REVITALIZING URBAN AMERICA

CLEANING UP THE BROWNFIELDS

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July 2000

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INTRODUCTION

The United States' inner-cities are home to hundreds of thousands of old, abandoned commercial and industrial sites. Largely an aftermath of the decline of manufacturing in the cities over the last few decades, these deteriorating facilities typically contribute to blight, poverty, and crime within the surrounding area. While the majority of these sites are not actually hazardous, they nonetheless carry contaminants—or the threat of contaminants—from industrial waste and chemical deposits. Rather than face the uncertainties of cleanup costs and regulations, prospective developers have turned to outer-urban and suburban areas for expansion, a less costly and risky venture, but one that has contributed enormously to urban sprawl. Since the early 1980s, the federal government has attempted to remediate the most hazardous of these sites via its Superfund program. The non-hazardous sites—or "brownfields"—have largely been left to the responsibility of the states and cities for cleanup.

Brownfields by definition are low-risk, abandoned industrial sites. They include everything from closed steel mills to deserted timber mills to old chemical plants. Many of the sites are not actually contaminated but are considered risky because they are potentially contaminated or carry the perception of contamination. There are an estimated 450,000 to 600,000 brownfields in the country.[1] The majority of these are located in inner-urban industrial areas, though many are located in small towns as well.

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While the Environmental Protection Agency's (EPA) Superfund program has failed notoriously to clean up contaminated sites, brownfield cleanup efforts by the states have flourished. Their success is due, in large part, to the states' innovative measures, which have replaced the federal government's strict enforcement and rigid standards with incentive structures, commonsense remediation requirements, risk assessment, and liability reform.

Over the last two decades, the EPA has increasingly used its authority under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—the Superfund program—to intercede in state brownfield cleanup efforts. While the federal programs are supposed to "empower states, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields,"[2]

they have failed by many accounts. Funds authorized to provide states with loans and grants have seldom found their way to intended municipalities, and the EPA's rigid requirements have eroded stakeholders' incentives and increased risks associated with cleanup. Even worse are federal CERCLA requirements that not only impede Superfund cleanups but discourage brownfield remediation as well by scaring away potential developers.

Brownfields are predominantly a state and local issue; states have been the champions of effective and creative re-use programs. The federal government should get out of the brownfields business and leave the states to do what they do best.

RECYCLING LAND IN THE INNER CITY: STATES LEAD THE WAY ON BROWNFIELD CLEANUPS

Cleaning up brownfield sites and turning them back to productive use yields enormous economic and environmental benefits to the community. Because most abandoned sites are located in the nation's inner-cities, remediation and redevelopment can contribute enormously to the revitalization of impoverished urban centers, creating hundreds of new jobs, hundreds of thousands of dollars in earned wages, and millions of dollars in new tax revenue. According to a recent survey conducted by the US Conference of Mayors, 187 of 231 cities responded that cleaning up existing brownfield sites could generate as many as 540,000 new jobs if the land were returned to production. At least 175 cities estimated brownfield redevelopment could generate up to $2.4 billion in local tax revenues.[3]

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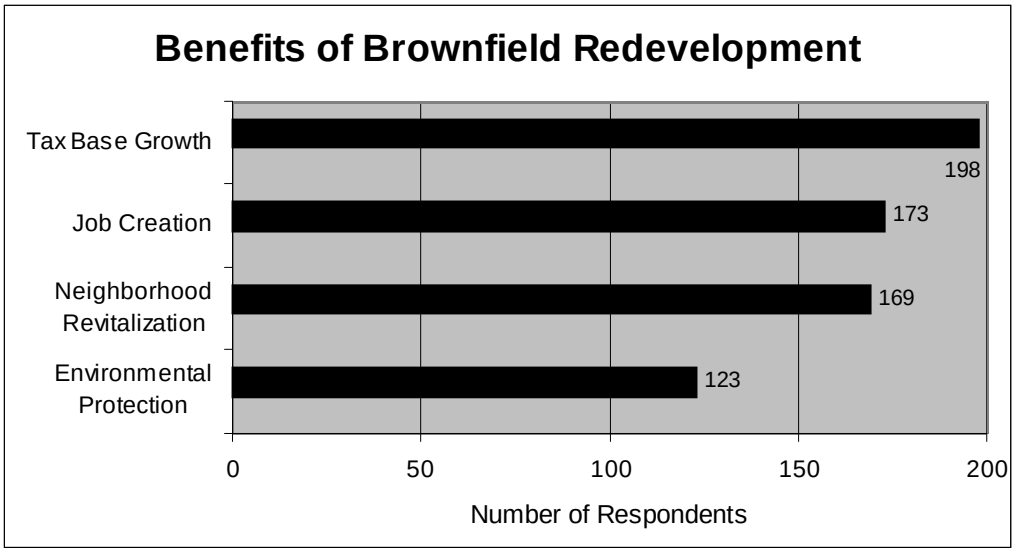
Brownfield redevelopment also helps to prevent urban sprawl and to protect farmland and undeveloped land. By bringing abandoned commercial or industrial sites in the cities back into production, localities are helping to preserve unused land in the suburbs and rural areas—referred to as "greenfields"—that otherwise would be dug out and paved over for usage.

Conversely, leaving old, industrial sites and facilities in their condition only exacerbates today's inner-city problems, further deteriorating the areas' tax base and potentially attracting vandalism, arson, drug dealing, or other criminal activities. In addition, these blighted sites can contribute to pollution problems by spreading contamination; a controllable problem can quickly become a health hazard.

The following graph shows how cities responded when asked to list the top benefits of brownfield redevelopment. Eighty-six percent of the cities (198 out of 231) listed an increase in the tax base, followed by job creation, neighborhood revitalization, and environmental protection.[4]



PROGRESS IN THE STATES

The states have come a long way over the last decade in addressing brownfields and returning these abandoned sites to productive use. Since 1989, the states have cleaned up more than 40,000 sites under various clean-up programs.[5] Some states, including New Jersey, have even increased the number of brownfield cleanups while reducing the number of government staff overseeing the projects and the level of state spending for cleanup.[6] Most states employ some sort of voluntary brownfields program, emphasizing a carrot- versus-stick approach. In total, 46 states operate some form of a *voluntary* brownfield-cleanup program,[7] up from 14 states in 1993.[8] According to John Pendergrass, Director of the Environmental Law Institute's (ELI) Center for State, Local, and Regional Environmental Programs, who directs an annual review of the states' brownfield activities:

> Virtually every state has now moved beyond simply having a cleanup program in place to remediating sites successfully. Each state faces its own unique set of problems, with some having far more contaminated sites or different types of contamination, and thus the states' approaches and capacities vary. But in all cases, the public health benefits beyond what the federal government can do alone.[9]

These changes, in large part, have come about by changing the way cleanups traditionally are handled. Unlike federal requirements authorized under CERCLA, legislation enacted by the states emphasizes: incentives over enforcement; relief from unfair and debilitating liability laws to reduce risk to owners, developers, and lenders; risk-based remediation standards over one-size-fits-all; and financial incentives. Specifically, the most effective state programs include the following elements:

- **Voluntary Programs:** One of the main reasons the states have been so effective in addressing brownfields is that they replace enforcement with

Since 1989, the states have cleaned up more than 40,000 brownfield sites.

incentives to give potential owners, developers, and lenders a stake in the cleanup and re-use of the site. This approach, according to a 1997 General Accounting Office (GAO) report, is a less costly and faster alternative to the federal Superfund approach which focuses on cleaning up a relatively small number of highly contaminated sites.[10] Under the states' "carrot" approach, cleanup programs for these medium- to low-risk sites are primarily addressed through volunteerism, meaning interested developers and property owners come forward and offer to clean up a brownfield site in exchange for alternative cleanup requirements and technical, financial, and legal support.

- **Liability Relief:** Federal and state liability laws concerning hazardous sites typically have made cleanup and redevelopment a risky venture, as many developers are discouraged by potentially uncontrollable costs due to strict, retroactive, and joint-and-several liability.[11] Over the last few years, however, the states' brownfield programs have effectively reformed liability laws to protect parties that are not responsible for contamination.[12] For example, all but four states now extend some form of liability protection to owners and developers. Some of these protect owners who purchase brownfield sites after contamination occurred.[13] Others provide liability protection to owners and developers via a "covenant not to sue" if the site is cleaned up to state expectations. Many states also extend liability protection to financial lenders. Others have replaced joint-and-several liability laws with proportional laws, which hold parties liable only for their portion of the damage. Despite the headway states have made in this area, they cannot reverse federal law under CERCLA which stipulates that brownfields can be held to the same liability laws that govern Superfund sites.

- **Remediation Requirements:** Federal remediation requirements also have created a strong disincentive for possible developers. EPA standards for hazardous sites require dirt to be so clean a child could eat 200 milligrams a day for 350 days without getting sick.[14] No consideration is given to the use of the site, and there are no risk- assessment requirements. Not surprisingly, these standards have led to multi-billion dollar cleanups. Today, much of that has changed for brownfield sites largely as a result of state reforms. As written in a report by the National Environmental Policy Institute, a bipartisan organization focusing on environmental issues, "There is general agreement [in the states] that absolute cleanup at many contaminated sites is not possible in this generation or for generations to come due to technical, scientific, or economic reasons."

  Today, at least 41 states require that remediation levels be determined in large part by considering future land use.[15] For example, will children be exposed to any contamination? Will groundwater be used for drinking? Once these types of issues have been addressed, decisions on how to remediate follow. In many cases, rather than requiring cleanup crews to cart away truckloads of potentially contaminated material, states have sought the expertise of engineers and have accepted the method of "capping"—covering a site with

asphalt, cement, or clay—as a practical and cost-effective way to protect people from contamination. According to Ronald Neufeld, professor of civil engineering at the University of Pittsburgh, "The idea of stabilizing or encapsulating something in place has been around a long time and it is very acceptable…Just because it's there doesn't mean it's moving and dangerous."[16]

Another state innovation is risk-based remediation standards. At least 44 states have adopted some form of risk assessment for determining how clean is clean.[17] For example, Pennsylvania applies a one-in-100,000 risk, meaning exposure to contaminants must not present more than a one-in-100,000 risk that a person will get cancer in a lifetime. This differs from the federal government's much more extreme one-in-a-million risk ratio that governs abandoned site remediation. As Kevin Reinert, a toxicologist and member of the Pennsylvania state advisory board, remarks, a one-in-a-million risk requirement is "a blip on what we expose ourselves to everyday voluntarily." Similar risks, according to Reinert, include smoking 14 cigarettes in a lifetime, or drinking 300 cans of diet soda.[18]

- **Public Participation:** All states that have enacted voluntary brownfield cleanup laws have some type of public participation program that informs residents about cleanup efforts and enables them to have a voice in implementation procedures.[19]

- **Financial Incentives:** Costs can be exorbitant. While reform efforts such as liability protection and risk-based remediation requirements have helped to lower the cost of cleanup, the expense can still be extremely prohibitive. Costs not only include the actual cleanup; they also include pre-remediation activities, such as site assessments and investigations to determine if contamination exists and, if it does, what the risks of exposure are. While private financing is always a better alternative to state financial assistance, it is not always possible given the risks—or perceptions of risk—which scare away potential lenders, particularly banks. To encourage private sector participation, state financial packages typically include all or any of the following:[20]

  - **Grants.** Funds provided by the state, given either to localities or directly to cleanup projects, to fund site assessment, remediation, or both. At least 17 states run some form of grant program. Dollar amounts range anywhere from $25,000 to $1 million for private entities, and up to $2 million for municipalities.

  - **Loans.** Almost all states provide some form of low-interest loans for site investigation and/or cleanup. As with grants, some states provide the loans directly to the private parties, while others provide the funds via municipalities. Many of these are revolving loan funds, meaning the loans are paid back into the fund to finance future brownfield-redevelopment projects.

- **Tax incentives.** State tax incentives for purchasers of brownfield sites range from income tax credits, or abatements, to property tax credits. Many incentive programs require that a brownfield remediation project be located within a state-established enterprise zone, or low-income inner-city neighborhood. But specific programs vary. Florida, for example, has no such requirements but provides a $2,500 tax "bonus refund" to certain industries for every job created at a remediation site.

Some states, such as Massachusetts, finance operations for voluntary programs by charging developers permit fees, waste fees, or other kinds of user fees. Other states issue bonds, impose new taxes, or use appropriations from the state general fund.[21]

THE EPA'S BROWNFIELD POLICIES: SUPERFUND, PART II

The EPA has provided a valuable lesson in what not to do. Superfund, enacted into law in 1980 under CERCLA, sought to clean up the nation's hazardous waste sites. Its track record has been dismal; regulatory policies and standards discourage cleanup efforts by triggering lengthy and costly legal battles over who is responsible, and how clean is clean. Not surprisingly, the typical Superfund site takes a minimum of 10 years to clean up. In the words of a recent GAO report, "GAO has included the Superfund program on its list of federal programs that pose significant financial risk to the government and potential for waste and abuse."[22]

Despite the EPA's failures with the Superfund program, the agency still presides over many state brownfield-cleanup efforts. It retains its control through two primary means: 1) its brownfields pilot programs; and 2) its regulatory structure—the same laws that hamper Superfund site remediation also hamper brownfields cleanup.

EPA Brownfield Activities and Expenditures: No Bang for the Buck

Through CERCLA, the EPA in 1994 launched the Brownfields Economic Redevelopment Initiative (BERI), the agency's principle brownfield-cleanup program, which operates numerous pilot projects. These include:

- **The Brownfields Assessment Demonstration Pilot:** Dedicates funds of up to $200,000 to selected cities to help pay for site assessment activities prior to cleanup.

- **The Brownfields Cleanup Revolving Loan Fund (BCRLF):** A $40 million program which provides low-interest-rate loans to targeted communities for brownfield cleanups. The fund is supposed to generate additional capital for cleanups by enabling pilot cities to turn around and lend out the monies to potential developers at low interest rates. This is the only part of the EPA's brownfields program where money can be spent on cleanups.

- **The Job Training and Development Demonstration Pilot:** Provides two-year grants of up to $200,000 to train the residents of communities "affected by brownfields."[23]

The EPA has spent enormous sums of taxpayer dollars to operate these programs. In just three years, the EPA's brownfield budget has increased nine-fold in inflation-adjusted dollars, from $11 million in fiscal year 1996 to $92 million in fiscal 2000.[24]

In addition to EPA activities, the Clinton-Gore Administration also launched the Brownfields National Partnership Action Agenda in 1997, a two-year, multi-agency initiative that pulls in 19 federal agencies—in addition to the EPA—to implement over 100 action items "to bring federal, state, and local agencies together to clean up and redevelop sites."[25] The program's main objective is to provide federal grants and loans to help fund brownfield cleanup efforts.

While appearing in description to be a worthy goal, these federal programs, by many accounts, have been a failure. The findings of various audits, GAO reports, and congressional hearings have all concluded that federal efforts have failed to meet their overall goals and objectives, and despite spending hundreds of millions of taxpayer dollars, have failed to show tangible benefits.

Multi-federal Agency Initiative Fails to Keep Track of Program Results

In 1999, the GAO was commissioned to review the Brownfields National Partnership Action Agenda and determine how well federal agencies were meeting the program's goals and objectives. The report found that, despite spending over $400 million with the commitment to generate 196,000 new jobs and $5 to $28 billion in new investment, the agencies failed to monitor or document any new job creations or investment opportunities resulting from the federal initiative. The report states that while federal agencies have improved their ability to coordinate brownfield activities and have increased the federal government's role in brownfield redevelopment, "the administration cannot tell if the initiative is meeting the economic goals because most agencies are not tracking these results or collecting data specific to brownfields that would allow them to do so."[26]

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In response to the report, House Commerce Committee Chairman Tom Bliley wrote EPA Administrator Carol Browner, requesting that her agency turn over all documents showing how the funds for the Brownfields National Partnership were spent. The same year, the EPA released a report outlining the agencies' "accomplishments" and making neither reference to, nor giving any explanations for, the findings of the GAO report. Among its conclusions: "The successes demonstrated through the Partnership…confirm that public resources can be effectively used to leverage private investment in brownfields cleanup and redevelopment."[27]

THE EPA'S KEY BROWNFIELD PROGRAMS FAIL TO USE FUNDS AS INTENDED

Reformers list liability concerns via federal law as a major obstacle to redevelopment.

Even bleaker than the Brownfields National Partnership's achievements has been the performance of BERI, the key federal program run by the EPA for implementing brownfield cleanups. The EPA's own Inspector General concluded in a 1998 audit report that the Assessment Demonstration Pilot program failed to properly allocate federal dollars for actual site assessment, the main purpose of the program. Out of $1 million awarded to five specific pilots, only $65,000 was spent on actual site assessments. According to the Inspector General's Office, "While the enthusiasm for EPA's Brownfields Initiative was readily apparent…the impact of EPA's grant funds on redevelopment was less evident."[28]

But no federal brownfields program has come under as much criticism as the 1997 Brownfields Cleanup Revolving Loan Fund (BCRLF) program—the most important of the pilot projects and receiving more than a third of all EPA spending on brownfields.[29] The role of the BCRLF is to provide $40 million in loans to selected cities. But as of December, 1999, only one of the selected cities—Stamford, Connecticut—had actually received a loan.[30]

In November, 1999, the House Commerce Committee's Subcommittee on Oversight and Investigations held a hearing to investigate why the EPA failed to transfer the funds. While no direct answer surfaced, EPA officials testified that the EPA-selected communities had not appropriately developed the "infrastructure necessary to ensure that loans [were] in compliance with CERCLA [and other federal regulations]."[31] But testimony from loan recipients also revealed that the program was launched before the EPA's basic tools were available to the selected recipients, including the loan manual, crucial to explaining to recipients the requirements for the loan. As a result, there was a great deal of confusion, as many pilots were unclear about what was expected of them.[32]

CERCLA AND THE NCP IMPEDE STATE CLEANUP EFFORTS

Even worse than the EPA's failure to articulate the requirements for the loans are the requirements themselves. One of the largest obstacles confronting pilot cities is the fact that the EPA's brownfields programs fall under CERCLA, which stipulates that federal funds cannot be used on sites containing asbestos, lead-based paint, or petroleum. As a result, many of the brownfields needing the most immediate attention simply do not qualify.

Other severe constraints are the requirements under the National Contingency Plan (NCP) that participants hire an "On-Site Coordinator" to oversee site assessment operations, and that pilot cities hold community meetings and conduct outreach to address public health concerns. The public-awareness stipulations require enormous resources, far exceeding the amount provided under the federal loan program. As observed even by the EPA's own Inspector General, "the requirements of the NCP, such as addressing community concerns, holding community meetings, and setting up and maintaining administrative records require

a great deal of resources to carry out…and the administrative requirements to the lender are burdensome." Furthermore, most states operate their own programs to increase public awareness and education of brownfield re-use activities. According to a study by ELI, 47 states require some form of public participation.[33]

The EPA Inspector General's report concludes: "City officials indicated that many of the sites that have the greatest potential for redevelopment may not be redeveloped due to the restrictions placed on the use of the funds by CERCLA and the requirements of the NCP."[34] In short, by linking brownfield projects to the requirements of CERCLA and the NCP, the projects suffer from the same obstacles that have stood in the way of Superfund-site cleanups. Despite the Inspector General's overall findings that "some [of the BERI and CERCLA activities] have had relatively little impact on actual redevelopment," and its recommendations that the EPA "explore legislative and regulatory alternatives to help cities address the restrictions and requirements placed on the Revolving Loan Fund by CERCLA and the NCP,"[35] the EPA has taken no such actions to correct the problems and opposes any efforts to de-link brownfield cleanup from CERCLA requirements. Furthermore, over the last few years the EPA has quadrupled the size of the BCRLF program, from $8.7 million in fiscal 1997 to $30 million for fiscal 1999, in inflation-adjusted dollars.[36] Just this spring, Vice President Al Gore announced the Administration's intentions to expand the program further, raising expenditures by an additional $20 million.[37]

EPA Regulations Override State Authority— and Discourage Cleanup

The EPA's onerous stipulations on state and local recipients for grants and loans appear to be easily avoidable: just say no to the money. Not as easy to elude are the EPA's policies which, under CERCLA, govern the states' activities on brownfields. Ironically, while the EPA emphasizes the importance of "empowering" the states to clean up and redevelop brownfield sites,[38] CERCLA policies do the reverse, restricting states via its rules on liability, cleanup requirements, and environmental justice. Despite the EPA's failings with Superfund and now brownfields, the agency has fought for policies that would actually take control of brownfields away from the states.

The EPA's Liability Laws Supercede States

Almost all states have addressed the liability debacle by passing laws to protect innocent parties from litigation. State lawmakers were well aware that until potential owners and developers were free from the threat of litigation for contamination at sites with which they had no prior involvement, no one would even consider coming near the sites. The states' statutes, however, carry little weight in federal law. Despite the fact that the EPA authorizes the states to administer brownfield cleanups, the sites are still regulated by CERCLA and, therefore, can be subjected to the same federal liability laws that govern Superfund sites.[39] Not surprisingly, reformers list liability concerns via federal law as one of the major

obstacles to redevelopment. Several GAO reports released in 1996 and 1997 identified CERCLA as "one of the major disincentives to redeveloping brownfields,"[40] and stated federal laws "make brownfields difficult to redevelop."[41]

To help alleviate this problem, eleven states[42] have entered into a Memoranda of Agreement (MOA) with the EPA which states that the EPA recognizes the efforts of the states to clean up brownfield sites and "generally…does not anticipate taking removal or remedial action at sites involved in this Voluntary Cleanup Program unless EPA determines that there may be an imminent and substantial endangerment to public health, welfare, or the environment."[43] While not legally binding, the MOA nonetheless represents an understanding of mutual consent that the EPA will not interfere with state efforts. After reviewing the criteria of the MOA, however, the EPA released a new and revised MOA in September of 1997 that reversed the initial agreement, essentially authorizing the agency to take an active federal role in the oversight of all sites except those the EPA designates as lowest priority.

State officials, shocked over the EPA's abrupt reversal, appealed to the agency to honor its original agreement. As Jim Snyder, then-director of the Bureau of Land Recycling and Waste Management with the Pennsylvania Department of Environmental Protection, expressed, "We think the EPA has a reasonable place at the table when you are dealing with a [federal Superfund] site, but we think that the federal government needs to basically stay out of state business when it relates to [state] brownfields and cleanup programs."[44] Only after the states severely protested the decision—along with the National Governors' Association, the US Conference of Mayors, the Environmental Council of the States, and other organizations—did the EPA withdraw the MOA revisions. But that same month, the Clinton-Gore Administration attempted to attach the same federal controls to the Omnibus Appropriations bill. In the words of Rep. Sherwood Boehlert (R-NY), the Administration "tried to achieve through a rider on an appropriations bill in the dark of night what they could not achieve through open, public debate."[45]

Environmental "Justice" Provisions Discourage Brownfield Cleanup and Threaten Greenfields

Another dark cloud that turns possible developers away is EPA policy on "environmental justice." A 1998 guidance authorizes the EPA—without congressional consent—to override state and local authorities' approval for redevelopment of an abandoned industrial site if it appears the residents of the area are predominantly minority. Specifically, the 1998 guidance places the burden on the developer to prove that industrial activity will not have a "disparate impact" on minorities. Since most brownfield sites are located in the inner-city—where revitalization projects are most typically needed—environmental justice provisions discourage these efforts. Alternatively, builders look to the underdeveloped land outside the cities where they are not confronted with federal environmental justice laws. These perverse incentives contribute to urban sprawl.

Boston Developers Opt for More Expensive Private Financing To Avoid "Onerous" Federal Requirements

Among the cities that have received BCRLF loans and yet have questioned the benefits of the federal program is Boston. For several years, Boston has played an aggressive role in cleaning up brownfield sites on its own initiative, participating in the state's brownfields program (described in the appendix, "The Massachusetts Contingency Plan—Expanding the Role of the Private Sector") and providing a "menu" of options to private-sector participants to ensure rapid cleanup. These options include tax abatements, liability relief for innocent parties, and debt financing through city agencies. In 1995, Boston was selected to receive a $200,000 grant under the federal Brownfields Pilot Assessment program, and again in 1997 to receive a $350,000 loan under the BCRLF program to provide funds for the actual cleanup. But as Thomas Ahern, Senior Project Manager for Brownfields and Industrial Development with the Boston Redevelopment Authority, testified before the Subcommittee on Oversight and Investigation, "a funny thing happened on the way to the lined landfill. The more we learned about the program, the more problematic it became to administer the funds."[46]

One of the greatest hurdles, according to city officials, was the EPA's administrative requirement to hire an "On-Scene Coordinator." Because the loan program mandates that the coordinator be a public employee, participants would have had to abandon the state program that enables developers to save tax dollars by hiring a Licensed State Professional from the private sector. In other words, the federal program was forcing participants to drop the innovative state program in order to qualify for the federal.

CERCLA requirements were another major pitfall, according to Ahern. Despite the fact that Boston does not contain any sites on the National Priority List (i.e. Superfund sites), the cleanup requirements of the brownfield sites governed by CERCLA were "immeasurably more onerous than the Massachusetts regulations." The greatest problem was that due to CERCLA, the pilot program was not addressing Boston's greatest needs. More than 70 percent of all brownfields in the city suffer from oil contamination. However, none of these sites would have been able to meet the requirements of CERCLA.

Confronted with these and other major problems, Boston officials discovered that most developers actually preferred private financing over federal assistance, even when private financing was twice the rate of a federal government loan. As Ahern pointed out: "My [federal government] rate may be lower, but on a $25,000 loan amortized over five years, is it really worth the lower rate when I have to hire three new attorneys just to ensure I am satisfying the regulations?"[47]

State officials are increasingly worried over the EPA's environmental justice policy, which they perceive to be a significant impediment to brownfield cleanup. As articulated by one state official with New Jersey's Department of Environmental Protection,

> We must be careful not to devise a system that dampens the great strides that are being made in brownfields redevelopment and general urban revitalization. Drawing circles around our communities and declaring them to be "environmental justice areas"…will most certainly defeat attempts to bring in business and industry to clean up long standing environmental problems.[48]

EPA policies ensure the agency retains ultimate control over state and local authorities in all key elements of brownfield redevelopment, including liability, levels of remediation, and land use. In light of the EPA's failure to address the far more severe problems of Superfund sites—as well as the more recent failures of the EPA's brownfield funding programs—the EPA should get out of the business of brownfield cleanup and leave it to the states who, within an impressively short period of time, have proven to be the champions of brownfield remediation and re-use.

RECOMMENDATIONS

> After 20 years of experience with the Superfund program, we have discovered that policies designed to address a universe of…sites have actually proved to be a barrier to cleanup." —Rep. Sherwood Boehlert, *Roll Call*, April 10, 2000

The best aid Washington can provide to the states and localities is to de-link brownfield requirements from the failed Superfund program and then get out of the business of brownfields altogether, enabling the states to continue handling these sites without the straightjacket of federal restrictions. The role of the federal government concerning brownfield remediation should be to provide information and technical assistance when requested. Effective brownfields legislation would address the following:

- **De-link brownfields from CERCLA and NCP regulations.** Some of the states' and cities' problems with federal requirements can easily be avoided. Regulations, for example, that forbid federal dollars to be used for the cleanup of sites with traces of petroleum, lead, and asbestos, and that require EPA-approved public education programs can be averted by simply saying no to the money, as some developers already are doing. While that's a tall order, a number of city officials are already finding that cleanup projects run much more smoothly when there are no federal dollars—or strings—attached.

  CERCLA regulations, however, that carry the threat of federal intervention via liability laws and remediation requirements are not avoidable and will continue to stigmatize brownfields until laws governing their cleanup are no longer linked to CERCLA. According to several GAO reports, the main obstacle facing states and localities in cleaning up brownfields are federal liability rules which scare off potential owners, developers, and lenders. Furthermore, these federal rules trigger urban sprawl by encouraging development of greenfields, a considerably less-risky alternative to brownfield re-use. The GAO reports found that one of the most important actions Congress can take to aid state voluntary programs is to limit federal liability.[49] New legislation should be enacted that prevents the EPA from taking any action against a site that is under remediation via a state voluntary program, excepting situations where a state requests intervention or where contamination crosses a state line. The Brownfields Revitalization Act of 2000 (S. 2590), introduced May 18 by Sen. George V. Voinovich (S-OH), contains language to this

effect. The bill has the support of Sen. Robert Smith (R-NH), chairman of the Senate Environment and Public Works Committee; Sen. Lincoln Chafee (R-RI), chairman of the Senate Environment and Public Works Superfund Subcommittee; Sen. Max Baucus (D-MT), ranking Democrat of the full committee; and Sen. Fran Lautenberg (D-NJ), ranking Democrat of the subcommittee.[50]

- **De-fund the Brownfields Cleanup Revolving Loan Fund.** By all accounts, the EPA's revolving fund pilot program—which was created by the EPA without congressional authorization—has failed to meet its goals and objectives. Despite failure to actually distribute the funds to its recipient-pilots, and the EPA Inspector General's findings that the federal funds have had little impact on redevelopment, the BCRLF budget has quadrupled from $8.7 million in fiscal 1997 to over $30 million in fiscal 1999. This spring, Vice President Gore proposed further expansion by increasing its budget an additional $20 million. Recipients of the loans have testified the requirements are onerous and ineffective, limiting their ability to properly and speedily return industrial sites to use. Furthermore, the loan program competes with other debt programs in the private market.

  The $400 million-plus Brownfields National Partnership Action Agenda provides generous loans and grants through its multi-agency assistance programs.[51] Housing and Urban Development's (HUD) Brownfields Economic Development Initiative, in particular, provides over $160 million through its Brownfields Economic Development Initiative Funds and its loan guarantee program. HUD also appropriates a portion of its $5 billion Community Development Block Grant Program to local brownfield cleanup and re-use efforts. HUD is just one of 19 federal agencies that provide generous grants or loans through the Brownfields National Partnership Action Agenda. The BCRLF should be eliminated.

In many ways, states have succeeded where the federal government has failed.

CONCLUSION

The states have come a long way in addressing the problems of abandoned industrial sites. All but four states currently operate brownfield-cleanup programs, giving private landowners and developers an incentive and stake in purchasing, remediating, and redeveloping abandoned property. These state policies and programs are successfully wiping out the blight created by these deserted waste sites, bringing new jobs to the inner-cities, creating a new tax revenue base, and protecting the "greenfields" in the suburbs and rural areas.

In many ways, the states have succeeded where the federal government has failed. CERCLA requirements get in the way of the federal government's hazardous waste cleanup efforts, pitting landowner against landowner in lengthy, needless disputes over which party is responsible for the cleanup. The policies benefit no one but the litigators. Despite the failings of CERCLA, its regulations still govern state and local brownfield programs, enforcing rigid cleanup standards and threat-

ening lengthy, costly legal challenges. Furthermore, by numerous accounts and reports, the EPA's brownfield programs intended to empower states and localities have instead created dependency and incapacity.

There is a role for the federal government; it is to reverse former policies that bring brownfield-cleanup efforts under the rubric of Superfund by separating brownfields from Superfund requirements. Then, it should get out of the business of brownfields altogether. In the words of the National Environmental Policy Institute, "the principal assistance that the federal government might provide at a state-led cleanup is no action at all. In fact, the greatest need at these sites is some type of assurance that the federal government will not second-guess state and local cleanup decisions."[52]

APPENDIX

CASE STUDIES: SUCCESSFUL VOLUNTARY STATE CLEANUP PROGRAMS

ILLINOIS: THE TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES—RISK-BASED GOALS

Illinois' present voluntary cleanup program was launched in 1993 in response to the slow rate of cleanup under the previous program, as well as complaints from participating parties that requirements were too rigid, vague, and costly (in some cases, cleanup costs exceeded the value of the property). Furthermore, the cleanup program suffered overall from a lack of understanding among the parties over how both remediation and redevelopment could be addressed simultaneously and with equal priority. As Gary King, Manager of the Division of Remediation at the Illinois EPA, recalls, there was a "two cultures problem" in which those involved in the remediation process didn't understand the real estate and development aspects and those in real estate were intimidated by the cleanup responsibilities.[53]

The new program sought to address all these concerns. Essentially, the Tiered Approach to Corrective Action Objectives (TACO) incorporates risk analysis, rather than rigid cleanup requirements, as the principle method for assuring public safety, and replaces a one-size-fits-all with a site-specific approach.[54] In 1995, the state legislature codified the risk-based cleanup objectives by requiring risk analysis.[55]

Remediation requirements. Under TACO, owners and operators work with state and local officials to determine remediation priorities and the appropriate level of "clean." Requirements provide flexibility, allowing landowners to choose one of three "tiers" for establishing remediation priorities. The approach is largely site-specific; levels of remediation are largely determined by three factors specific to the location:

1) Future land use—For what is the site going to be used? Cleanup standards vary depending on whether, for example, the site will be used as a parking lot versus a children's playground.

2) Actual site conditions—What is the degree of contamination?

3) Risk from exposure to contaminants—What is the risk of exposure, and what is the risk to human health and the environment?

All determinations for the extent of cleanup are based on risk. Upon completion of the cleanup and after the state approves the job, the state issues a "No Further Remediation" letter, a stamp of legally-binding approval that all parties involved in the cleanup have met all state requirements. The law is written, however, to allow the state to rescind the letter if any of the remediation mechanisms fail.

Liability. TACO sought to provide more clarity on liability so landowners would fully understand what they were and were not liable for, and to make liability rules fairer by ensuring liability protection to innocent parties. Addressing the latter, the Illinois legislature enacted a law replacing joint-and-several liability with proportional liability. Essentially, this means that a party is liable only for the proportional amount of damage he caused (compared to joint-and-several, which can hold a party liable for full damages even if only tangentially involved). The new law also extended liability protection to lenders to encourage private financing. The reforms have had a recognizable impact. As Gary King, Manager of the Division of Remediation at the Illinois EPA, observed, "Our assurances on liability are persuasive. We are even seeing initial examples of current owners and responsible parties pooling their resources with new users to combine cost-effective cleanup with the renovation needed for reuse."

Financial incentives. Illinois provides the following financial incentives and assistance:[56]

1) Environmental Remediation Tax Credit—Provides a 25 percent income tax credit of up to $150,000 per site for developers who have already spent at least $100,000 in restoring the site. The tax credit is transferable with the property.[57]

2) Brownfields Redevelopment Grant Program—The state provides $1.2 million a year to municipalities, not exceeding $120,000 per city, to expend on re-use projects. It may not be used to pay for cleanup.

Cleanup successes. To date, there are 1,292 brownfield sites in Illinois going through the remediation program. Out of these, 430 have been granted "No Further Remediation" letters. More than 530 of the sites are presently active.[58]

Case in point. Madison Equipment is a 70-employee firm located in East Garfield Park, Chicago. The company, interested in acquiring an abandoned building, approached the city to assist in the possession. Chicago, which participates in the state cleanup program, agreed to conduct a site assessment and to sell the property to Madison Equipment for one dollar. In return, Madison agreed to rehabilitate the facility and hire six to eight workers from the Empowerment Zone where the site is located. The arrangement has returned to productive use what was a neighborhood eyesore, and created new jobs for disadvantaged residents.

New Jersey: Voluntary Cleanup Program—Revitalizing the State's Urban Centers

New Jersey has among the highest success rates in the nation in turning brownfield sites into productive capital. Rehabilitating underutilized property has been particularly important given the relatively high value of land in the Garden State. New Jersey first started to address the brownfields problem back in 1992. Cleanups were governed by an Administration Consent Order that stipulated timelines and imposed harsh penalties when timelines were not met. The 1998 Brownfields and Contaminated Site Remediation Act sought to change the "stick" approach, giving developers much more autonomy in determining how to go about cleaning the property, reforming the liability system to encourage redevelopment, and applying a risk-approach in determining the proper level of remediation.[59]

Remediation requirements. Under the revised brownfields program, parties and state officials sign a Memorandum of Agreement (MOA), a mutually-agreed-upon set of guidelines replacing the Administration Consent Order. Essentially, the MOA sets "the scope and schedule of remedial activities," covering everything from a preliminary assessment and site investigation to determine the level of contamination, up to actual cleanup.[60]

If it is determined that contamination is not severe enough to call the site a "state priority," it qualifies for the voluntary cleanup program. Before 1998, developers of brownfield sites had to conduct "permanent" remediation unless the projected cost turned out to be more than twice the projected non-permanent—or remedial—cost. Today, however, developers are given much more wiggle room to determine the appropriate level of remediation, as long as they can show the site is protective of public health, safety, and the environment. Public health and safety are determined by risk, defined in New Jersey as a one-in-a-million chance a person will develop cancer in a lifetime, a conservative estimate by most states' standards.[61] If, under this definition, the site is not a high-risk site, developers can apply "remedial" action, which uses advanced engineering standards to appropriately cap or conceal any contamination. This approach, compared to permanent remediation, can reduce the cleanup costs dramatically and make it more appealing to investors and developers.[62] Once cleanup is complete, and if the job is satisfactory, the New Jersey Department of Environmental Protection sends all parties a letter of "No Further Action."

Liability. Liability protection is extended to the owner of the site via a "covenant not to sue" if the site has been cleaned up to state standards (i.e. as agreed to in the MOA) and the owner has received a "No Further Action" letter. Protection from liability for prior contamination also extends to lenders and third parties.[63]

Financial incentives. The state provides the following financial incentives to prospective developers:

1) Tax Credits—The 1998 Brownfields and Contaminated Site Remediation Act expands a 1996 state law that allows tax credits on properties operating within municipal-designated "Environmental Opportunity Zones," extending the period of time from 10 years to 15. To qualify, however, the cleanup parties must use a permanent cleanup remedy.[64]

2) Redevelopment Agreement—In some cases, such as when tax revenues from a cleaned-up site are estimated to exceed the developers' cleanup costs, owners can be reimbursed from the state up to 75 percent of the cost of remediation.[65]

3) Hazardous Waste Discharge Fund—If a prospective developer is unable to come up with private financing for a brownfield-cleanup project, the fund provides loans up to $1 million to be used for site assessment and remediation. The fund also provides loans of up to $2 million a year to municipalities to assist in site assessment. It is not to be used for remediation.[66]

Cleanup successes. As many as 1,130 sites have participated in the state's brownfield- cleanup program since its inception in 1998.[67]

Case in point. Harsimus Cove South, along the Hudson River in Jersey City, used to be an old, abandoned site historically used as a 100-acre railroad yard. But New Jersey's brownfield-cleanup program helped to rehabilitate the land and transform it into two tax-generating properties: a 240,000-square-foot commercial retail center and a 500-unit housing complex. The project began in 1993 after the development company National Bulk Carriers, Inc., signed a Memorandum of Agreement with the state. A site assessment revealed that the site contained petroleum compounds and the soil contained lead. The state determined that a "remedial" cleanup applying institutional and engineering controls would effectively prevent human contact with the contamination. One year later and at a cost of $2.5 million, the state issued National Bulk Carriers a "No Further Action" letter and the project was complete.[68]

MASSACHUSETTS: THE MASSACHUSETTS CONTINGENCY PLAN—EXPANDING THE ROLE OF THE PRIVATE SECTOR

Massachusetts, a largely industrial state, contains a large number of abandoned sites that, while not typically high risk (i.e. not on the National Priorities List) do contain a fair amount of oil-based contamination. Failing in the early-1990s to respond to the enormous number of sites, the state in 1998 revised its voluntary cleanup program. The new program replaced what many officials felt was a stringent, "command and control" approach with risk-based standards. It also gave the private sector a larger role in cleaning up non-hazardous sites, freeing up state officials to more rapidly address high-priority areas.

Remediation requirements. The Massachusetts Contingency Plan replaced state supervision of brownfield cleanups with supervision from state-licensed environmental experts, called Licensed Site Professionals (LSPs). Under the plan, brownfield developers hire these private sector LSPs to assess the site, report its condition to state authorities, and help with the cleanup. There are close to 500 LSPs throughout the state.[69]

All brownfield sites are ranked according to the health risks confronting site users and area residents, and environmental risks. Tier I sites are the highest risk and require developers to apply for a permit. Supervision of cleanups is handled by the state. In the first year of the revised cleanup program, 93 out of 803 sites were designated Tier I.[70] Tier II sites are low-risk and allow LSP-oversight over state supervision. In the first year, 710, or 88 percent of the sites, were Tier II.

Liability. The new program provides liability protection to landowners, tenants, and lenders if they were not involved with the site at the time contamination was reported, and if all cleanup standards are met. For an innocent owner (i.e. one "who did not cause or contribute to the contamination of the site") who owned the property at the time contamination was determined, the law extends liability protection, yet he or she "would have the burden of proving his or her eligibility if anyone challenges it."[71] For parties not included above, the state provides a "covenant not to sue" if the site is located within an Economic Target Area or the project is determined to provide an "exceptional economic development opportunity."[72]

Financial incentives. The state provides the following:[73]

1) Redevelopment Access to Capital (RAC)—The RAC encourages private lending by providing financial protection against forfeiture to lenders. Specifically, the program backs private loans with "environmental insurance" policies of up to $500,000 to ensure cleanup is completed and the lender is repaid. The program is funded by contributions paid by both borrowers and lenders, as well as state matching funds.

2) Brownfields Redevelopment Fund (BRF)—This program provides grants and low-interest state loans to projects in economically distressed areas in the amount of $50,000 for site assessments, $500,000 for cleanups, and $2 million for priority (Tier I) projects.

3) Brownfields Tax Credit—Tax credits of 25 percent of cleanup costs are provided to owners of redeveloped sites located within the state's Empowerment Zones, once cleanup is completed. Owners who go beyond the minimal cleanup requirements receive a 50 percent tax credit.

Cleanup successes. Within the first year of the program, more than half of the Tier IA sites—which, before the program was in operation, were listed on an abandoned state priority list—were redesignated Tier IB.

Case in point. Today, the Gateway Shopping Center in Everett, Massachusetts, sits on the former site of a Monsanto chemical-manufacturing plant. In 1993, a year after Monsanto closed its 150-year-old operation, developer Rosen Associates expressed an interest in purchasing the property and redeveloping it as a large shopping center. Over a century of manufacturing, however, had left the property heavily contaminated with deposits of polychlorinated biphenyl (PCBs) and metals. Monsanto spent the next three years cleaning up the property to the level required by the state's Department of Environmental Protection, but Rosen Associates needed assurances from the state that it would not be liable for any existing contamination detected at any time in the future, or for compliance costs resulting from any changes to the state law. The state issued Rosen Associates a "covenant not to sue," protecting the developer from any past contamination, and extended liability protection to other parties involved with the site, including investors and future tenants of the shopping center. Infrastructure projects to support the new development were financed via public and private funds, with Rosen Associates contributing $1 million for transportation improvements. Also, the state instigated a public forum for all area stakeholders to address transportation needs and other redevelopment issues.

According to a report on brownfields by the National Governors' Association, "Despite…spending twice the time and money typically spent to redevelop a 'greenfield' site, the costs paid off."[74] Construction of the project generated 500 new jobs in the area, with an additional 600 permanent jobs projected.[75] The project was also the impetus for the 1998 Massachusetts Contingency Plan to revise the law to give developers the incentives and liability protection needed to reduce the risks of brownfield redevelopment.

NOTES

[1] Resources for the Future, "Brownfield Pilots," *Library: Project Summary*, 1999.

[2] Environmental Protection Agency (EPA), "Brownfields Economic Redevelopment Initiative," *Quick Reference Fact Sheet*, EPA 500-F-99-303, December 1999.

[3] US Conference of Mayors, *Recycling America's Land: A National Report on Brownfields Redevelopment*, vol. III, February 2000, pp. 9-10.

[4] Ibid, p. 13.

[5] Environmental Law Institute (ELI), "Developments in State Programs," *An Analysis of State Superfund Programs: 50-State Study, 1998 Update*, October 16, 1998. See Appendix for details on specific state brownfield successes.

[6] Ibid.

[7] Charlie Bartsch and Christine Anderson, *Matrix of Brownfield Programs by State*, September 29, 1998, http://www.nemw.org/bfmatrix.htm.

[8] ELI, *An Analysis of State Superfund Programs*, media advisory.

[9] Ibid.

[10] General Accounting Office (GAO), "Superfund: Proposals to Remove Barriers to Brownfield Redevelopment," GAO/RCED-97-87, March 4, 1997.

[11] Strict liability means a party can be held liable even if there was no intent or negligence; retroactive liability means parties are liable even if contamination occurred before they became involved with the site; and joint-and-several liability means even those parties with incremental or tangential involvement with the site can be liable for a disproportionate or even the full amount.

[12] It's important to keep in mind that these reform measures do not eliminate liability; in most cases, they retain common-law tort liability which holds landowners liable for harm resulting from intentional contamination.

[13] Clint Johnson, "Breathing New Life into Brownfields," *Plants, Sites, and Parks*, August 1, 1999.

[14] Wayne T. Brough, "Superfund: The Good, the Bad, and the Broken," *Issue Analysis*, no. 70, February 27, 1998.

[15] ELI, "Developments in State Programs."

[16] Bob Fernandez, "Paving Is Newest Solution to Contaminated Sites," *The Philadelphia Inquirer*, April 13, 1999.

[17] ELI, "Developments in State Programs."

[18] Fernandez, "Paving Is Newest Solution."

[19] ELI, "Developments in State Programs."

[20] Bartsch and Anderson, *Matrix of Brownfield Programs*, pp. 2-13.

[21] ELI, "Developments in State Programs," p. 81.

[22] GAO, "Superfund: Progress Made By the EPA and Other Federal Agencies To Resolve Program Management Issues," GAO/RCED-99-111, April 29, 1999.

[23] EPA, "Brownfields Economic Redevelopment Initiative."

[24] EPA, Office of Inspector General, Report of Audit, "Brownfields: Potential for Urban Revitalization," E1SHF8-11-0005-8100091, March 27, 1998, p. 3; and EPA, *Budget in Brief: FY 2001*, p. 66.

[25] GAO, "Environmental Protection," GAO/RCED-99-86, April 1999, p. 1.

[26] Ibid, p. 9.

[27] EPA, "The Brownfields National Partnership Action Agenda Accomplishments Report," November 23, 1999, p. 4.

[28] EPA, "Brownfields: Potential for Urban Revitalization," p. 9.

[29] Rep. Fred Upton testimony, Oversight Hearing, Subcommittee on Oversight and Investigations, November 4, 1999.

[30] Ibid.

[31] Timothy Fields, EPA, testimony, Oversight Hearing, Subcommittee on Oversight and Investigations, November 4, 1999.

[32] Upton testimony.

[33] ELI, *An Analysis of State Superfund Programs*, summary sheet.

[34] EPA, "Brownfields: Potential for Urban Revitalization," pp. ii, 19-20.

[35] Ibid., pp. ii, 7, 21.

[36] GAO, "Superfund: EPA's Use of Funds for Brownfield Revitalization," GAO/RCED-98-87, March 1998, p. 5; and Upton testimony.

[37] The White House, Office of the Vice President, "Vice President Gore Announces Over $35 Million in Brownfields Grants to Revitalize Contaminated Properties," press release, May 18, 2000.

[38] The EPA brownfields program "is designed to empower states, communities, and other stakeholders…to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields." EPA, "Brownfields Economic Redevelopment Initiative."

[39] For example, liability could be strict, joint-and-several, or retroactive (see footnote 10 for definitions).

[40] GAO, "Superfund: Barriers to Brownfield Redevelopment," GAO/RCED-96-125, June 1996, p. 1.

[41] GAO, "Superfund: Proposals to Remove Barriers," p. 2.

[42] States that entered into the MOA with the EPA include Colorado, Delaware, Illinois, Indiana, Maryland, Michigan, Minnesota, Missouri, Rhode Island, Texas, and Wisconsin. Alexander Volokh, Lynn Scarlett, and Scott Bush, *Race to the Top: The Innovative Face of State Environmental Management,* Reason Public Policy Institute and the National Environmental Policy Institute, Policy Study No. 239, p. 26.

[43] EPA, "Memorandum: Interim Approaches for Regional Relations with State Voluntary Cleanup Programs," November 14, 1996.

[44] Volokh, Scarlett, and Bush, *Race to the Top*.

[45] Rep. Sherwood Boehlert, "How Can the Federal Government Aid States in Cleanup of Hazardous Waste Sites?" *Roll Call*, April 10, 2000.

[46] Thomas Ahern, Senior Project Manager for Brownfields and Industrial Development, Boston Redevelopment Authority, testimony, Oversight Hearing.

[47] Ibid.

[48] "Green Racism," *The Washington Times*, August 7, 1998.

[49] GAO, "Superfund: Barriers to Brownfield Redevelopment"; and "Superfund: Proposals to Remove Barriers."

[50] *E&E Newsline*, June 12, 2000.

[51] EPA, "Brownfields National Partnership Expanded," press release, December 6, 1999, www.dakotacg.com/releases/pa/dec99/hq1207a.htm.

[52] National Environmental Policy Institute, *Rolling Stewardship: Beyond Institutional Controls*, December 1999, p. 47.

[53] Charles Powers, "A Problem of 'Two Cultures': An Interview with Gary King, Illinois EPA," *Brownfields: EPA Pilots News*, vol. 1, issue 2, September 1996.

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[57] City of Chicago, "State of Illinois Income Tax Incentive for Brownfields," fact sheet, www.ci.chi.il.us/Environment/Brownfields/StateTax.html. Also see testimony of Charles Bartsch before the US House Committee on Ways and Means, Subcommittee on Oversight, September 30, 1999.

[58] Correspondence with Greg Dunn, Manager, Site Remediation Program, Illinois EPA, June 14, 2000.

[59] New Jersey Department of Environmental Protection (NJDEP), Site Remediation Program, *New Jersey Brownfields Redevelopment Update*, www.state.nj.us/dep/srp/publications/brownfields/1998/index.html.

[60] NJDEP, Site Remediation Program, "Site Reuse Opportunities and Cleanup Tools," fact sheet, www.state.nj.us/dep/srp/bcr/st_reuse.htm.

[61] Ibid.

[62] Pitney, Hardin, Kipp & Szuch, "The Brownfields and Contaminated Site Remediation Act," January 14, 1998.

[63] NJDEP, "Site Reuse Opportunities."

[64] Pitney, et al., "The Brownfields and Contaminated Site Remediation Act." Also see testimony of Charles Bartsch.

[65] Ibid.

[66] Bartsch and Anderson, *Matrix of Brownfield Programs*.

[67] Fernandez, "Paving Is Newest Solution."

[68] NJDEP, Site Remediation Program, "Brownfield Reuse Highlights," fact sheet, www.state.nj.us/dep/srp/bcr/hi_light.htm.

[69] Volokh, Scarlett, and Bush, *Race to the Top*, p. 52.

[70] Ibid.

[71] Massachusetts Executive Office of Environmental Affairs, Department of Economic Development, "Brownfields Legislation: Q&A," March 13, 1997, pp. 2-3.

[72] State of Massachusetts, "Summary of Brownfields Act: Chapter 206 of the Acts of 1998," www.magnet.state.ma.us/dep/bwsc/files/bfhdout2.htm.

[73] Ibid. Also see Bartsch and Anderson, *Matrix of Brownfield Programs*, p. 6.

[74] National Governors' Association, *Economic Growth and Environmental Protection through Revitalizing America's Brownfields*, 1998, p. 36.

[75] Ibid.

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