of a final report, or less frequently, through a site visit. Colorado does not; its staff rely on certifications provided by an environmental professional.

Although many voluntary cleanups use engineering or institutional controls (i.e., are not permanent remedies), post-cleanup environmental monitoring was not required at the case study sites covered in this report. The exception was the Balteau site in Oregon, where

monitoring of ground water contamination is ongoing to demonstrate that ground water remediation is not necessary.

Most of the case study states do not audit the post-cleanup commitments, such as compliance with operation and maintenance requirements or land use controls. Only Texas is considering the addition of such activities. Colorado relies on the due diligence searches of future purchasers to ensure that the present voluntary cleanup participants continue operation and maintenance activities and comply with land-use restrictions. It is noteworthy that Colorado does not require that land-use restrictions be recorded on the deed nor registered with the municipality. The other case study states have such requirements.

In its comments to a draft of this report, EPA indicated that the absence of post-closure environmental monitoring and state review may be of concern at voluntary cleanup sites at which non-permanent remedies are adopted.

4.2.5 Innovative Technologies

Use of innovative remediation technologies was not observed at the case study sites, except for the use of phytoremediation in New Jersey. It is not known whether innovative site assessment or investigation technologies were utilized. Interviewees indicated that it is doubtful that innovative technologies would be implemented for remediation but that opportunities for their use may be available for site characterization and post-cleanup monitoring.

There are several disincentives to use innovative technologies for remediation at VC/BF sites. These include the following.

- The preference for permanent treatment is not present at voluntary cleanup sites, as discussed above.
- Voluntary cleanups generally occur within the compressed time frames of real estate transactions. Early implementation of innovative technologies take greater time than standard remedies and carry the risk that they may not meet cleanup goals.
- Although there are many voluntary cleanup sites, they tend to be small, with less significant and complex contamination. Multiple-site ownership is also rare; thus, the opportunities to experiment with an innovative technology at one site leading to ultimate cost savings at subsequent sites does not often exist.

Innovative technologies may be useful for site characterization and monitoring (e.g., field screening methods). Although the accelerated time frame of a real estate transfer may be a disincentive for remedial technologies, it is an incentive to develop innovative characterization technologies. However, because the disincentive remains that it is not cost effective to develop an innovative technology for one small site, such technologies will not be developed by individual landowners.

An incentive for use of innovative technologies is ready access to information. Although innovative technologies lack a long history of full-scale use, information regarding innovative technology existence, previous field tests, costs, etc., enhance the likelihood that an innovative technology will be selected at VC/BF sites. EPA provides information regarding innovative technology options for Brownfields investigation and cleanup for every phase of investigation and cleanup (EPA 1997e & 1997f).

4.2.6 VC/BF Program Implications for Federal Facilities

In Pennsylvania, DOD has initiated discussions regarding the possibility of using the state Land Recycling Program (LRP) in combination with Pennsylvania's multi-site agreement program to pursue cleanup of a large number of DOD sites. This raises a new issue of the federal government using state VC/BF programs to clean up federal lands.

It is unlikely that state VCPs would be used for federal lands listed on the NPL. The Superfund law requires that for listed federal facilities, an RI/FS be conducted and an interagency agreement be executed between the relevant federal agency and EPA³. (Often, the state in which the federal lands are located is also a party to the interagency agreement.) Generally, the parties adhere to the NCP process.

Federal facilities that are not listed on the NPL or proposed to be listed on the NPL may be eligible to enter state VCPs. However, federal facilities have their own Superfund authorities and some caution may be necessary before negotiating a voluntary cleanup of a federal facility. Property transferred by federal agencies is subject to the notice, deed restrictions, cleanup requirements, and transfer provisions of CERCLA and the Community Environmental Response Facilitation Act (CERFA), which amends it.⁴ Under CERFA, clean parcel determinations must be made for all base realignment and closure (BRAC) sites within 18 months of being listed by Congress for closure. For non-BRAC sites, a clean parcel determination is not required unless land is being transferred. In regards to federal lands, CERCLA requires that all necessary response action have been taken prior to transfer. Also, the cleanup and/or transfer of federal lands possibly could trigger the requirements of the National Environmental Policy Act (NEPA) to conduct an environmental assessment and/or environmental impact statement. Thus, voluntary cleanups of federal lands would need to comply with the requirements of CERFA (if the land will be transferred) and NEPA and their implementing regulations, and other laws and regulations unique to the subject federal agency.⁵

Assuming that cleanup of federal facilities under a state VCP would comport with federal requirements, there remains a question whether the state VCP actually provides relief from liability under state law to the federal facility. If there is little or no liability, and therefore no need for liability relief, a major incentive for a federal facility to enter a state VCP is removed. Thus, the federal facility may wish to examine whether it is liable for cleanup or damages under state law, in any event, and prospective purchasers may wish to determine whether CERFA provides adequate indemnification from liability.

To the extent a state VCP can provide liability relief from state enforcement to a federal facility or prospective purchaser, other incentives offered by VCPs could be of benefit in the same manner as for private parties. Such benefits include timely state response, enhanced procedural flexibility, more predictable cost/budget for remediation and certainty of cleanup standards. State financial incentives may be less relevant, unless offered to prospective purchasers.

In Pennsylvania, DOD and the state are also discussing the use of the state's multi-site agreement program. Such an agreement could have the same benefits as for a company or utility with numerous sites. A multi-site agreement could save resources for both the state and federal agency, achieve consistency in cleanup across the state, and assist the federal

³ CERCLA § 120(e).

⁴ See CERCLA § 120(h), as amended.

⁵ E.g., for DOD, see 10 USCS 2687 regarding base closures and realignments and PL 104-201.

agency in prioritizing sites and making more accurate and timely budget requests to Congress. But, as for any voluntary cleanup, it still would be necessary for cleanups conducted under state multi-site agreements to comply with federal requirements.

5.0

Recommendations

The following are recommendations of the ITRC Policy Group regarding the evolving issues discussed in section 5.2 of this report.

5.1 Liability Relief From Federal Enforcement

Exposure to federal enforcement and liability should be eliminated or at least minimized at sites that are participating in a state VC/BF program, particularly at smaller, less contaminated or complex sites.

As discussed in section 5.2.1 and other sections of this report, the continuing exposure to federal liability at voluntary cleanup sites has been a major impediment to their redevelopment. Although federal enforcement and control at larger Superfund-type sites may be warranted to protect human health and the environment, the continuing threat of federal enforcement is probably detrimental to the cleanup of smaller sites under state VC/BF programs and could be a disservice to the communities in which they are located.

Stakeholders should endeavor to define the type of VC/BF sites that do not warrant exposure to federal liability and control. The EPA/Colorado MOA draws the line at whether a site is "NPL-caliber" or not, which may be a useful starting point for consideration. Moreover, the MOA assigns to Colorado the responsibility for assessing which sites are NPL-caliber.

Alternatives to minimize federal liability are evolving. The effectiveness of these alternatives to encourage lenders and developers to redevelop contaminated properties should be evaluated by stakeholders. Some alternatives include the following.

- EPA/State MOAs that clearly define when EPA will forbear enforcement
- EPA comfort letters
- Congressional action that clearly limits the type of site subject to EPA enforcement

5.2 Waiver of Federally-required Permits

Federal requirements to obtain federal environmental permits for cleanups conducted entirely on-site should be waived, particularly at smaller, less contaminated or complex sites that are participating in a state voluntary cleanup program.

As discussed in section 5.2.1 of this report, the requirement for a permit can discourage the cleanup of a site. States can waive requirements to obtain permits under state and local law but cannot waive the requirement to acquire permits imposed under federal law. Congress has waived the requirement to obtain permits for cleanups conducted on-site under CERCLA, in part, because CERCLA procedures assure protection of human health and the environment in lieu of permitting procedures. CERCLA sites tend to be larger, more highly contaminated sites. Yet, the requirement for federal permits (e.g., treatment of media contaminated with hazardous waste; discharges to surface water bodies or publicly owned treatment works) remains for cleanups that do not occur under CERCLA. State VC/BF sites are typically smaller, less contaminated sites.

Similar to federal enforcement liability, the type of voluntary cleanup site for which a permit waiver is appropriate should be delineated. The authority of EPA, under RCRA, the Clean Water Act, and other relevant federal environmental statutes, to administratively waive permit requirements at voluntary cleanup sites should be reviewed. If authority is lacking, Congressional action may be necessary to extend the CERCLA permit waiver to voluntary cleanup sites.

5.3 Requirements For Public Participation

States should devise procedures within their VC/BF programs that enable public participation requirements to be tailored to site-specific circumstances.

States should consider devising procedures that will balance competing concerns regarding public participation at voluntary cleanup sites. The necessity for streamlined procedures responsive to transactional time frames must be balanced with the need for public input in a redevelopment effort that may greatly impact a local community or adjoining neighborhoods. Reliance on local zoning procedures may not be enough; the focus may only be on landuse and tax base, and not include environmental or public health concerns. Flexible procedures may include actual notice to neighboring landowners (e.g., Texas), opportunity for public input if cleanup is to less stringent levels than background or state-wide generic standards (e.g., Pennsylvania), or approval of a community relations plan tailored to the site that may range from public notice to Superfund-type procedures (e.g., California).

5.4 Development of Solutions to Area-wide Ground Water Contamination

States should explore how their VC/BF programs can be expanded to clean up area-wide ground water contamination.

As discussed in section 5.2.3 of this report, state VCPs addressed in this report have not been effective in remediating ground water contamination that is not sourced at the voluntary cleanup site. Only one case study site is actively addressing the issue. States may wish to use the ITRC to (1) identify approaches currently under development by the states or Brownfields grant recipients to address such area-wide problems, and (2) develop alternatives or pilot projects for the mutual benefit of ITRC member states.

5.5 Requirements For Post-Cleanup Environmental Monitoring And Regulatory Review

States should consider development of flexible requirements for post-cleanup environmental monitoring and regulatory review of monitoring results and compliance with operation and maintenance and land use commitments.

Non-permanent remedies are often used in voluntary cleanup actions. These remedies may include engineering controls (e.g., caps), institutional controls (e.g., fences) and land use restrictions (e.g., restricted from residential use). Yet, most of the case study states do not require environmental monitoring or reporting, nor audit compliance with operation and maintenance commitments or land-use restrictions.

It is questionable whether the lack of environmental monitoring and post-cleanup regulatory oversight is protective, in the long-term, of human health and the environment when non-permanent remedies are used or cleanup is to industrial land use standards. This becomes more of a concern as state voluntary cleanup programs are used to redevelop larger and more contaminated areas and to address area-wide ground water contamination.

States should reexamine the safeguards provided in their voluntary cleanup programs for long-term protection, when remedies require ongoing operation and maintenance or approvals of cleanups hinge on restricted land and ground water use. States may wish to consider requirements for recording of operation and maintenance requirements and land use restrictions in the county real estate records (similar to RCRA post-closure requirements) or periodic reviews (similar to CERCLA post-remedy, five-year reviews). Understandably, states will need to balance the desires for finality and streamlining of VCP participants with the states' protection obligations. States may need to develop criteria, premised on site-specific circumstances, when post-cleanup monitoring and review are appropriate.

5.6 Encouragement of Innovative Technologies

In order to facilitate the use of innovative technologies at voluntary cleanup sites, state and federal agencies will need to work together in developing a strategic action plan to provide incentives for their use.

As discussed in section 5.2.5 of this report, when time is of the essence, voluntary cleanup sites generally do not provide a ready test-bed for innovative technologies - especially for innovative remediation technologies. However, voluntary cleanup sites are a likely market for investigation technologies that can speed up site characterization, once these technologies have been proven. States can be instrumental in providing information regarding emergent and innovative technologies and matching such technologies, which may have been tested at larger, enforcement-driven remediation sites, with smaller, less complex voluntary cleanup sites.

If voluntary cleanup sites are to be the test beds for emergent and innovative technologies, external assistance is required. The assistance can be provided either through greater incentives for such technologies in the administration of the ongoing programs or through coordinated technology development initiatives by federal agencies, the states, and the private sector (possibly, through the ITRC Work Group). Corporations or federal agencies with multiple sites enrolled in a state VCP are good candidates for testing emergent and innovative technologies because the economy of scale is improved over use of such technologies at individual parcels. However, state agencies may still need to provide incentives because of the risks inherent to the use of emergent and innovative technologies. Such incentives may need to be in the form of external financial help (e.g., grants) to site owners, partnerships between site owners and vendors, or other forms of incentives.

5.7 Exploration of Utility of State VC/BF Programs at Federal Facilities

State and federal agencies should explore if and how state VC/BF programs could be used to clean up federal facilities.

As discussed in section 5.2.6 and other sections of this report, DOD and Pennsylvania are embarking on a new use of state VCPs -- that of cleaning up lands owned or operated by a federal agency. The state and federal agency members of the ITRC may wish to use the ITRC to (1) explore the barriers (e.g., legal limitations) and incentives for federal agency use of state VCPs, and (2) develop pilot projects for the mutual benefit of ITRC membership.

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Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements (under CERCLA)
ASTM	American Society for Testing and Materials
ASTSWMO	Association of State & Territorial Solid Waste Management Officials
BEA	Baseline Environmental Assessment
BF	Brownfield
BRAC	Base Realignment and Closure
CCEM	Colorado Center for Environmental Management
CEAM	Conceptual Environmental Assessment Model
CDPHE	Colorado Department of Public Health & Environment
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CRF	Cleanup and Redevelopment Fund
DNAPL	Dense Non-Aqueous Phase Liquid
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DOIT	Develop On-Site Innovative Technology
DTSC	Department of Toxics Substances Control
EA	Environmental Assessment
EBA	Environmental Bankers Association
ECRA	Environmental Cleanup and Responsibility Act
ELI	Environmental Law Institute
EM	Environmental Management
EPA	Environmental Protection Agency
ER	Environmental Remediation
ERD	Environmental Response Division
ESA	Environmental Site Assessment
FS	Feasibility Study
GIS	Geographic Index System
HDSRA	Hazardous Discharge Site Remediation Act

HI	Hazard Index
HMWMD	Hazardous Materials and Waste Management Division
HSRAF	Hazardous Substance Remedial Action Fund
ISRA	Industrial Site Recovery Act
ITRC	Interstate Technology and Regulatory Cooperation
LRP	Land Recycling Program
MCL	Maximum Contaminant Level
MDEQ	Michigan Department of Environmental Quality
MERA	Michigan Environmental Response Act
MOA	Memorandum of Agreement
MSC	Medium-Specific Concentration
NCP	National Oil and Hazardous Substance Contingency Plan
NFA	No Further Action
NIR	Notice of Intent to Remediate
NJDEP	New Jersey Department of Environmental Protection
NJEDA	New Jersey Economic Development Authority
NPL	National Priorities List
NRD	No Record of Decision
OAR	Oregon Administrative Regulations
ODEQ	Oregon Department of Environmental Quality
OSWER	Office of Solid Waste and Emergency Response
OST	Office of Science and Technology
PA	Preliminary Assessment
PADEP	Pennsylvania Department of Environmental Protection
PA/SI	Preliminary Assessment/Site Inspection
PCBs	Polychlorinated Biphenols
PCE	Perchloroethylene
PDC	Portland Development Commission
PPA	Prospective Purchaser Agreement
PRP	Potentially Responsible Party
PST	Petroleum Storage Tank
R6CAPS	Region 6 Corrective Action Prioritization System

RACR	Response Action Completion Report
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
REUS	Redevelopment of Urban Sites
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RI	Remedial Investigation
SAB	Scientific Advisory Board
SCCA	Spill Compensation and Control Act
SFWQCB	San Francisco Water Quality Control Board
SI	Site Inspection
SPTCo	Southern Pacific Transportation Company
TNRCC	Texas Natural Resources Conservation Commission
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
UST	Underground Storage Tank
VC/BF	Voluntary Cleanup/Brownfields
VCP	Voluntary Cleanup Program
VCRA	Voluntary Cleanup and Redevelopment Act
WGA	Western Governors' Association
WQCB	Water Quality Control Board