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**The Challenges Faced by Capital Markets in Handling  
Future Brownfield Investment**

by

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Submitted to the Department of Architecture

in Partial Fulfillment of the Requirements  
for the Degree of

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## **ABSTRACT**

An unintended consequence of the industrialization of the United States has been the creation of an estimated 450,000 brownfields, or environmentally impaired properties. The U.S. Congress passed the Superfund Act of 1980 to attempt to clean up contaminated sites with money from the original polluters, but with limited success. Now the regulatory climate is changing to favor working with investors interested in buying and redeveloping these troubled properties.

The investment opportunity is not of the same magnitude as that of distressed assets left over from the Savings and Loan crisis. Brownfields are much harder for a buyer to locate, and not as many are choice assets—many even have a negative value. Yet similarities exist between both opportunities, in the degree of knowledge that will be necessary to handle the complex deals. For brownfields, an understanding is needed especially of remediation techniques and environmental law.

Whether capital flows into brownfields depends heavily on several factors. On all levels, government must be cooperative, as it balances competing goals. As custodians of the public good, elected officials surely will not allow unsupervised, cursory remediations at the cost of leaving potentially harmful contamination at sites. But, within a structure of suitable oversight, government can relax rigid environmental standards, offer regulatory flexibility, provide a dependable regulatory timeline for processing forms, and supply financial enticements such as tax incentives, loans, and grants. Also, the unacceptable threat of unbounded risk associated with cleanup costs and legal liabilities must be addressed through insurance policies.

The eventual sources of capital may be public, as with a Commercial Mortgage Backed Security or a Real Estate Investment Trust, or private, as with an opportunity fund or a wealthy entrepreneur. Financial experts who were interviewed analyzed advantages and disadvantages of the different capital vehicles. They suggested that partnerships might develop between real estate companies and remediation firms. Overall, there was a consensus that at

the moment, capital is poised to flow into environmentally impaired properties, and is simply waiting for the right set of conditions to do so.

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# TABLE OF CONTENTS

<b>CHAPTER 1</b>	<b>5</b>
INTRODUCTION	5
<b>CHAPTER 2</b>	<b>11</b>
GOVERNMENT ATTEMPTS TO STIMULATE CAPITAL FLOW	11
<i>Federal</i>	13
<i>State</i>	20
<i>Local</i>	25
<b>CHAPTER 3</b>	<b>29</b>
A COMPARATIVE STUDY: HOW CAPITAL FLOWED INTO DISTRESSED REAL ESTATE AFTER THE SAVINGS AND LOAN CRISIS	29
<i>The Savings &amp; Loan Crisis and the Glut of Distressed Loans and Real Estate</i>	30
<i>Ability to Locate Assets</i>	36
<i>The Need for Specialized Knowledge to Determine Asset Value</i>	38
<i>Where the Capital Comes From</i>	42
<i>Conclusion</i>	47
<b>CHAPTER 4</b>	<b>50</b>
POSSIBLE INVESTOR STRATEGIES FOR RAISING CAPITAL FOR BROWNFIELDS	50
<i>CMBS, REITs and Opportunity Funds</i>	50
<i>The Relevance of these Investment Vehicles to Brownfields</i>	54
<i>An Analysis of Capital that has Already Managed to Flow to Brownfields</i>	60
<b>CHAPTER 5</b>	<b>66</b>
ENVIRONMENTAL INSURANCE AND ITS ROLE IN BROWNFIELD REDEVELOPMENT	66
<i>The Experience of the Insurance Industry with Environmental Contamination</i>	66
<i>Environmental Contamination as an Insurable and Marketable Risk</i>	69
<i>Different Types of Policy Coverage for Brownfields</i>	72
<b>CHAPTER 6</b>	<b>78</b>
PRIMING THE FUTURE FLOW OF CAPITAL TO BROWNFIELDS	78
<i>A Hypothetical and Idealized Investment Scenario</i>	78
<i>An Analysis of the Hypothetical Scenario</i>	80
<i>What the Future Holds</i>	82
<b>APPENDIX 1</b>	<b>86</b>
<b>BIBLIOGRAPHY</b>	<b>97</b>

# CHAPTER 1

## INTRODUCTION

In the United States, one unfortunate byproduct of the shift from a manufacturing to a service-based economy is the creation of hundreds of thousands of brownfields. The Environmental Protection Agency (EPA) defines brownfields as "abandoned, idled, or underused industrial or commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination."<sup>i</sup> The U.S. General Accounting Office has placed the cleanup of these estimated 425,000 sites as high as \$650 billion<sup>ii</sup>. Although the government could assume this responsibility, the cost would probably be unacceptable to taxpayers. A more cost-effective solution is to find a way to stimulate the flow of private capital into acquiring and cleaning up environmentally impaired properties.

This issue concerns every major American city and even some rural areas. The EPA estimates that 70 million Americans—including more than 10 million children—live within four miles of a toxic waste site.<sup>iii</sup> Most urban areas have sites where industrial activity once thrived that are now fallow or that have been converted to non-manufacturing uses. Many are polluted to some degree. Many have fallen into the hands of city governments through tax lien foreclosures, and thus do not generate any property-tax revenue. One study estimates tax losses from idle sites, in 33 cities surveyed, to be as much as \$386 million a year<sup>iv</sup>. Ideally, the present owners and prospective buyers need to be

encouraged to undertake the expensive cleanups. Ironically, however, federal environmental legislation discourages involvement with these problem properties.

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). More popularly known as Superfund, the legislation provided a means for the cleanup of hazardous substances previously released into the environment. The law included far-reaching rules for assigning liability that led, not surprisingly, to protracted court battles. From 1980 to 1991, more than one-third of the \$11.3 billion spent by the private sector on federal Superfund sites went toward litigation costs rather than actual cleanup.<sup>v</sup>

Retroactive liability under Superfund means that the long arm of liability can potentially even reach back decades, and minor contributors to pollution at a site can end up shouldering a disproportionate burden of the cleanup costs. Federal Judge Douglas Woodlock stated, "The only fair thing about CERCLA is that it treats everyone unfairly."<sup>vi</sup> Both those who generated and transported hazardous substances, along with property owners, are "jointly and severally liable." This liability allows the EPA to sue any responsible parties individually, or all of them together. A new property owner, simply by virtue of owning the title to the property, can find himself also drawn into the entangling net of liability. Because of this risk, investors have been reluctant to acquire contaminated sites even when such sites are capable of being fully remediated and redeveloped.

The threat of liability has sent a chill through ranks of both potential investors in the sites and the financial institutions that might have bankrolled

them. Strong, healthy lending institutions fear inheriting responsibility for a property after foreclosure. Lenders normally assume when underwriting loans that the maximum that they can lose is the amount of the loan, but under Superfund legislation, they could lose much more. In September of 1996 this problem was addressed with the Asset Conservation Act. This law shielded lenders from liability for pollution cleanup by not holding them liable if, after the foreclosure, they attempted to sell the property and were not exacerbating the existing problem. But the force of law could not resolve another obvious problem: even if banks did not face unlimited expenses for “remediation,” or cleanup, their loan collateral might still be devalued by the presence of pollution on a site.

Banks and investors have been sufficiently risk averse that they have also avoided sites that have been “officially” remediated. These properties, although considered clean under guidelines in government statutes, have a higher probability of needing future cash infusions to remedy contamination-related problems than virgin greenfields. This money could be needed to remediate pollution that reappears, or to meet, at some point in the future, more stringent government-mandated environmental standards. Those few investors who have been willing to invest in brownfields have compensated for the additional risk by demanding a higher return, which in turn reduces the value of the property. Investors found it difficult to find banks to underwrite these properties because of the stigma of previous contamination and the related set of additional risks.

Still, despite the checkered history of Superfund, private capital under the right circumstances is likely to flow into brownfields. In fact, capital is already being raised in anticipation of the ability to better manage post-cleanup risks. As will be discussed in a later chapter, private investors have tentatively earmarked over \$1 billion for brownfield investment. Properties have been scouted, and a few purchased, though it is unknown if any remediation processes have been completed. Right now, whether private capital continues to flow into brownfields depends heavily on whether the risks associated with these impaired properties are well defined and understood.

To better understand the risks, the EPA has created a pilot program to identify brownfields, and at specific sites, the boundaries of contamination and the strategies for promoting cleanup through redevelopment. The program provides for community grants up to \$200,000 apiece. Brownfields, like most environmental issues, fall within the EPA's jurisdiction. EPA even coined the term in 1993 when it created the "Brownfields Economic Redevelopment Initiative." This initiative shifted the agency's strategy from a policeman's role of enforcing strict liability to a facilitator's approach of encouraging more voluntary cleanups.

To date, the EPA has been principally concerned with sites judged most in need of cleanup. These sites are placed on the National Priorities List (NPL) and ranked. The NPL currently consists of 1,387 toxic waste sites, 410 of which were shown as completely cleaned up by the end of fiscal year '96.<sup>vii</sup> A separate database, the Comprehensive Environmental Response, Compensation, and



Liability Information System (CERCLIS), contains basic information about locations undergoing Superfund remediation, as well as an inventory of those that are potentially contaminated. CERCLIS lists 40,000 sites, but over 27,000 of these had been removed by September of 1996 because they required no action under the federal Superfund program.<sup>viii</sup> Thousands of these sites were not contaminated, while state cleanup programs will address others through their brownfields programs.

In the end, brownfields represent an opportunity for investors and lending institutions. Money will flow toward these properties when, compared to competing investment options, brownfields bring a higher return but with a similar level of risk. Pitfalls exist. Historically, risks related to site contamination have been perceived as unlimited and difficult to underwrite. Since investors have the freedom to invest their money elsewhere they have avoided contaminated properties. Investors may continue not to invest in the future if the risks are not clearly defined and costs well quantified.

This thesis attempts to identify the conditions under which capital will flow to environmentally impaired properties. In the next chapter, current government attempts to stimulate investment are reviewed. The third chapter examines what can be learned by looking at a related case history: How did companies invest in the troubled assets that became available after the Savings and Loan crisis? The fourth chapter, drawing upon a series of interviews with experts who understand environmentally impaired properties and financing, addresses the matter of how to create a favorable conduit for investment. It also considers what

capital has become available, who is best suited to take on this degree of development risk, and why certain companies have so far declined to do so. The fifth chapter will look at the role insurers play in underwriting certain risks, and how development of environmental insurance may facilitate a better flow of capital. For the conclusion, a hypothetical example of an ideal brownfield transaction is constructed and analyzed, and prospects for the future movement of capital are discussed.

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<sup>i.</sup> U.S. EPA, "Tool Kit of Technology Information Resources for Brownfield Sites," DRAFT Version, November 1996, p. 1.

<sup>ii.</sup> Environmental Business Journal, "First Generation of Brownfields Deals Underway," February 1997, p. 1.

<sup>iii.</sup> M2 Communications Limited, "U.S. EPA: Administrator Cites 400<sup>th</sup> Superfund Cleanup," October 16, 1996.

<sup>iv.</sup> Voorhees, John "Brownfields-Put Green in Pockets," *American City Business Journals*, 9/13/96, Survey by the United States Conference of Mayors.

<sup>v.</sup> Silber, Kenneth, "When Cleanliness Isn't a Virtue," *City Journal*, © 1996, Bank of America.

<sup>vi.</sup> Milkey, James R. Esq., Chief of Environmental Protection Division, Office of Attorney General Scott Harshbarger, Speech in Waltham, Mass, May 14, 1997.

<sup>vii.</sup> M2 Communications Limited, October 16, 1996

<sup>viii.</sup> McCabe, Michael, Regional Administrator, EPA Region III., Congressional testimony in Bristol, Pennsylvania September 16, 1996.

## **CHAPTER 2**

### **GOVERNMENT ATTEMPTS TO STIMULATE CAPITAL FLOW**

By its policies and actions, the government can have a marked effect on the willingness of private capital to invest in environmentally impaired properties. In the past, regulations such as those associated with Superfund legislation have frightened investors away from properties with contamination, no matter how slight. But the government need not have only a negative impact; it can encourage investment, through a variety of policies. For example relaxing rigid environmental standards might remove part of the threat of liability, though at the cost of future risk to the environment. For public officials, the difficulty then lies in striking a proper balance between finding an acceptable degree of “cleanup,” and ensuring the health and safety of its citizens, and the environment. This chapter will look at policies—some under consideration, and others that actually have been tried by governments on the federal, state, and local levels—that in some way influence the flow of capital to environmentally impaired sites.

In an open, free-market system, investors have no shortage of competing alternatives for their money. The array of investment possibilities is dizzying: everything from stocks and bonds that are liquid securities to illiquid investments in startup companies and real estate. While investors may have different preferences, they all share a similar desire to enhance their risk-adjusted returns. Regardless of preference, all investors will view each of the following as

desirable, all other things being equal:

1. Reduce the initial cost of the investment.
2. Increase the subsequent return.
3. Reduce the risk or volatility.

Quite simply, a policy that either reduces the initial cost of an investment, increases the subsequent return, or reduces volatility of the return, unequivocally makes the investment more attractive.

Any policy designed to increase the flow of capital to brownfields must somehow address at least one of these factors. For example, government-sponsored remediation grants can reduce initial cost. Further, loans and credit enhancements serve the same end by making loans for investors more affordable. State and local governments can offer tax incentives to enhance future returns. Finally, reducing risk can be achieved in part by restructuring certain laws, such as the state superfund statutes. These laws could be changed with a simple legislative vote so that, perhaps, the future owners of a contaminated property do not bear the same legal burden as the original polluters. Modifying and clarifying existing legislation not only would help to draw investment, but also would be the least expensive method for doing so because it would not require any capital expenditures by the government.

So far, governments have taken a variety of approaches to clean up and rehabilitate their undesirable brownfields. Through Superfund, the federal government used the “stick” of enforcement during the 1980s to push potentially

responsible parties into undertaking remediation. During the late 1980s, the states were the first to switch to a more cooperative posture, trying to encourage voluntary cleanups while holding onto the threat of imposing costly enforcement actions. Meanwhile, on the local level, communities often suffered helplessly. Representative Peter Larkin once remarked that Pittsfield, Mass lost a \$50 million plant that could have employed two thousand workers in part because legislation did not exist to clean up a former GE site there.<sup>i</sup>

To understand public policy with regard to brownfields, it is necessary to examine the roles of different levels of government. Generally speaking, the federal government shifts the burden of dealing with brownfields onto the states, while retaining a final veto over state policies in the form of CERCLA. Federal officials justify this arrangement by arguing that, if left unchecked, state and local officials may choose economic growth over the long-term health and safety of the nation's citizens. Exactly how each level of government can influence the flow of capital is explored below.

### **Federal**

The EPA was formed through the National Environmental Policy Act of 1969 to oversee most federal antipollution activity. The agency is charged with protecting human health and the environment. The Resource Conservation and Recovery Act (RCRA) of 1976 was one of the first significant laws to address the problem of contamination. This statute gave EPA the authority to regulate

comprehensively the estimated 303 million tons of hazardous waste generated annually.<sup>ii</sup> EPA required that hazardous waste be tracked from its initial production right through to its ultimate disposal.

Then in 1980, in response to the discovery of toxic chemicals below the neighborhood of Love Canal in Niagara Falls, New York<sup>iii</sup>, Congress enacted CERCLA, a sweeping, tough-minded piece of environmental legislation. Otherwise known as Superfund, CERCLA continues to be the most influential and comprehensive federal law related to the release of hazardous materials in the environment, especially at inactive waste sites. However, significant as it was, CERCLA neglected to address a host of issues concerning real estate, and the reuse of formerly contaminated property.

In 1986 CERCLA was revised. Changes included clauses that specified that liens would be put on property cleaned up with public funds, so as to prevent private owners from profiting unfairly. The new version of CERCLA allowed federal regulators access to sites believed to be contaminated. Additionally, Prospective Purchaser Agreements (PPAs) were created. Under a PPA, the EPA promises not to pursue the new owner for cleanup costs if certain conditions are met. From 1989 to 1996, of the 25 PPAs entered into, 23 were for severely contaminated locations. Accordingly, the PPA provision was recently updated. Now the EPA will accept less than a complete cleanup if a prospective buyer demonstrates direct economic benefits to the community as a result of purchasing and redeveloping the land, thereby reducing the initial investment

cost.<sup>iv</sup>

But PPAs became available only after many years of Superfund policy that drove investors away from sites suffering some degree of pollution. The fear of Superfund caused investors to avoid even lightly contaminated sites. One problem was the law's broadbrush approach that mandated that, during the 1980s, locations had to be cleaned to the same strict standard, whether they were to be reused later for a day care center or a manufacturing plant.

In the early 1990s it became obvious that the adversarial and prosecutorial approach was not appropriate for cleaning up the nation's brownfields. A major shift in thinking occurred among virtually all public officials specializing in environmental policy. By 1994, a consensus existed that any reauthorization of CERCLA had to include policies designed to link cleanup and reuse.<sup>v</sup> In 1995 the EPA took a further step by creating the Brownfields Action Agenda, which was an outline of the EPA's plans to help states and localities put into force a previously formulated paper known as the Brownfields Initiative. Within the outline appears a description of the agenda as a "work in process" that attempts to:

"Help reverse the spiral of unaddressed contamination, declining property values, and increased unemployment often found in inner city industrial areas, while maintaining deterrents to future contamination and EPA's focus on assessing and cleaning up "worst sites first."<sup>vi</sup>

The Action Agenda looked at the problem of barriers created by regulations, guidance and administrative practices. It recommended swift,

aggressive measures for change, all within the context of the existing Superfund law. EPA is currently working with States and localities to develop guidelines to clarify the tangle of liability of owners, purchasers and lenders at a hazardous waste site. The guidelines clearly state EPA's decision to use enforcement discretion, in certain situations, not to pursue parties. An example is the policy statement to an owner whose clean property contains groundwater that has been contaminated by a neighboring parcel. In such a situation, EPA notifies the owner that it does not "anticipate" suing him to remedy groundwater contamination on his property if he did not cause or contribute to it. This reduces the risk to investors, but as is typical with many EPA clarifications, the reassurance stops short of eliminating all risk by using ambiguous language such as "anticipate."

Still, EPA has limited powers to grant leeway; only Congress has the ability to change the Superfund law itself. At the moment there is disagreement as to how CERCLA should be changed, but members of Congress do agree it needs to be amended. Several times during this decade amendments to CERCLA have been proposed, with the most recent revision to pass being the Asset Conservation Act. This act reduces risk for lending institutions to a point that encourages them to make loans, with lower interest rates, which in turn increases subsequent returns for investors. Other possible CERCLA changes have been suggested to improve the environment for investing in brownfields:

1. Free a prospective purchaser who is not at fault for preexisting contamination from potential liability



2. Create community work groups at CERCLA sites that would agree to an appropriate future use; this reduces the probability of investing time in projects that the local community rises up to oppose, and halt.
3. Let states, without interference from the federal government, handle sites where there is no compelling federal interest

EPA has not waited, however, for Congress to improve Superfund legislation. It has taken the lead on rehabilitating contaminated properties with its Brownfields Pilot Program. Information from the pilots will be compiled in a database so that the EPA and states can learn and tailor their programs based on lessons learned in municipalities across the nation. The information supplies the EPA, states, and localities with useful facts and cutting-edge strategies for bringing a brownfield back into acceptable use. The database covers everything from environmental assessment to cleanup and redevelopment. This represents a departure for the EPA, which in the past has given little consideration to the issue of reuse.

As of May 1997, 113 pilot programs totaling nearly \$20 million had been launched. Municipalities across the country have used this money to do everything from compiling lists of contaminated sites in their communities, to doing site assessments so that prospective buyers will have information so that they can make offers on the properties. The initial 29 recipients who received assessment funds before 1996 are now eligible for cleanup grants of up to \$350,000 to capitalize revolving loan funds.<sup>vii</sup> The very first pilot program, awarded to Cuyahoga County (Cleveland), Ohio in November 1993, managed to leverage \$3.2 million for environmental cleanup and property improvements and

created more than 170 new jobs.<sup>viii</sup> The EPA makes what may be an ambitious estimate by predicting that by the year 2000 the Brownfields Pilot Program will result in cleanups at some five thousand sites in three hundred cities.<sup>ix</sup>

Besides the pilot program, there are a few cases of CERCLA funding being used in the brownfield process, basically to make assessments. The state of Delaware requested, and received, money to conduct an assessment of 70 older industrial properties along the Wilmington waterfront. This is very much in the spirit of current federal programs, which for the most part do not benefit investors directly, but rather concentrate on gathering detailed information about particular contaminated sites and technologies for remediation. All this is then made available, free of cost, to the public. This indirectly benefits investors by reducing the risk of setbacks from previously unforeseen obstacles.

The EPA is accelerating movement along the learning curve for wary investors as well by acting as an information clearinghouse. Consider its Technology Innovation Office, which directs interested parties to innovative and cost-effective technologies to characterize, and then to remediate, polluted sites. For investors, identifying faster and cheaper cleanup options can suddenly make viable a once marginal property. In January of 1996, the EPA even placed a Brownfields homepage on the Internet, to disseminate all the agency's latest information, right down to contact names for local EPA administrators.

As an added incentive, the federal government has stated, as a policy objective, a willingness to work with private interests, and even to assist them

financially. On May 13 of 1997, Vice-President Al Gore announced the Brownfields National Partnership Action Agenda. It would build relationships between public and private organizations to link environmental protection with economic development and community revitalization. This agenda features one hundred commitments from more than 25 organizations, including more than 15 Federal agencies. The commitments will add up to a \$300 million federal investment in communities with brownfields, supported by an additional \$165 million in loan guarantees. The Interagency Working Group that developed the agenda issued this sanguine forecast:

“The resulting action will help cleanup and redevelopment at up to 5,000 properties, leveraging from \$5 billion up to \$28 billion in private investment, supporting 196,000 jobs, protecting up to 34,000 acres of “greenfields” and improving the quality of life for as many as 18 million Americans living near brownfields.”<sup>x</sup>

The Partnership Action Agenda manages to satisfy all three of an investor’s objectives to enhance returns. Site assessments and remediation grants will reduce the initial cost of investments; making capital available at market rates will increase subsequent returns. Government’s declared willingness to work closely with private interests will reduce the risk and volatility that investors have labored under with ill-defined policies in an uncertain regulatory climate.

A number of federal agencies now have sections of their budgets earmarked for brownfields. The Department of Housing and Urban Development (HUD) will set aside \$155 million in community development grants and an

additional \$165 million in loan guarantees. This money will be devoted to financing the rehabilitation of privately owned brownfield sites. Other federal funds can be targeted for cleanups in Empowerment Zones and Enterprise Communities. The Department of Transportation has committed another \$4.2 million for “sustainable transportation,” or transportation-related improvements for eligible sites: anything from installing a bus stop to constructing an access road. These programs provide both reduced initial costs, and enhanced returns for investors, by subsidizing the initial cost of redevelopment and providing financing at below market rates.

### **State**

State policies substantially guide decisions at brownfield sites because the cleanup generally follows state environmental laws. With the exception of Superfund sites, the EPA expects states and localities to be responsible for overseeing the tasks of assessing, cleaning up and redeveloping contaminated properties. Currently 37 states have programs in place to encourage voluntary cleanups. Typically, first a purchaser agreement is struck, which requires a certain state-reviewed level of cleanup. Once this level has been reached, the state will then grant certain freedoms from liability to the new owner, thereby reducing their future risk.

The specter of federal intervention is still present, though. Fear of later EPA involvement can complicate redevelopment, especially when an owner is

trying to secure financial backing. The EPA has responded with a public statement that it will not interfere at sites participating in state-sponsored voluntary cleanup programs. Some regional EPA offices have gone so far as to reassure states by putting their commitment in writing with so-called “comfort language.” This is done through letters stating such things as a site has no previous or current Superfund interest.<sup>xi</sup> What remains is for the EPA to institute a formal program to certify the quality of state voluntary cleanup programs, which will act to reduce volatility. This, at last, would validate these informal programs, and make the financing of brownfield projects more attractive.<sup>xii</sup>

State policy makers, after all, have perhaps an even greater influence than their federal counterparts on the flow of private capital into environmentally impaired properties. The following is a list of the most common means by which they stimulate remediation and redevelopment:

1. Simplified or lower cleanup standards
2. Liability relief
3. Financial incentives
4. Sureness of process (i.e., guarantee of a predictable, reasonably certain regulatory process)

The rest of this section will examine these four factors, one by one, beginning with the problem of cleanup standards—the most contentious technical issue associated with remediation. After the enactment of CERCLA on the federal level, states passed their own individual “superfund” legislation. The packages varied greatly in their particulars, as each state had different problems to cope with.

In general, states defaulted to the EPA's basic toxicology findings. But the data often created confusing debates, as only a few people really understood the science behind the numbers. States set protection levels that ranged from  $10^{-6}$  (one death in a million) to  $10^{-4}$  (one death in ten thousand) for carcinogens such as dioxins and PCBs.<sup>xiii</sup> Arguably, a lower cleanup standard is appropriate for industrial or commercial use than for residential. Some states consider the future land use in passing judgment on what constitutes "clean" soil. This replaces the traditional, "one size fits all" approach in which industrial properties had to meet the same strict requirements as residential neighborhoods—such that children could safely eat remediated earth. For prospective investors, the flexibility of risk-based cleanup levels can be as important an incentive for redevelopment as securing adequate financial assistance because it can greatly reduce the initial investment required.<sup>xiv</sup>

Also critical is finding a way to shield investors from a seemingly endless chain of liability. For one, there is third party liability, or being sued for damages for anything from personal injury to loss of property value. Owners of contaminated property also face as well the possibility of future state-filed lawsuits to deal with such matters as recurring or additional pollution, a tightening of cleanup standards, or a change of land use. But, after an owner has reached the agreed upon cleanup level, states offering liability relief will issue a covenant not-to-sue or a "comfort" letter, an action that reduces future risk. Federally

enacted liability relief, such as the Asset Conservation Act, usually applies only if the state enacts similar legislation.

Just as investors cannot tolerate the prospect of uncertain and unlimited liability, they must also have sureness of process. As one developer put it, “I don’t care whether I am told by the state regulatory agency that the process will take two or four years; what does matter is that once they tell me two that it does not take four.”<sup>xv</sup> Overlapping jurisdictional issues—do federal or state rules take precedence in a given situation?—can complicate the process of regulatory approval. Thus, simplifying the veritable labyrinth of regulations and paperwork associated with brownfields is one step toward reducing risks. To demonstrate its good faith toward this end, Pennsylvania refunds application fees when a brownfield-related permit is not acted upon within the published timeframe. In Massachusetts and Ohio the state allows private consultants, Licensed Site Professionals, who are licensed by the state to handle brownfield inspections and paperwork. These two states are then better able to deal with the sheer number of sites with a smaller in-house staff, and with more efficiency, resulting in less chance of an applicant encountering a regulatory bottleneck, and reducing the volatility of the process.

With regard to financial assistance, most states do not offer any form of help for site assessment or remediation. Those that do, offer a broad assortment of programs (Appendix 1 – Matrix of State Voluntary Cleanup and Brownfield Programs) that combine grants, loans, and tax credits. Five states offer grants or

loans, six provide tax incentives, and some states offer both. Currently, most of the grants and loans are available only to local governments for properties acquired through foreclosed tax liens. Yet Pennsylvania and Minnesota reach out to the private sector with grants for remediation that require a 25 to 50 percent matching sum from owners, and Ohio has a low-interest loan program.

Tax incentives differ from state to state, though they are usually available only to parties not responsible for the original pollution. Michigan and Ohio give tax credits up to 10 percent of “eligible” remediation costs. Delaware ties its tax credits to the creation of new employment: a \$500 a year deduction can be taken each year for each new job that arises from redevelopment, up until the cost of the cleanup has been recouped. Tax incentives are an important way to increase investors subsequent returns.

Each state has tailored its package of brownfield financial incentives to its own environmental goals and political circumstances. A state like Massachusetts is constrained by the state constitution, which forbids using state money to benefit a private party. It would be unconstitutional, for example, for Massachusetts to develop an incentive wherein it assumed default risk, because investors then would enjoy higher subsequent returns.

All of these initiatives aimed at enticing investors to brownfields, from matching grants to flexible cleanup standards, have been introduced only within the last couple of years. It is still too early to judge which are most successful at leveraging private capital, but there is strong evidence through the pilot program



that these initiatives have been responsible for spurring redevelopment projects that would not have occurred otherwise.

### **Local**

Time and again, case studies performed by the Northeast-Midwest Institute<sup>1</sup> found that a critical element in cleaning up brownfields was the presence of a strong, committed local government. Local initiatives follow the realization that individual communities, not abstract entities like federal and state governments, suffer the most from having polluted properties in their midst. One study estimated that, immediately following the addition of a toxic waste site to the Superfund list, property values within a 6.2 mile radius decreased by as much as \$3,310 for each mile closer to the site they happened to be.<sup>xvi</sup>

Municipalities often provide financing to make a brownfield project economically viable. Several common types of incentives are tax abatements, general obligation (G.O.) bonds, and Tax-Increment Financing<sup>2</sup> (TIF). Four states offer tax abatements. Idaho, Ohio and Maryland grant a 50 percent tax

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<sup>1</sup> The Northeast-Midwest Institute is a non-profit public education organization that conducted research using a case study approach with funding from the EPA.

<sup>2</sup>Tax-Increment Financing is used to raise public-sector capital for a project. TIFs are built on the concept that new value will be created and this value can be used to finance part of the activities needed now to create the new value. The tax revenue generated by the project is earmarked to redeem the bonds that were issued to raise the capital needed for redevelopment. TIFs do not lower the amount of tax revenues collected, nor do they impose special assessments on the project area. Northeast-Midwest Institute, *Coming Clean*

abatement on any added value to the property that results from remediation. New Jersey's abatement plan begins with a 100-percent forgiveness of property taxes that, over the course of ten years, decreases to zero unless the developer manages to recoup, through these tax breaks, the cleanup expenses earlier. All of these techniques are examples of ways to increase subsequent returns for investors.

Taking out general obligation bonds has enabled a number of cities to acquire contaminated land, prepare sites, and make infrastructure improvements. The bonds are backed by the general obligation of the cities or local development authorities. They have contributed to the redevelopment of brownfield sites in Chicago and Seattle. Another sort of bond—guaranteed with the extra tax revenues expected to be raised from the higher value of remediated properties—supplies the money for Tax-Increment Financing. A TIF project is an ideal financing option for municipalities, since it is repaid from revenues that would not have been generated otherwise. The main drawbacks are the high level of technical expertise and time required for a TIF project, as well as the repayment risk to the issuing municipality if the development fails or experiences cost overruns.<sup>xvii</sup> In Wyandotte, Michigan, a TIF district formed in 1988 to clean up a residential district now generates more than \$5 million annually. Some of this money has been devoted to redeveloping one contaminated site within the district as a golf course. In Minneapolis, a TIF hazardous substance subdistrict is

expected to bring in \$10.3 million a year, which will be used to help remediate another area plagued with brownfields.

Many government-instituted changes have reduced the initial cost of investment by making site assessments available or providing money outright to start a project. Most likely, future policies will address increasing subsequent returns through such measures as making money available at market interest rates or below. Some of the most important, and least expensive, changes may be in clarifying existing regulations and in assigning responsibility for sites to either state, or to federal, officials. Better defined regulations could have a profound effect on reducing risk and volatility for investors, encouraging them to invest more money in environmentally impaired sites.

Although municipalities cannot alter liability provisions or cleanup standards, and have a limited ability to influence the regulatory process, they do have significant tools at their disposal for promoting remediation. And, when they are moving in the same general policy direction as other levels of government—toward making brownfields a more desirable real estate purchase—they can have a pronounced, positive effect. The current result is that government policy has helped to create a climate in which capital is poised to flow into environmentally impaired properties.

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<sup>ii</sup> Grolier Multimedia Encyclopedia, Waste Disposal definition, May 23, 1997.

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- <sup>v</sup> Powers, Charles W., "State Brownfields Policy and Practice," Institute for Responsible Management, New Brunswick, NJ, Summer 1994, p. 10.
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- <sup>x</sup> EPA, Internet site, [www.epa.gov/brownfields](http://www.epa.gov/brownfields), May 25, 1997.
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- <sup>xii</sup> Bartsch, Charles, Background Information for the Panel on "Future Perspectives: Brownfields After the Pilot Program," Speech in St. Louis, MO, October 22, 1996, p. 13.
- <sup>xiii</sup> Powers, Charles W., p. 109.
- <sup>xiv</sup> Lynn, George C., Vice President, CH2M Hill, "States Passed Laws to Promote Change," Speech in St. Louis, MO, October 21, 1996.
- <sup>xv</sup> Daggett, Christopher J., President, Chadwick Partners L.L.C., "Brownfields: How did We Get Here? Where Are We Going?," Speech in Philadelphia, PA, April 10, 1997.
- <sup>xvi</sup> Denise, DiPasquale & William C. Wheaton, Urban Economics and Real Estate Markets, Prentice-Hall, Inc., Englewood Cliffs, NJ, 1996, p. 349.
- <sup>xvii</sup> Baker, George D. & Mary B. Zetwick, "A Review of Federal and State Brownfield Tax Initiatives," Williams & Jensen, P.C., March 19, 1997, p. 11.

## **CHAPTER 3**

### **A Comparative Study: How Capital Flowed into Distressed Real Estate after the Savings and Loan Crisis**

In the early 1990s, distressed real estate that surfaced during the Savings and Loan crisis offered investors a prime opportunity. These properties, selling at steep discounts, could be repositioned and resold at market prices that generated impressive profits, often in excess of 20 percent. Today, the same set of risk-taking investors who profited from the S&L crisis are looking for the next asset class to invest in. Patrick Leardo, the principal at Coopers & Lybrand in charge of real estate, has identified brownfields as perhaps representing this opportunity: “Environmentally tainted properties may be the only area where you can get legitimate, high double-digit returns.”<sup>i</sup> Hence this chapter will examine similarities and differences between brownfields and the distressed real estate and loans that became available in the first half of the 1990s.

This will be done in the context of three areas critical to successful investing in these kinds of challenging opportunities. First, investors must be able to locate the particular assets available for purchase. Second, they need to draw on more specialized knowledge than is required for traditional real estate transactions. This knowledge allows them, in part, to rapidly and accurately

determine the value of an asset once its cash flow is established. Last, and most important, they must have access to capital willing to invest in risky assets.

### **The Savings & Loan Crisis and the Glut of Distressed Loans and Real Estate**

The roots of the Savings and Loan crisis reach all the way back to 1980, when there was disintermediation, or banks borrowing money at higher interest rates than they charged for lending. That year, Congress removed the ceiling on interest rates bankers could pay out and raised the federal insurance guarantee on deposits from \$40,000 to \$100,000. Also, the national Bank Board began to allow banks to accept brokered deposits. Money brokers reacted by splitting large sums into smaller deposits, none of which exceeded the limit on the federal guarantee. That gave the money managers a high-interest, zero-risk investment. S&Ls vigorously competed for these new sources of funds by offering increasingly higher interest rates, but their traditional loan portfolios of low-paying, fixed-interest, single-family home mortgages failed to earn enough to make their overall operations profitable. In 1980 the S&Ls had a collective net worth of \$32.2 billion, which by December 1982 had shrunk alarmingly to \$3.7 billion.

The Bank Board responded with another quick fix. It lowered the reserve requirement of S&Ls from five to three percent of assets. This change in accounting requirements allowed thrifts becoming insolvent to appear sturdy and healthy. And then, even though these thrifts had only a small fraction of the

capital and reserve requirements of commercial banks, in 1982 Congress passed the Garn-St. Germain Act, which permitted S&Ls to fill up to 70 percent of their loan portfolios with nonresidential real estate and consumer loans. The state of California took the deregulatory fervor even further, by letting their state-chartered thrifts invest in anything from junk bonds to alternative energy schemes. Thus, in California, thrifts hardly differed from venture capitalists, the main distinction being that the losses of the former were guaranteed by the federal government. As a result of these questionable policies, the debt at many banks again exceeded the value of their assets, making them insolvent. One estimate puts losses from bad real estate loans and investments at roughly 25 percent of the total cost of resolving failures at thrift institutions.

By the late 1980s the S&L industry was hemorrhaging billions of dollars every year. Ironically, the Federal Savings and Loan Insurance Corporation (FSLIC), created to smoothly liquidate insolvent S&Ls, became overwhelmed and insolvent itself. In 1989 Congress stepped in and ended FSLIC, merging its operations with the Federal Deposit Insurance Corporation (FDIC). Then, in August of that same year, the Resolution Trust Corporation (RTC) was formed, which would preside over what would turn out to be the largest federal bailout in United States history.<sup>ii</sup>

The RTC operated by using a three-phase resolution process. In the first phase, it would be appointed conservator of an insolvent institution. During the second phase, it fulfilled the government's standing pledge to protect insured

deposits by transferring them to one or more healthy institutions through a process of marketing and competitive bidding. The final and longest phase was receivership, in which the RTC managed and sold remaining bank assets so that the outstanding liabilities could be discharged. All the resulting income went to covering expenses and paying waiting creditors, with the RTC itself being the largest creditor.

The RTC ended up taking over a total of 747 institutions, almost half of those (318) in its first year. To fill the gap between its outlays and the estimated net amount it could recover from asset sales, the RTC had to obtain \$103.3 billion: \$91.3 billion came from appropriations in four separate legislative acts, and \$12 billion was borrowed. The corporation then had to recover as much as possible from its newly acquired assets, which had a book value of \$456 billion. This it did with varying degrees of success.

Mortgages constituted \$188 billion of its holdings. For 1-4 family mortgages, the trusted bedrock of the S&L industry since its beginnings in 1831, the RTC recovered 96 percent of their worth. For all other types of mortgages the RTC recovered 75 percent of par. Most of these mortgages had been issued on guidelines drafted after the 1982 deregulation of financial institutions. The RTC suffered the greatest erosion of value with its \$31 billion of assets in the category of Real Estate Owned (REO), in which it managed to recover only 55 percent of book value.<sup>iii</sup> When the RTC sold real estate so cheaply, it not only cost taxpayers more money to resolve the S&L crisis, but it also contributed to



the steepest decline in commercial real estate values in U.S. history—more than 30 percent. It was one of several factors, which even included the collapse of the Japanese stock market, that caused a disequilibrium of supply and demand that led to the end of the real estate boom in 1990. In the early 1990s, the imbalance became further skewed, with too many sellers and too few buyers. A vicious spiral of declining prices ensued, as lenders felt increased pressure to sell, to reduce risk and stem the tide of losses. By late 1992 nonperforming loans and REO represented more than 35 percent of the real estate portfolios of the major money center banks<sup>1</sup> in the country.<sup>iv</sup>

Banks had a powerful motivation to rid themselves of this financial dead weight. First, troubled loans are expensive to carry because not only do debtors stop making payments, but also the asset requires cash infusions for taxes, insurance, and maintenance. As for the real estate, federal risk-based capital rules enacted in 1989 mandated that banks owning real estate hold larger capital reserves. But, even with this strong motivation, selling their assets could be slow and expensive, so banks and conservators resorted to bundling loans into packages. In size, the packages ranged all the way from mortgages with a value of a few hundred thousand dollars to a \$1.7 billion assortment of assets that Bank of America sold to Morgan Stanley in January of 1993. Sales proceeded apace, but discounts of 50 percent from par were not uncommon.

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<sup>1</sup> These banks included Bank of Boston, Chase, Chemical Bank, First Chicago, and J.P. Morgan & Co.

The downward spiral in real estate, as in any asset class in a free market economy, was ultimately self-correcting. The sudden glut of properties at fire-sale prices attracted new investors, and as the market recovered, more and more investors entered. Abundant new capital flowed in. Some of the money came from traditional real estate investors, but even more went through existing, but rarely exploited, channels.

These channels included securitization, in the form of public capital for Commercial Mortgage Backed Securities (CMBS) and Real Estate Investment Trusts (REITs), as well as private vulture funds (which specialized in distressed assets). In February of 1992, Lehman Brothers brought to market the first securitized real estate transaction of troubled assets, a \$500 million CMBS package of RTC loans.<sup>v</sup> At the same time REITs were using their large and growing capital bases to acquire distressed properties. The new players in the market were vulture funds, which bought both debt and equity. After earning tremendous returns in 1991 and 1992, they were able to raise enormous amounts of additional capital the following year.

Throughout the aftermath of the S&L crisis, investor groups snatched up whatever distressed assets they could, and the Resolution Trust Corporation sold as many as it could. Gradually, the real estate market recovered. When the RTC finally closed its doors on December 31, 1995, its dividend payments to creditors averaged 70 percent of the original claims. The remaining REO portfolio was transferred to the FDIC with 1,091 of the properties containing hazardous

materials. Contaminated properties fell into one of ten identified hazard types and represented a book value of \$577 million, approximately 44% of the remaining book value of the REO portfolio.<sup>vi</sup> The estimated cost to taxpayers for the bailout, including future interest on the bailout debt is \$417.3 billion.<sup>vii</sup> Since thrifts have historically been located in the south and west, New England accounted for less than 2 percent of the S&L expense, while states like Texas (29 percent) and California (13 percent) needed much more assistance.

Separate from the RTC, the FDIC sold a large number of nonperforming assets during the early 1990s. The FDIC was responsible for 1,254 banks that failed from 1986 to 1995, with total assets of \$228.4 billion.<sup>viii</sup> Six banks failed in 1995 compared to an average of five banks a year failing from the end of World War II to 1980, the last year to have only six bank failures was 1977.<sup>ix</sup> The estimated cost to the Bank Insurance Fund for the FDIC's failed banks is \$30.4 billion. This money was not raised by taxes, but rather by temporarily increasing the assessment rate on banks to approximately 25 cents per \$100 of insured deposits.<sup>x</sup> Even though the FDIC's receivership responsibilities were much less expensive than the RTC's, they still added a lot of properties to the market, 18,146 REO properties from 1990 to May of 1992.<sup>xi</sup>

The RTC and FDIC, along with HUD and other government agencies, contributed to a short-term glut of real estate for sale. This occurred because they lacked the market knowledge and expertise to manage properties, and so tried to dispose of them quickly. Investors, backed by new sources of capital,

responded swiftly with the needed knowledge and management skills and grabbed up these properties at attractive prices. Now we will look at what parallels can be drawn between the purchasing of distressed real estate in the S&L crisis and emerging investment opportunities in brownfields. We will look at three critical areas common to any venture: locating the assets, fulfilling the need for specialized knowledge, and finally, raising the necessary capital.

### **Ability to Locate Assets**

No matter which asset class is being considered, investors must be able to identify a large number of potential acquisitions to be successful. This was much easier with the distressed assets of the S&L crisis, which became available through a predictable process. Many of the nonperforming mortgages and real estate first came under the control of the RTC and its manager, the FDIC. The conservators then proceeded to sell them, under strict guidelines enacted by the U.S. Congress.

The Congressional intent was to ensure all assets would be made publicly available so as to prevent insider deals. For real estate, properties had to be listed with local brokers or, if auctions were held, appropriate display ads had to appear in area newspapers. An interested party could even approach conservators directly for a list showing properties being marketed, by type and location. The RTC made announcements of bulk sales in national publications such as the Wall Street Journal, and maintained a mailing list of investors to

notify. For their part, banks and thrift institutions aggressively promoted their own foreclosed properties as well, even in some cases relying on in-house sales departments.

Brownfields, however, pose a much greater challenge to locate. They are at the moment almost a hidden asset class. Owners of these properties, which tend to be classified as industrial use or empty land, shy away from the label “brownfield” because the perception of contamination devalues the property and frightens potential buyers away. Instead, the image may be soft peddled, as when the seller of a multi-million dollar factory quietly subtracts the expected remediation bill off the fair market value. Companies owning polluted parcels also fear that advertising them as “brownfields” could draw unwanted public attention, which might prompt enforcement actions from regulatory agencies and pressure from environmental groups to undertake expensive cleanups. Some owners, in fact, are reluctant to sell for another reason: the daunting prospect of continued liability. Because of continued liability General Electric has stated flatly, “We’re not buying or selling contaminated real estate.”<sup>xii</sup>

Complicating all this is the lack of concentration of ownership of brownfields. The owners span the gamut, from the government, banks, and small family-owned businesses, to Fortune 500 firms, utility companies, and municipalities. Contrast this with the RTC, which in March of 1990 was the largest property owner in the United States. It owned more than 35,000 parcels:

apartments, homes, office buildings, shopping centers, industrial tracts, and raw land.<sup>xiii</sup> It openly advertised the sale of its assets as well.

Investors then must do a fair bit of investigating to discover the location of choice brownfields. Forming relationships with industrial companies and banks that still hold contaminated properties can provide leads. Also, public records at state agencies show basic information like site name, address, type of contamination, status of remediation, and whether an environmental assessment has been done. Unfortunately, they do not give other crucial information that investors need such as condition of property and its size, owner's name, or assessed value. There are a few owners, such as the FDIC and some municipalities, eager to sell brownfields. Also, the quarterly publication *Investment Properties* has a section titled "Hazard Properties" that lists contaminated sites for sale.

### **The Need for Specialized Knowledge to Determine Asset Value**

In general, investing demands extensive knowledge of the asset class that is being considered, in part to manage risk effectively. Also, on a specific case by case basis, successful investors need to be able to quickly and accurately determine the value of an asset, within a reasonable time frame, with a good degree of accuracy. The need for specialized knowledge turns out to be critical in the area of brownfields and distressed assets. Investing in the nonperforming assets left over from the S&L crisis required an understanding of foreclosure law,

the local market (both the regional economy and the real estate market), and how to work out loans. Investing in brownfields is even more complicated; an investor also must know environmental law as it affects real estate, and remediation techniques and associated costs.

A lack of specialized knowledge can prove costly; consider an investor buying distressed assets whom is unfamiliar with foreclosure transactions. If he calculates returns based on foreclosing on a property in six months, but the owner then files bankruptcy and receives an automatic stay (making the foreclosure dependent on court approval), an anticipated profit can turn into a loss. And, as more complicated, and more numerous acquisitions are made, the probability of making mistakes increases.<sup>2</sup>

With distressed assets, at least, doing the necessary background research to avoid such mistakes was not very expensive. Conservators and banks sometimes supplied investors with exactly what they needed to make educated bids. A title commitment showed prospective buyers what property rights they would be purchasing. An environmental assessment revealed the presence or absence of contamination; an appraisal gave an idea of fair market value. These documents, when not available, were relatively inexpensive for owners to

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<sup>2</sup> One investor, who did not want to be named, with more than 20 years of experience in distressed real estate, once overlooked a sum of one million dollars in outstanding back taxes when underwriting a pool of loans. This, along with another mistake, led to a \$2.5 million loss on the pool. This was extremely unusual for an investment group whose average profits on distressed loans and real estate often exceeded 20 percent.

generate, at a cost of a few thousand dollars per asset. With due diligence in hand, investors could either personally inspect a property or obtain a broker's price opinion, then make a comparison to like sales. This usually sufficed to determine value.

But the information was often scant, sometimes even inaccurate.<sup>xiv</sup> This problem could plague brownfields to an even greater degree, and to an even riskier end. For example, an FDIC-owned loan, with a mortgage on a factory with 10 acres of land in Rhode Island, was identified as possibly needing \$500,000 in remediation. The case file for the loan contained environmental assessments that cost a tremendous sum to produce, more than \$90,000. Still, some of the most difficult contamination to remove had not been thoroughly investigated, and remained a risk that threatened to cause any cleanup to balloon into a multi-million-dollar project.<sup>xv</sup>

A major problem with brownfields is that doing the background research to determine remediation costs is both expensive and occasionally quite unreliable. As a matter of course, a two-part environmental assessment has to be undertaken. For a few thousand dollars, a Phase I report is produced to identify whether contamination may be present. A Phase II report, which can run into the tens of thousands of dollars, then confirms the location and identity of hazards, and sometimes makes recommendations for cleanup. These environmental analyses are consistent in their style because, just as title insurance follows an industry standard, the American Society for Testing and Materials (ASTM) sets a



“Standard Practice for Environmental Site Assessments.” But consistency itself is of no utility if the Phase I and II reports have not been done at all, or a prospective buyer has no confidence in them. In that case, before making a bid, tens of thousands of dollars and several months of time would have to be sunk into creating or redoing the reports. This creates a formidable barrier for investors who want to examine and bid on large numbers of properties as they did with distressed real estate and loans in the early 1990s.

With contaminated properties, the stakes are also greater. Brownfields, unlike most classes of assets, hold the potential for losses that exceed the original investment. An owner can find himself pulled, quicksand like, into expensive, entangling, and deepening attachments for a property that needs cleaning. Under current Superfund law, once an investor becomes a part of the chain of title, he falls under the same strict liability as past polluters, regardless of fault. Even when shielded by a corporate or limited liability company structure, environmental justice enforcers can prosecute an individual investor if it is determined he is an operator at the site. Though this situation is evolving, and new laws could be enacted to limit liability, the gamble is still perceived as high. As John Matteson at Aldrich, Eastman & Waltch (AEW) remarked: “Despite the regulatory changes, acquiring sites requiring extensive cleanup is still like playing Russian Roulette. Sooner or later you’re going to take a bullet.”<sup>xvi</sup>

Being able to judge the risk associated with cleaning up pollution is part of the specialized knowledge that will be needed to execute successful brownfield

deals. A host of unknown costs will have to be quantified as much as possible. How much will need to be paid to attorneys to navigate a maze of evolving regulations? How expensive will be a cleanup up of tons of soil below the surface? The accuracy of remediation estimates varies greatly. The figures for cleaning up some contaminants, like petroleum from a leaking underground storage tank, are probably accurate within 90 percent. But for sites with multiple contaminants or polluted groundwater, the best guess put forward by engineers may miss the mark by 50 percent or more.<sup>xvii</sup>

Ultimately, the value of a brownfield will be calculated by subtracting remediation and other costs from the fair market value, clean. That leaves many brownfields, at the moment, in the position of perhaps not being profitable even if given away. One estimate predicts that currently as many as 80 percent of sites are unsuitable for redevelopment due to real estate conditions.<sup>xviii</sup>

### **Where the Capital Comes From**

As one of the most highly leveraged asset classes, real estate suffered great losses in value when capital became scarce during the banking crisis. The regular sources of capital—the money that used to come from banks or insurance companies in the form of whole loans—simply dried up. But then, as values dipped lower and lower, and the prospect of high returns became evident, capital normally uninterested in real estate began to flow into the sector. The brownfield situation is somewhat different: currently, much capital happens to be

available, at attractive interest rates. Yet a fundamental similarity exists, as investors who tolerate risk well shop around for the next place to earn double-digit returns. Meredith Kane, a real estate attorney at Paul Weiss Rifkind Wharton & Garrison, noted in commenting on the source of the likely money for speculative brownfield redevelopment: "This is the same opportunity money that was looking at the RTC properties in the early Nineties and is now looking for someplace else to go."

The exact vehicle through which capital will begin to flow into contaminated properties remains unknown. One option successfully used by the RTC to dispose of moderately risky assets involves public capital in the form of a CMBS, which securitizes a pool of loans. For real estate companies willing to go public, REITs, which were also used to buy distressed assets, represent another vehicle. Companies have already considered establishing REITs for long-term holding of several brownfields at a time. Though not a single CMBS or REIT has yet been formed for contaminated real estate, each option holds promise.

Private equity is also available in the form of "vulture", or more politely, "opportunity" funds. During the banking crisis, these funds raised capital from more than one investor, and were patterned after hedge funds. As such, they existed for only a very limited purpose, were not publicly traded, and were composed of large multi-million dollar investments. With RTC assets, the limited purpose was to buy and hold properties until the depressed market improved. The opportunity funds were capitalized with money from sources ranging from

Harvard University's endowment to, ironically, the same pension funds that were losing millions of dollars in bad real estate investments.

At the present time, it is estimated that about \$10 billion in opportunity funds held by companies such as Morgan Stanley, Goldman Sachs, and Starwood, is poised to enter areas like speculative development, Canadian investments and environmentally impaired properties.<sup>xix</sup> AEW's "Partners Fund," a commingled collection of investments by pension funds averaging \$20 to \$25 million apiece, bought assets such as the Sears Tower in Chicago. It is now bridging the gap between investments in distressed properties and brownfields, with its last deal being a \$100-million commitment to purchase environmentally impaired land. Out of the more than 20 parcels that have been examined, three in Florida have been acquired for \$15 million. Anticipated remediation expenses for all three are estimated to total \$300,000.<sup>xx</sup>

Another common source of private equity, which was used to acquire distressed assets, is money from wealthy families, entrepreneurs, and investors. This source has been tapped into during every economic downturn this century, and boasts the advantage of great liquidity, or ability to generate immediate cash. Private capital is considered a very appropriate source for brownfields because these risky and complex transactions often need to be judged carefully, on an individual basis. Manhattan-based American Properties Corp. has bought 2.7 million square feet of brownfields, primarily with money from the wealthy Ruttenberg family. Its investments have included \$4 million for a vacant,

asbestos-filled supermarket warehouse situated on land contaminated with oil. Another \$4 million was spent for cleanup and now the 14-acre facility is used by an apparel packer.<sup>xxi</sup>

Yet another source of capital could come from “sweat equity” on the part of a remediation company. An example would be a contaminated site where a developer identifies the highest and best use as a shopping mall. A remediation company that can quickly identify a low-cost alternative to an expensive cleanup can serve to reduce the initial cost of the investment. It may identify, for instance, an engineering control, such as a parking lot with a thicker asphalt topping which would act as a cap effectively limiting exposure to underlying contamination. A developer could then afford to bid higher than the competition.

In fact, a number of real estate developers and hazardous waste remediation firms have recently formed joint ventures.<sup>xxii</sup> One of the most active teams is Dames & Moore/Brookhill, LLC. The environmental-engineering giant Dames & Moore linked up with the New York City real estate firm, the Brookhill Group, in the summer of 1996, in a 50-50 partnership. In March of 1997 their joint team was the first to acquire a large portfolio of contaminated properties. They paid \$70 to \$80 million to a Canadian life insurance company for 25 to 35 sites across the United States.<sup>xxiii</sup> Another partnership is between Koll Company, a real estate management and advisory firm, and ENSR Corp., a consulting and engineering firm. Together they have formed Koll ENSR Environmental Realty Advisors (KEERA).

Despite all the attempts so far to marshal capital for large purchases of brownfields, the early evidence suggests that this asset class may not represent as attractive an opportunity as distressed assets. The choice brownfields are neither numerous nor easy to locate, and there is no urgency to unload them, unlike with RTC properties. During the banking crisis, weekly auctions dispensed of thousands of parcels and buildings. The banks and conservators, under pressure to divest themselves of real estate quickly, offered tremendous bargains. But the brownfield investor, after ferreting out available properties—many of which are not actively being sold—must find an owner willing to sell. This is no mean feat. Because of the continued liability threat, these owners often insist on controlling the redevelopment of their properties, and they themselves reap the increase in value that is created. Not surprisingly, to date there have been very few intentional brownfield transactions; most are accidental, as when an investor encounters unforeseen contamination on a purchased property.

Another huge difference between the asset classes lies in anticipated profitability, partly as determined by prevailing market conditions. Many distressed assets were income producing and sold well below replacement cost. A typical case would be a strip mall, selling at half of its replacement cost, that provided a twelve percent return with only 60-percent occupancy. It created value in two ways: cash flow would increase all the way up to 100-percent occupancy, and when the market bounced back, it would regain its worth. An added consolation to the investor was the fact that, in a real estate downturn when

properties sold for below replacement cost, the incentive for speculative construction disappeared. Thus, no new, competing supply was being put on the market.

But brownfields offer more perils to maintaining value than possibilities for enhancing it. Many are raw land, or require an existing structure to be razed, so there is no current cash flow, which puts the investment in the category of a more traditional speculative development. And, without dependable revenue-generating assets to fall back on, an investor faces risks such as losing take-out financing or anchor tenants, and the prospect of cost overruns. Add to this the real danger of runaway remediation costs and procedural time delays, and brownfields become an even more dubious investment proposition. It seems clear, at the very least, that they will not match the high-yield opportunities of distressed real estate, where the government subsidized losses and the potential benefits were substantial and easily identifiable.

### **Conclusion**

As distressed assets once did, brownfields present opportunities for investors, with certain limitations and caveats to be taken into account. It will take years to develop a thorough database of comparable sales to act as a basis of value, and even then differences in how individual states regulate the problem of site contamination will have to be factored in. While capital is at the moment available, investors will need risks minimized through changes in government

environmental policy and through the availability of affordable, comprehensive insurance before they will divert their dollars and attention to brownfields. If the opportunities do not soon appear the capital will move into competing asset classes that promise attractive profits.

Most of the capital to remediate and redevelop brownfields has historically come from owners of contaminated sites. This is unlike the situation with distressed properties, in which owners, often capital poor, were unable or unwilling to invest additional money into properties. Two key reasons why brownfield owners have willingly supplied the capital is the absence of any buyers, and a desire to ensure a proper cleanup because of concerns about ongoing liability. North American Realty Advisory Services, L.P. has rehabilitated over 850 brownfields over the past 20 years for clients such as Exxon, Dow Chemical, AT&T and Lehman Brothers.<sup>xxiv</sup> Lincoln Jewett, an executive vice president who has worked for 25 years at the realty advisory service, predicts owner capital will continue to be the most common source of money for future redevelopment of brownfields.<sup>xxv</sup>

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<sup>i</sup> Feldman, Amy, "Brownfields Bear Fruit for Developers: Contaminated Sites Promise Big Yields," *Crain's New York Business News*, November 11, 1996.

<sup>ii</sup> Compton's Living Encyclopedia, Savings and Loan Association. Internet, June 8, 1997.

<sup>iii</sup> Resolution Trust Corporation, "RTC Review," Washington, D.C., December 1995.

<sup>iv</sup> LeGrand, Jean E., "Real Estate Meets Reality." *Bankers Magazine* (March / April). p. 4.



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- <sup>v</sup> Ibid, p. 6.
- <sup>vi</sup> Thrift Depositor Oversight Board, "Annual report of the Thrift Depositor Protection Oversight Board and the Resolution Trust Corporation for the Calendar Year 1995," August 29, 1996. Appendix Q.
- <sup>vii</sup> Ibid, Document B-262036, pp. 12 & 20.
- <sup>viii</sup> FDIC Financial Reporting Branch, "Failed Bank Cost Analysis 1986 – 1995," p. 7.
- <sup>ix</sup> FDIC, "Annual Report 1995," September 11, 1996, p. 107.
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## **CHAPTER 4**

### **POSSIBLE INVESTOR STRATEGIES FOR RAISING CAPITAL FOR BROWNFIELDS**

With brownfields, a critical question remains unanswered: Will the same strategies that Wall Street firms employed to absorb distressed assets of the S&L crisis work for these properties? First, it must be understood how CMBS, REITs, and vulture funds operate, and then their appropriateness for brownfield redevelopment will be examined. Industry experts who were interviewed on this topic offered a range of opinions. They also commented on the type of capital currently available, the type of investor best suited to take on redevelopment risk, and why certain companies have so far declined to invest in contaminated properties.

#### **CMBS, REITs and Opportunity Funds**

Commercial Mortgage-Backed Securities (CMBS) function in a way similar to residential mortgages sold on the secondary market. Most residential mortgages on one-to-four family homes, after being written, are bundled together

with other mortgages of the same type. They have all been made as risk-free as possible, through appraisals, title insurance and appropriate legal documents. Investors then buy bonds backed by the bundle of mortgages. They assume, though this belief remains untested, that the full faith and credit of the United States government insures the Residential Mortgage-Backed Securities (RMBS). This differs from a CMBS, which is guaranteed only by the credit worthiness of the original mortgage holders. This element of uncertainty results in higher interest rates, *ceteris paribus*, for a commercial borrower in a CMBS than for a homeowner in an RMBS.

Because of the increased default risk, a CMBS is layered into a series of usually five to ten “tranches.” Upper tranches consisting of the best-rated bonds carry very little risk; the yield from lower tranches is much more uncertain. Investors in the uppermost, or senior tranche, have priority in receiving interest payments from the ongoing cash flow of the portfolio mortgages, as well as first rights to collecting any money if any of the assets are liquidated. Independent credit-evaluating agencies such as Moodys always assign this relatively safe senior tranche a AAA rating, the same as that of the best-rated corporate bonds. Yet there is a small degree of repayment risk with CMBS, unlike with, for instance, government-guaranteed Treasury bonds. Today, an investor in a

CMBS who holds a stake in the senior tranche draws roughly half a percentage point higher in returns than does his counterpart who owns Treasury bonds, though both investments are rated the same. The returns are much higher for the lower CMBS tranches: these investors, who draw money only after the senior levels are paid, and are the first to feel the impact of non-payments and defaults, expect to be compensated for their precarious position.

The reason that these securitized offerings are so successful is because they take maximum advantage of different appetites for risk. Most bond investors want as little as possible, and a few want as much as possible, provided they are well compensated for it. A CMBS efficiently captures both classes of investors, by dividing cash flows from a pool of what are considered to be moderately risky assets, such as commercial mortgages, into a large offering of low-risk bonds and a small offering of high-risk bonds.

A CMBS composed of commercial mortgages on contaminated properties would shift more of a burden onto the lower tranches, because of the greater likelihood that a particular borrower would default. A rating agency such as Moodys would simply make the top rated tranche smaller, and increase the size of the lower tranche. But, if investors deemed the pool of mortgages extremely

risky, they would demand an interest rate too high to make creating a CMBS worthwhile.

A Real Estate Investment Trust (REIT) is structured differently. Many REITs are private real estate companies that went public, issuing shares to be bought and sold, in order to raise capital. Their real estate assets and prospects for growth act as security for the stockholders, who receive regular dividends from the REIT's after-tax income. All shares bear the same amount of risk and earn the same returns.

The fundamental difference between a REIT and a CMBS is that the former is like an open-ended fund: the mix of assets often changes. A CMBS, though, is much closer to being a closed fund because it contains a bundle of mortgages, the composition of which changes rarely—only when a mortgage is paid off or foreclosed upon. Another difference concerns the potential for gain. REIT investors reap the benefit of asset appreciation; the maximum profit a CMBS investor can earn is easily calculated as the present value of all payments, paid on time, with no defaults. The CMBS valuation is easier to arrive at, because it is pure quantitative analysis, with the only unknown being how many defaults will occur and when. Unlike with a REIT, there does not have to be consideration of the competence of a management team that, through its

ongoing decisions about property sales and acquisitions, can impact shareholder value greatly.

Opportunity, or vulture funds, specialize in buying distressed assets and, like a CMBS or a REIT, are often set up by Wall Street companies such as Lehman Brothers and Goldman Sachs. Their shares, however, generally never trade publicly. Investors in these funds usually assign responsibility for buying decisions to the fund managers; this concentration of authority makes it easier for the fund to buy complex and risky assets such as contaminated properties. This discretion also makes opportunity funds suited to making snap decisions to snatch up assets being sold at “fire sale” prices. The investor’s money is locked in for an extended period of time, unlike with a REIT or a CMBS, both of which feature liquidity from being a traded commodity on the stock market.

### **The Relevance of these Investment Vehicles to Brownfields**

The backbone of this section is a series of interviews with nine experts who understand environmentally impaired properties and financing. Each expert was asked: What changes have prompted more capital to flow to brownfields recently? Where has this capital come from? What will be needed to encourage

an even greater investment, and what obstacles must be overcome? What investment vehicles might play a role?

Most interviewees doubted that a CMBS would be a viable option for securitizing a portfolio of brownfield mortgages. It would be impossible, they remarked, to calculate the Loan To Value (LTV) ratio when the remediation is not well quantified, making it hard to ascertain the underlying value of the CMBS package. There was a consensus that rating agencies would overcompensate for these murky risks. Another problem mentioned was the ongoing monitoring of cleanups necessary for an agency like Moodys, in case it had to lower the bond rating to reflect additional hazards.

But, insurance could be used in the same way it covers, say, loss by fire, to mitigate poorly defined environmental risks. Or, after a complete remediation, a property's mortgage could be slipped into a traditional pool of holdings and should have little, if any effect on a CMBS rating. David Jacobs at Nomura said that his company would place the mortgage of a formerly tainted site in a CMBS, just as long as the remediation is complete and the proper regulatory agency has agreed to take no further action.

One exception to the pessimistic views about the suitability of the CMBS vehicle for brownfields was Jay Vassell, vice president at Equitable. He thought

that moving from its historical role dealing with distressed real estate to brownfields was a natural transition. He envisioned a hybrid kind of CMBS. Environmental bonds would be created, then once the properties were cleaned up, these bonds would be convertible to shares of real estate equity, through the initial use of a participating mortgage.

A regular CMBS for unremediated brownfields, though not mentioned by any of the interviewees, might work. This assumes first that the properties carry appropriate environmental insurance, and second that some produce income. And, similar to real estate considered speculative during the early 1990s, brownfields may turn out to carry much less risk than is currently believed, once a more knowledgeable marketplace develops. A pure brownfield CMBS would be a powerful tool for acquiring numerous contaminated properties, and thus would permit greater flexibility in raising capital to buy them.

With a "contaminated" CMBS, buyers of the lower tranches would get higher returns to compensate for the additional risk of the owner's abandoning the site, if unable to complete a costly remediation. Presumably, insurance would always cover the cost of finishing a cleanup, but investors would still suffer a loss in value from the foreclosure. Purchasers of the senior tranches would accept the same return as for an uncontaminated CMBS, if the cash flow is secure and



rating agencies protect them by increasing the size of subordinated levels below them. Hence, junior tranches would be larger. If experience proves that only a slightly higher likelihood of losses exists for a "contaminated" CMBS than for a regular one, a patient investor with deep pockets, who seizes the opportunities early, might profit handsomely from the higher built-in returns.

A REIT was seen as a more suitable way to hold brownfields than a CMBS. Aldrich, Eastman & Waltch (AEW) has considered forming one, possibly five years from now, for the assorted environmentally impaired properties it plans to purchase for \$100 million. Still, even the REIT has numerous flaws. Most experts mentioned that it would work only with access to expertise, in-house or not, that is knowledgeable about remediation. A joint venture with a remediation firm would solve this problem, but leave others to cope with. For example, REITs generally have a lot of pressure to generate income because investors often buy into them knowing that, by law, they must pay out 95 percent of their income annually. But a brownfield vacant during a long-term cleanup would not have any income and, worse, even drain monies from other profit-making properties. The difficulty of estimating costs for cleanup and other risks is another discouraging factor. If there is little or no confidence in these numbers, investors may

overcompensate by paying much less for the stock than its value, which would drive down the price of individual shares.

At the moment it seems unlikely that a REIT will be established exclusively for brownfields. A more likely scenario is for a REIT that holds a portfolio of otherwise unimpaired real estate to acquire a property where the contamination situation has been satisfactorily addressed. The Beacon REIT in Boston, in fact, is in the process of acquiring a property with groundwater pollution because the owner, Hewlett Packard, will indemnify the REIT by agreeing to assume responsibility for future remediation costs.<sup>1</sup>

The most likely source of brownfield capital, financial experts agreed, will be opportunity funds. Historically, this kind of money has proven the most willing to bare greater risks for the promise of higher returns. Opportunity funds are thought to be more adaptable, independent, and entrepreneurial, all crucial characteristics for redeveloping problem properties that require many individual decisions to be made quickly. Some fund managers have virtually unrestricted discretion to invest money in brownfields, without consulting participating investors.

Opportunity funds will not be fluid, and investments will have to be locked in for up to several years, especially if the regulatory agencies lack sureness of

process. In all probability, investors will be wealthy individuals who can afford to have a sum of money tied up for a while. Beyond this, one basic difficulty noted for opportunity funds was a possible scarcity of attractive acquisitions, because owners often choose to remediate their properties themselves to minimize losses.

The role Wall Street firms would play in brownfield redevelopment is speculative at this point. Interviewees agreed that if considerable money could be made from this asset class, investment concerns and dealmakers would find a way to be involved, such as brokerage houses' acting as underwriters for customary fees. Wall Street firms could also step in as a last-resort source of major capital if traditional avenues, such as banks, are restricted from lending because of FDIC requirements that limit permissible exposure to environmental risk. This would be somewhat analogous to what happened on the lending scene in the early 1990s, when capital for real estate from banks and insurance companies slowed to a trickle. After decades of minimal involvement with commercial real estate, Wall Street firms saw a profit-making opportunity, and seized it. Again, the financiers of Wall Street may see the possibility of earning high returns on brownfields, and turn their attention to exploiting these once shunned properties.

## **An Analysis of Capital that has Already Managed to Flow to Brownfields**

For a good decade now, capital has been available to remediate contaminated properties. As has been previously noted, a substantial portion came voluntarily from property owners themselves. More recently municipalities and redevelopment agencies have raised the money. Other sources of capital have been institutions such as investment bank First Boston, which is prepared to lend Dames Moore/Brookhill LLC \$200 million, and Morgan Stanley, which has considered putting up \$200 million for Koll ENSR Environmental Realty Advisors (KEERA) that, if leveraged three times, would make \$800 million available. Also, certain banks have consistently written loans for brownfields.

P&C Bank in New Jersey has enjoyed success by quietly lending money for contaminated sites, such as one in a city that wanted a hotel constructed on the grounds. The bank financed the job because the municipality, which wanted the project to revitalize an area, shouldered the risk of default. P&C has come a long way since it first considered accepting loans secured by brownfields. It had to convince its own skeptical credit policy managers of the worthiness of the idea, which it did by breaking down complex risks into simple components. Then each risk was shown to be adequately addressed—through abating contamination, for example, or using legal measures to protect against future threats. P&C Bank

believed itself to be astute in dealing with real estate. It was willing to lend on underlying cash flows such as lease payments for existing buildings, or the solid track record of a successful developer. Even so, the bank carefully monitored loans secured by brownfields. If a serious problem raised the prospect of default, officials tried to salvage as much value as possible through a workout, knowing that a foreclosure was very undesirable. P&C did not want to acquire a contaminated parcel.<sup>ii</sup>

Being approved for such a loan depends, as with any other type of loan from P&C Bank, on a borrower's credit worthiness. With environmental risks the in-house staff takes into account the effect of four discrete factors. The first is liability: How would the borrower be affected financially by an EPA enforcement action, a citizen lawsuit, or an employee lawsuit that results from exposure to contamination? Second is the cost of remediation; this must be narrowed down to a tight range with a slim margin of error. Third is the element of time, or having reliable schedules for such matters as receiving approval from state agencies. Fourth is "bad science": Could predictions and plans be based on inaccurate remediation criteria or data?

After a thorough review, the decision is made, with the market interest rate the same as it would be if the property were free of contamination. The bank

must consider itself comfortable with everything known, and even unknown, about pollution at the site. It cannot afford many misjudgments. If only five percent of its loans were to fail, with no money recovered, the bank would become insolvent.

P&C is a leader in this type of specialized lending, but is not alone. In its dealings, another institution, BankBoston, tends to be more conservative and cautious. It requires knowing the remediation costs, and prefers being assured that insurance will absorb any overruns. It also feels secure issuing a loan on a contaminated property if protected by a strong indemnification from a well-capitalized entity, such as an oil company. And, like most others, BankBoston will loan against a cleaned property once a tightly worded, comprehensive covenant not-to-sue has been granted by the state.

A bank loan is a traditional source to turn to for capital, but there are miscellaneous others. Large accounting firms like Coopers & Lybrand and Ernst & Young have raised private investment funds to rehabilitate contaminated properties owned by their clients. Bruce Amos, an insurance broker for ECS, has noticed of late he has been selling many environmental policies to Limited Liability Companies (LLCs) that are securing redevelopment money from their parent companies. Private investors represented by investment brokers and

advisers may be niche players in the market, according to one expert, when \$50 million or less in capital is needed.<sup>iii</sup>

Sometimes investigating the history of a site yields a source of funds. An inner city church in California, after thoroughly searching the background of its own scarred property, found prior involvement on the part of an industry giant: General Electric. GE, negotiating through a private advisor working *pro bono* for the church, agreed to make a “donation,” while denying any responsibility for the contamination.<sup>iv</sup>

The question of who is best suited to take on brownfield risk, for the least cost, elicited a wide variety of replies. One suggestion was major environmental firms, because of their access to historical data on cleanup costs, experience with regulators, and ability to do unexpected cleanups at cost. Another answer was the lone entrepreneur who, unencumbered by bureaucratic structure, can more easily make the flurry of decisions, such as whether to use an innovative remediation technique for newly discovered pollution. Wealthy individuals were also cited, because they can personally judge complicated transactions, but it will be very important for them to erect a safety firewall between any unlimited risk tied to the brownfield, and their other assets.

Another interviewed expert thought that redevelopment authorities, as government entities, possessed the most advantages. They usually have local monies appropriated for their use and often can draw on federal grants. Unlike private developers, they do not have to show a profit, but rather can concentrate on redeveloping an area and creating jobs. They usually have valuable political connections, at the local and state level. Redevelopment authority members are frequently from the municipality that they serve, so they know local remediation companies and may know environmental regulators assigned to their area.

The question of why investment companies have so far shied away from the brownfield market drew two main responses: lack of experience or knowledge, and fear of unlimited losses. To overcome the knowledge gap, interviewees proposed joint ventures where sources of capital matched up with experienced brownfield developers and and/or skilled remediation companies. As for handling loss, this is a serious concern. Some clients of AEW's "Partners Fund" wanted to be assured that in the worst case scenario there was no way a remediation could run through the entire fund and gain access to the deep pockets of the pension funds. This worry was resolved by having an independent consultant review the Phase II reports and confirm that the proposed remediation was sufficient, and by having insurance that neutralized any substantial risk.



But hefty sums of capital could be squeezed toward brownfields by virtue of tightening opportunities in other asset classes. Charlie Wu, managing director of the Harvard Private Capital Group, likened the present competitive market, and its narrowing investment opportunities, to an elementary school dance. When all but a few appear to be dancing, anyone seeking a partner has to choose from those on the sidelines, who otherwise might be rejected as rather unappealing and unattractive. Though Wu said that his group has declined to buy contaminated properties, out of concern about spiraling losses, it has nevertheless considered them. A key factor is to control unlimited loss, which can be done with adequate insurance, which is the subject of the next chapter.

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<sup>i</sup> Matteson, John, KEERA, personal interview, June 16, 1997.

<sup>ii</sup> Noble, Steve, Department Head of Environmental Services, P&C Bank, personal interview, June 16, 1997.

<sup>iii</sup> Salmon, Mike, Director of Exit Strategies, TRC Co., personal interview, June 18, 1997.

<sup>iv</sup> Ward, Elizabeth, President, Washington Advisors, personal interview, June 17, 1997.

## **CHAPTER 5**

### **ENVIRONMENTAL INSURANCE AND ITS ROLE IN BROWNFIELD REDEVELOPMENT**

Insurance acts as an important transfer mechanism for contaminated properties, shifting risk onto insurance companies. It is appealing to investors because it reduces their risk and volatility, though at a tradeoff: annual premiums do decrease subsequent returns. For policies to be written, however, the risks must be insurable, and the insurance itself marketable. Both preconditions can be dependent on government policy, while marketability is influenced somewhat by third parties, such as lenders, who may refuse to issue a loan without some form of insurance. Furthermore, in the area of brownfields, having insurance for a site confers spillover benefits. It provides a greater measure of protection for the community, reassurance to regulatory agencies concerned about pollution cleanup, and indemnification from legal action for previous property owners provided, of course, that the insurer remains solvent.

#### **The Experience of the Insurance Industry with Environmental Contamination**

Insurance has been around close to 4,000 years, since its inception in ancient Mesopotamia. The first insurers assessed premiums against maritime

shipping costs to cover the loss of a craft at sea; insurance has been used to spread risk ever since then.<sup>i</sup> In doing so, it also smoothes out the volatility a merchant would otherwise suffer in sudden, unexpected catastrophes. In the United States in the early 1800s, a typical policy for New England mill owners covered only fire, and was written by a mutual insurance company formed by the insured parties themselves. Policies evolved over time, and eventually were sold primarily by private companies and covered all commercial risks, including environmental contamination. But only within the last 30 years has society placed pollution cleanup high on its agenda of concerns, and insurance companies never envisioned how costly this change in attitude would be.<sup>ii</sup> In 1973, with tough new environmental regulations raising the specter of long lawsuits and expensive judgments, insurers began to exclude coverage for such risks. Companies selling Comprehensive General Liability (CGL) policies had not priced their premiums to cover the billions of dollars in pollution-related claims that would arise. The change in U.S. environmental policy over the past few decades has continued to be costly. In October of 1995, Standard & Poor's estimated the contractual liability of the casualty insurance industry, simply for exposure under the Superfund program, to be \$40 billion. A.M. Best estimates industry exposure to environmental claims, including asbestos, to be as high as \$92 billion.<sup>iii</sup>

The reason insurance companies are still responsible for pollution caused decades ago, is because their policies up until the mid-1980s covered environmental damage with “occurrence” language. In other words, coverage became effective if the release or threat of release of contamination occurred during the policy period. The statute of limitations on making claims often spans 30 years, so a policy active during the late 1960s can still be collected on. For contaminated sites where owners are insolvent, uncooperative, or not anywhere in sight, “insurance archeology” is even used to try to dig up the old policies. In the mid 1980s, insurance companies switched to more restrictive “claims made” language for environmental risk, so coverage applies only for “claims made” during the policy year that a premium is paid.<sup>iv</sup>

Insurers, burned once by unanticipated changes in environmental regulations, only gradually began offering coverage again for site-related contamination. In 1980, American International Group, Inc. (AIG), an insurer with over 75 years experience with commercial and industrial customers, made available one environmental insurance product. In 1985 other pioneers in the industry began to fill the gap in coverage left by the now standard exclusion of environmental liability in regular policies.<sup>v</sup> In 1987, one new type of third-party coverage was developed for bodily injury or property damage caused by contractors doing asbestos abatement. Premiums grew to \$100 million by 1992, representing 20 percent of the \$500 million environmental insurance business.<sup>vi</sup>

Today, AIG offers more than 20 specialized types of niche insurance, including coverage for hazardous waste that is spilled during transportation and first-party protection for business interruption that somehow results from on-site pollution.

### **Environmental Contamination as an Insurable and Marketable Risk**

A specific type of insurance will be issued only if it meets two preconditions. The event to be covered must be first of all insurable, which means a premium can be set that accurately reflects the degree of risk. Then, the policy itself needs to be marketable: businesses or individuals must be willing to buy the product at a premium that provides the issuer an opportunity to earn a profit.

For brownfields, the problem of insurability has been answered in part with a shift in the mid 1980s to “claims made” coverage, which is limited to unforeseen future events. Environmental insurance today does not apply retroactively to known on-site pollution, only to any new contamination that is discovered. Obviously, as a preliminary measure, insurers demand that a thorough site assessment be conducted.

As well as limiting their exposure to risk, insurers initially had to price policies higher than what might be considered reasonable, to compensate for a lack of historical claims experience. Unlike with auto, fire and life insurance, there is no statistically valid information on the probability and magnitude of loss for

most environmental risks. Since traditional actuarial techniques cannot be used to calculate potential claims, methods of loss assessment rely on scientific and engineering studies. As more policies are written, and claims made, insurance companies will create the historical database to set premiums more precisely, and inexpensively.

Another pricing variable, that of the effect of government policy, lies outside the control of insurers. When faced with ambiguity, companies charge higher premiums to cover uncertainty. Thus, well-specified, consistent, and reasonable government standards play a critical role in the success of environmental insurance products. If the EPA, for instance, drastically tightened cleanup standards, insurers would have to raise rates or stop offering coverage as they did in the 1970s. Or, if federal policy and state guidelines were shifting frequently, insurance policy coverages and prices would have to be frequently reassessed, which would be unduly cumbersome.

Once a company has deemed an environmental risk insurable and settled upon a premium cost, the policy itself still must be marketable to succeed. Too many potential customers must not reject the coverage as insufficient, overpriced or unneeded. A captive pool of customers is sometimes delivered by government regulations, as with asbestos abatement firms, which are required to have insurance.<sup>vii</sup> A third party can also contribute to demand, as financial institutions do by mandating title insurance and even occasionally environmental liability

coverage before granting a loan. Generally, businesses that are self-motivated to seek insurance have limited assets and/or an aversion to risk. They are willing to pay a premium to protect against a large loss, however their ability to pay often limits them to a relatively small premium.

For brownfield redevelopment, insurance is particularly important. It can entice investors to purchase contaminated properties, which they would otherwise avoid if they were subject to potentially catastrophic losses. In writing policies however, insurers have to be wary of the problem of adverse selection. Adverse selection occurs when the cost of a premium, though based on the average probability of a typical loss, attracts only the poorer risks. Insurance companies then lose money. With brownfields, insurers have addressed this problem by requiring a minimal environmental review of the site. This system is being counted on to screen out the worst properties.

One broad advantage of environmental insurance is that it has spillover benefits. It supplies a source of funds for additional cleanup at a site, if needed. It requires identifying contamination through prescreening, and continues to closely monitor the activities of the policyholder. Insurers of Underground Storage Tanks (USTs), for example, demand that monitors be placed on site to identify leaking tanks, which then can be repaired before much damage is done. Similar before-the-fact (*ex ante*) remedies are expected for most types of environmental insurance.

In handling remediation efficiently, insurance companies have proven superior to the government. By making private market decisions, they spend a greater proportion of money on actually removing pollution, rather than on transaction costs such as litigation expenses and engineering studies. Under CERCLA liability, the insurance industry devoted 58 cents of every dollar to actual cleanup, while that figure was only 40 cents for the government.<sup>viii</sup>

### **Different Types of Policy Coverage for Brownfields**

Four types of policies can most obviously benefit brownfield owners, purchasers, and investors: property transfer liability, third party liability, stop loss, and contractor/consultant. At the moment, three insurance companies offer these, with new providers entering the market and the existing ones expanding their product lines all the time. The principal insurers are AIG, the largest of the three; Reliance Insurance Group; and Zurich American Insurance Company. In developing insurance for environmental contamination, the significant issue is its marketability.<sup>ix</sup> A stable regulatory environment, and improving historical data on cleanup costs, have eliminated insurability as a concern.

Property transfer liability (PTL) insurance is very similar to title insurance for commercial property. Both handle future claims arising from a problem discovered after property transfer and not identified by a professional during



initial review. PTL differs in that it covers the owner not for the duration of ownership, but for a limited period of generally one to five years.

To sell PTL policies, insurance companies cite statistics like the following: a study of 9,000 sites revealed that the contamination rate for commercial properties averaged about 12 percent nationally; further, and more unsettling, some 40 percent of the site assessments were found to be inaccurate.<sup>x</sup> Industry data also highlights the steep expense of undertaking cleanups. The average cost of remedial action ranges from \$102,000 for underground storage tanks to just over \$33 million for NPL sites (all in 1991 dollars). The warning message is being heard. Since being introduced in 1992, sales of PTL insurance have become approximately a \$5-10 million business annually, insuring \$1.5 billion worth of property.<sup>xi</sup> Of course the market would be even larger, and the cost of policies cheaper, if PTL insurance was somehow made a part of the requirement to close on a property. The cost would be absorbed into a myriad of other expenses. As it stands, PTL insurance is sold only to purchasers who have addressed any problems identified in a Phase I report, which acts as a preacquisition site assessment. The assessment became popular among buyers after the FDIC mandated that banks conduct screening as part of environmental due diligence. The FDIC wanted to prevent banks from risking insolvency due to foreclosing on loans secured by worthless assets. Insurers would have an even larger market if banks required borrowers to not only do the site assessment, but

also purchase PTL insurance dependent on the results. Without a provision such as this, insurers found out early on that many assessments were being done, with few policies sold. What would happen often is that the site did not appear to be polluted, or the future remediation did not seem to be very expensive, so the borrower would not purchase insurance on their own accord.

Property transfer liability coverage has caught the attention of agencies like Standard & Poor's, which rate debt instruments such as CMBS on the basis of real estate cash flows. Such agencies look favorably upon PTL insurance because it shores up a commercial property portfolio by removing the risk of a catastrophic loss from a later discovery of pollution. As demand for this particular type of insurance grows, and more policies are written, insurers have managed to create a database related to their losses. This information helps to establish parameters and pricing for the next three types of coverage.

Third-party liability addresses bodily injury or property damage occurring on site, or off the site by the migration of contamination. This protects owners against lawsuits for such things as actual physical injury or diminished value of an adjoining property, onto which pollution leaks or migrates. As with most liability insurance, the insurer pays for court costs and any awards up to a pre-specified limit.

Stop loss insurance, which places a cap on the share of cleanup costs that has to be shouldered by the new owner, has been available for only less

than a year. Fewer than 100 policies have been sold;<sup>xii</sup> they have been considered expensive and demand has been modest. Premiums vary depending on the type and the extent of contamination present, but generally run five to eight percent of the anticipated remediation expense—10 percent of which constitutes a typical deductible. Hence, a \$250,000 remediation project might generate a \$12,000 to \$20,000 yearly policy, with loss coverage that can be tapped into once expenses exceed \$275,000.

For the last type of insurance, remediation contractors, consultants or the property owner himself can purchase protection from mistaken acts or wrongful omissions on the part of the contractor and environmental consultant. This works like a standard errors or omissions policy. Covered situations might include that of an outside contractor who accidentally fills a foundation site with contaminated soil, or an environmental consultant who neglects to include a report, during the regulatory permit process, that reveals the presence of an area of contamination.

A rule of thumb has developed for all types of environmental liability insurance: for one year, for coverage of \$1 million, the premium should be \$12-15,000.<sup>xiii</sup> Deductibles currently range from a low of \$5,000 to a high of \$250,000. Investors have been willing to pay these prices, to eliminate most of the undesirable risk and volatility associated with brownfield redevelopment. Insurance also reduces cost of capital because lenders charge lower rates when

assured that the borrowed money is as secure as that which flows into a pristine greenfield.

With insurance, it suddenly seems feasible to redevelop some of the nation's 450,000 brownfield sites. Insurers have assumed the risks that could have wiped out all but a large development company. Bruce Reshen, president of Dames/Moore Brookhill said his company's environmental insurance policy from AIG was key to purchasing the portfolio of properties that it did in the spring of 1997.<sup>xiv</sup> Similar deals will most likely follow if there are favorable changes in regulatory policy, a free access to capital that is knowledgeable about the full panoply of risks related to brownfields, and—to make the risks manageable—good insurance.

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<sup>i</sup> Freeman, Paul K. and Howard Kunreuther, *Managing Environmental Risk Through Insurance*, Kluwer Academic Publishers, Norwell, MA, 1997, p. 21.

<sup>ii</sup> *Ibid.* pp. 4,22.

<sup>iii</sup> Dinsmore, Clement, "State Initiatives on Brownfields," *Urban Land*, June 1996, p. 38.

<sup>iv</sup> McGregor, Gregor I., "Buying and Selling Dirty Property," *Massachusetts Environment*, December 1995, p. 10.

<sup>v</sup> Freeman, Paul K. and Howard Kunreuther, p. 55.

<sup>vi</sup> *Ibid.* p. 72.

<sup>vii</sup> *Ibid.* p. 25.

<sup>viii</sup> Freeman, Paul K. and Howard Kunreuther, p. 26-27.

<sup>ix</sup> *Ibid.* p. 75.

<sup>x</sup> *Ibid.* pp. 78.

<sup>xi</sup> *Ibid.* pp. 81.

<sup>xii</sup> Amos, Bruce, Brownfields Redevelopment Manager, ECS, Inc. Personal interview, June 17, 1997.

<sup>xiii</sup> *Ibid.*

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<sup>xiv</sup> Coffey, Laura T., "Firm Buys Brownfield Portfolio," *Daily Journal of Commerce*, March 17, 1997.

## **CHAPTER 6**

### **Priming the Future Flow of Capital to Brownfields**

This concluding chapter will consider a hypothetical, best-case scenario of how capital could be encouraged to flow to brownfields. The scenario will be broken down and analyzed to show how simple measures and policies, when viewed in the aggregate, could have a substantial impact. All elements of this hypothetical example are either currently in effect, or have been proposed in some form. The second half of the chapter will then look at the future movement of capital into brownfields, and what changes need to occur to improve prospects for investment.

#### **A Hypothetical and Idealized Investment Scenario**

A future brownfields transaction, under ideal conditions, could very well transpire as follows: A partnership consisting of two companies—one in real estate and the other in remediation engineering—identifies an environmentally impaired property advertised on an Internet site devoted to selling hazardous parcels.<sup>1</sup> They request from the owner, then receive and review, the standardized Phase I and II reports and other relevant information. The highest and best use for the abandoned site, the partnership decides, is as an assembly plant for personal computers. Partnership officers consult well-defined state

regulations for Risk Based Corrective Actions (RBCA)<sup>2</sup>, which link remediation to future use. They determine that, if they agree to accept deed restrictions that lock in the intended industrial purpose, they can save \$1 million from what was recommended in the Phase II cleanup. They then enter into a Prospective Purchaser Agreement (PPA) with the state regulatory agency, which follows strict sureness of process guidelines and guarantees, if the property is acceptably clean in 18 months, to issue a covenant not-to-sue over future site contamination. They shop around for a reasonably priced insurance policy that covers cost overruns, and which has policy extensions to handle for the next 15 years any third party liability or state-required additional remediation. A state-administered revolving-loan fund, with federal backing, supplies a two-year loan for acquisition and remediation. The sum will be repaid with interest by a mortgage originator once the site is clean; the originator will resell the mortgage so it can be securitized into a CMBS, along with mortgages on unimpaired properties.

Finally, the partnership acts to seal the deal. The insurance policy has already granted the owner indemnity from all future liability. Now the partnership team sweetens the amount of its bid, so as to exceed any previous one. The higher offer is subsidized, in part, by a pair of governmental incentives on the

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<sup>1</sup> This exists at "brownfields.com" but the web site owner says that he has not attracted any listings in the year he owned the site, although he attributes this to not pursuing the business.

<sup>2</sup> Risk Based Corrective Action is a cleanup that considers a property's planned future use to determine how to protect identifiable human and environmental receptors from the pathways such as air and water flow

table: for five years, while a municipality abatement holds constant the valuation of the property, a state tax credit can be taken for \$500 per new job.

### **An Analysis of the Hypothetical Scenario**

The preceding scenario features a win-win situation. A property that the owner possibly fenced off, creating a community eyesore and a nonproducer of tax revenue, is cleaned up and consequently poses less of a risk to neighbors and the environment. The cost to the federal, state, and local governments is minimal. The government-backed loan is repaid with interest; the city loses nothing with the abatement if the alternative would be a property lying fallow; and the tax credit is easily justified by increased payroll taxes from the new assembly plant jobs.

For investors, the scenario is attractive because the enticements coincide with their three primary objectives. First, using RBCA lowers the initial cost of the investment by \$1 million. Second, subsequent returns are increased through reduced property and income taxes, as well as the ability to secure take-out financing at market rates. Third, risk is lessened in several ways, for several parties. Insurance offers security to the buyer, lender, regulatory agency, and last to the community, which is reassured that the property will be cleaned up if any pollution reappears. Furthermore, the PPA identifies for the buyer and the insurance company the extent of the needed cleanup, and sureness of process eliminates timing risk. A project being thrown off schedule can be a serious



setback. A redevelopment that lasts too long can lose its tenants and take-out financing and contractor commitments, any of which can cause the undertaking to collapse and go bankrupt.

Conceivably, the scenario can be faulted on the grounds that it does not ensure that the party truly responsible for the pollution pays its due. But as can be seen all too clearly with 17 years of Superfund-related litigation, it is no mean feat to bring a polluter to justice, and then to extract fees for remediation. What the past has shown, according to the American Academy of Actuaries, is that of a total of \$2 billion in public and private money devoted yearly to cleanups, about \$900 million never purifies so much as a cubic inch of soil.<sup>i</sup> Instead, it goes to pay attorneys.

Everything mentioned in this hypothetical example currently exists, but unfortunately, not in one geographic locale. Missouri, for example, adheres to a timely schedule for processing brownfield paperwork. In Rhode Island, a Clean Land Fund acts as a private-market equivalent of a revolving-loan fund. Much of the capital contemplating investments in contaminated properties is now waiting to see what workable combination of factors emerges in a single place. Recent deals that involve private money will serve as test cases. How they turn out, and how individual states accommodate the brownfield investor, will influence other entrepreneurs who for now are taking a cautious, wait-and-see approach.

## **What the Future Holds**

In environmentally impaired properties, investors surely have an opportunity, though not of the same magnitude, or in the same locations, as with distressed assets in the early 1990s. The RTC and FDIC mainly had holdings in the south, because of a downturn in the oil industry, and in the West and Northeast, because of a decline in the real estate markets there. Brownfields, however, are highly concentrated in a rectangular-shaped belt with the cities of Boston, Baltimore, St. Louis, and Minneapolis at the four corners. The presence of rust-eaten hulks of buildings and weed-choked industrial lots makes them more visible,<sup>ii</sup> but not as tempting as acquisitions, on the whole. Many of the properties have a negative value, even after changes in government regulations.

An improving regulatory climate has made some brownfield investment feasible. After the failures of Superfund, the EPA has proven more willing to work with private investors for remediation projects. In the last 15 years, Superfund, EPA's largest project ever, funneled more than \$30 billion into cleaning toxic waste sites, with disappointing results<sup>iii</sup> More contaminated properties are believed to exist today than in 1980. Accrued liability for environmental risks on real property is estimated at \$2 trillion, or 16 to 20 percent of the total \$10 to \$12 trillion in value of all property in the United States.<sup>iv</sup>

Now, market observers predict that the brownfield market will bloom in two to three years.<sup>v</sup> Still, the anticipated efflorescence has been slow to occur because of the unwillingness of sellers and investors to operate under current

regulations. Until the EPA delivers on additional promises to lower regulatory hurdles and limit liability, daunting risks will hinder the remediation and sale of brownfield sites.<sup>vi</sup>

Yet much has changed, developers do agree, since the 1980s when a prospective buyer, upon learning of environmental problems on a property, would abruptly terminate negotiations.<sup>vii</sup> The knee-jerk revulsion is gone, and although many investors still avoid contaminated land, there are some savvy capitalists who understand how to limit their exposure to potential losses. And at this historical moment, with the thriving real estate market, a strong economy, and a scarcity of greenfields, there is abundant capital chasing after shrinking real estate opportunities. Brownfields could well meet the new demand.

Now is an excellent time for government to lend an assist in creating a suitable environment for investment. Four months ago, U.S. Congressmen Greenwood and Klink introduced a bill to amend CERCLA. It would eliminate federal involvement when a state has in place a voluntary response program approved by the EPA, with the only exceptions being current or proposed NPL sites, and properties that are federally owned or involved in a consent decree.<sup>viii</sup> This fairly simple amendment would calm developers by clarifying the regulatory relationship; no longer would they have to fear the meddlesome intrusion of federal enforcers. Nearly 40 states have passed significant legislation to address the issue of voluntary cleanups, with almost all of the others working on new laws and policies.<sup>ix</sup>

On the municipal level, governments could help by identifying sites and acting as a local information clearinghouse. City officials could explain to developers how the state regulations work, or how insurance can eliminate the risk of liability. Municipalities could also provide direct opportunities by selling city-owned brownfields. They could ease the burden of financing with tax abatements, or even Tax Increment Financing or General Obligation bonds.

The least polluted, and most risk-free brownfields, will probably attract the first wave of investors. Badly contaminated properties will be avoided without large cash infusions from some level of government. Public programs do exist now for remediations, but they are designed mainly to boost efforts to rescue economically viable sites. For the worst parcels to be reclaimed, government agencies must be much more heavily involved financially.

Even so, investors are busily eyeing the more attractive brownfields with interest, which stems from a confluence of factors, according to Bruce Amos, an insurance broker with ECS. He credits a good economy, higher land prices, more flexibility exhibited by regulators, and the current widespread availability of capital.<sup>x</sup> When reasonably priced insurance is added to this mix, risks will drop to tolerable levels.

As for sources of capital, there will always be venture funds willing to consider, for the right price and compensation, problematic acquisitions that commercial lenders tend to avoid.<sup>xi</sup> More traditional sources of capital may flock to brownfields if investors are able to find an acceptable balance of risk and

reward. A prerequisite for success for the new brownfield investor will be specialized knowledge, especially of environmental regulations and cleanups. Joe Carter of RE/National, the company investing AEWs \$100 million for environmentally impaired properties, envisions a group with the right mix of skill and knowledge being able to access capital through Wall Street firms and turn a profit. This group will use insurance to convince rating agencies that risks are acceptably controlled, and so the brownfield can be safely added to a portfolio of unimpaired assets.<sup>xii</sup> Under such favorable conditions, the capital that once avoided brownfields on principle, should begin to flow freely in.

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<sup>i</sup> Litvan, Laura M., "How Superfund Stifles Growth," *Investor's Business Daily*, February 13, 1997, p. A1/2.

<sup>ii</sup> Ward, Elizabeth, President, Washington Advisors, personal interview, June 17, 1997.

<sup>iii</sup> Sterling, Burnett C., "The State of Environmental Reform," *Investor's Business Daily*, January 16, 1997, p. A2/1.

<sup>iv</sup> Freeman, Paul K. and Howard Kunreuther, "The Roles of Insurance and Well-Specified Standards in Dealing with Environmental Risks," *Managerial and Decision Economics*, Vol. 17, (1996) pp. 517-530.

<sup>v</sup> Dow Jones International News, "Brownfields Market: Prospects Still Good Despite Slow Start," 9/30/96.

<sup>vi</sup> Cantwell, Nancy and Steve Cusano, "Brownfields: Transforming Urban Decay into Opportunity," *Real Estate Perspectives*, January, 1997, p. 4.

<sup>vii</sup> Salmon, Mike, Director of Exit Strategies, TRC Co., personal interview, June 19, 1997.

<sup>viii</sup> Greenwood and Klink, 105<sup>th</sup> Congress, 1<sup>st</sup> Session, H.R. 873, February 27, 1997, pp. 1-3.

<sup>ix</sup> France, Steve, "Experts Say It's Time to Launch Corporate Brownfields Strategies," *Real Estate / Environmental Liability News*, March 7, 1997. pp. 3-4.

<sup>x</sup> Amos, Bruce, Insurance agent, ECS, personal interview, June 17, 1997.

<sup>xi</sup> France, Steve, pp. 3-4.

<sup>xii</sup> Carter, Joe, RE/National, personal interview, June 17, 1997.

**Matrix of State Voluntary Cleanup and Brownfield Programs, by EPA Region**  
(Northeast-Midwest Institute, September 1996)

	Program Description	Liability Provisions	Site Eligibility	State Oversight Role	Participant Requirements	Cleanup Standards	State Assurances Provided	Financial Assistance
<b>REGION I:</b>								
<b>Connecticut</b>	Urban Sites Remedial Action Program (1992)	State liability is strict, joint and several; CNTS issued for new owners of remediated sites.	Urban sites with "economic development potential" as defined by state; may be a Superfund, RCRA or LUST site.	Varies, depending on whether state or private party cleans the site (Sites classified as Type I, owner; II, orphan; and III, prospective purchaser).	Full reimbursement of DEP oversight costs for Type I sites; lease payments made to state for Type II (orphan) and Type III (prospective purchaser) sites.	New rules establish numerical standards for direct exposure (residential and indus/comm.), contaminated soil mobility, and volatilization from groundwater.	CNTS issued to new owners; re-opens exist for Type I sites.	\$25 million bond fund passed in 1993 (the total has risen to \$30 million).
<b>Maine</b>	Voluntary Response Program (1993)	State liability is strict, joint and several; lenders and development authorities exempt in role of financier; local governments may be held liable in some cases.	All sites except Superfund, RCRA or LUST sites, or those operating under state permit (e.g., landfills).	DEP must approve of remedial action plan.	\$500 fee, plus reimbursement of state oversight costs.	Site specific; 10 <sup>-6</sup> risk level; future land use, use of E/I controls also considered.	Certificate of completion issued for all pollutants identified in site assessment.	None; TIFs available in some locales.
<b>Massachusetts</b>	Clean Sites Initiative (1994)	State liability is strict, joint and several; lenders and local governments exempt for foreclosed properties if they act to eliminate contaminant exposure.	Sites must be in Economic Target Area and be redeveloped for commercial or industrial use; PRPs not eligible.	Both DEP and Executive Office of Business Development involved; oversight varies depending on severity of contamination. Licensed Site Professionals assigned to sites for technical review.	Cost recovery actions available to the state.	Cancer risk level of 10 <sup>-6</sup> for individual pollutants and 10 <sup>-5</sup> for aggregate risk. Different methods available for achieving these risk levels.	CNTS available from Attorney General; may be re-opened if cleanup found inadequate.	None; state may consider a loan guarantee program in the future.
<b>New Hampshire</b>	Brownfields Program (1996)	Liability under the Hazardous Waste Management Act is strict.	NPL, LUST and landfill sites excluded. PRPs, municipalities and lending institutions may participate.	Dept. of Environmental Services approves remedial action plan and final cleanup report.	Implementation of DES-approved Remedial Action Plan is required.	Statewide cleanup standards (for soil and groundwater) are in final stages of development.	NFA letter, Certificate of Completion, and covenants-not-to-sue are available.	None.
<b>Rhode Island</b>	The Industrial Site Remediation and Reuse Program (1995)	Liability is strict, joint and several.	NPL, RCRA, LUST, and state-permitted sites ineligible. Responsible parties, volunteers, and prospective purchasers eligible.	Dept. of Env. Mgmt. approves investigation plans, remedial action plans and final remediation report.	Varies according to party's relationship to the site. Failure to adhere can result in any party becoming a responsible party and subject to enforcement	Four classes of standards exist: Direct exposure criteria for indus/comm. and res. facilities; leachability criteria for protection of groundwater (urban resources and drinking water).	Letter of Compliance given to responsible parties; CNTS granted volunteers, prospective purchasers and lenders.	None.

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<b>Vermont</b>	Contaminated Properties Redevelopment Program (1995)	Liability protection available only to third parties (e.g., prospective purchasers). Responsible party liability is strict, joint and several.	CERCLA, RCRA and VT UST sites excluded. UST cleanups constitute over 80 percent of state cleanup activities.	Dept. of Env. Conservation maintains close oversight, including review and approval of all site investigation and cleanup documentation.	\$500 application fee; \$5,000 deposit from which state oversight costs are drawn.	Cleanups standards are the same as those required under other state cleanup programs. Groundwater protection rules are in place; state uses EPA guidance for soil standards.	Certificate of Completion issued by DEC upon successful cleanup, covering contamination identified in site work plan.	None. State will seek budget authority to provide two full-time employees to the program.
<b>REGION II:</b>								
<b>New Jersey</b>	Industrial Sites Recovery Act (1993); program amends the Environmental Cleanup Responsibility Act (1983)	Memorandum of Agreement required; party allowed to exit the program at any time, provided site is low priority for state. Liability for site depends upon enforcement program pertaining to the site.	DEPE "low priority" sites; no LUST or landfill sites; PRPs can participate.	Limited oversight, unless party requests more state involvement. State must provide public notice and meetings for complex cleanups.	Reimbursement of oversight costs.	10 <sup>-6</sup> for carcinogens and Hazard Index of 1 for other chemicals; state has soil and groundwater standards, and allows site-specific cleanups. E/I controls allowed; historical contamination considered in cleanup levels.	NFA letters provided, but offer no explicit release from liability; state may re-open case if cleanup standards change, remedy fails or new contamination emerges on site.	\$55 million Hazardous Discharge Site Grant Program; 5% loans up to \$1 million; \$2 million grants and loans available to local government for orphan sites and those obtained through tax sale certificates.
<b>New York</b>	Voluntary Cleanup Program (1994)	Parties withdrawing from program may face DEC enforcement action. Agreements may cover site investigation only, if party suspects extensive contamination at the site.	NPL and RCRA sites ineligible; state Superfund and LUST sites may be eligible if applicant is not a PRP; lenders, municipalities and Industrial Development Authority are eligible.	State requests that party enter into Agreement or Consent Order; DEC signs off on final cleanup.	Party must pay DEC oversight costs and meet terms of Agreement or Consent Order.	Case by case basis; land use considered; E/I controls used; state groundwater cleanup standards in place.	NFA letter releases party from DEC enforcement action; re-openers may apply.	None.
<b>Puerto Rico</b>	No program at this time.							

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<b>REGION III:</b> <b>Delaware</b>	Voluntary Cleanup Program (1993)	State liability is strict, joint and several; lenders and development authorities acquiring site through loan default are exempt; local governments may be liable for foreclosure properties but not for tax delinquency. Both lenders and local governments may sell foreclosed property without triggering liability. Their attempts to clean up the site without supervision does not constitute management.	Proximity of site to drinking or surface water places constraints on site eligibility; site may not be under RCRA or LUST; state has discretion to deny participation in the program.	State maintains considerable involvement throughout process; encourages site investigations to conform to ASTM guidelines. DNREC will only approve of work completed by consultants that have met the requirements of the Professional Qualification Program.	Party must enter into written agreement with state; state recovers costs from party's initial \$5000 deposit.	Two options exist; either EPA Region III's Risk-Based Concentration Tables (10 <sup>-6</sup> ) or site-specific levels (10 <sup>-5</sup> ).	NFA letters available; prospective purchasers may sign a Consent Decree for contribution protection; and new owners of remediated properties may receive a CNTS.	Four primary tools exist: 1) \$250,000 loan program; 2) Tax credits covering cleanup available for sites with development potential; tax credits of \$500/yr. for cleanup and redevelopment jobs created; 3) grant program funding 50% of total costs, up to \$25,000; and 4) state revolving loan fund being developed.
<b>Maryland</b>	Program in development at this time.							
<b>Pennsylvania</b>	Land Recycling Program (1995)	Prospective purchasers and innocent landowners not liable; nor are lenders, economic development agencies, cities or conservancies if they did not cause or contribute to the pollution. Responsible parties must enter enforceable agreements.	NPL, state Superfund and LUST sites ineligible; state-permitted sites may or may not be eligible. RCRA sites are eligible. PRPs may participate.	Dept. of Env. Resources and Dept. of Commerce oversee program. Degree of oversight depends on cleanup standards chosen. Failure of state to review application forms within 60 days results in automatic approval for the applicant. State waives permits during remedial work phase. Municipalities may request public involvement plan within 30 days of party's notice of intent to remediate. Special conditions apply to orphan sites and those in enterprise zones.	Cost recovery includes fees imposed on state's review of workplans and final reports. Public involvement may also be a requirement, depending on the site.	Three levels of cleanup standards: background (most stringent); statewide health (presents range of cleanup levels); and site-specific (based on detailed risk assessment). Existing cleanup standards are grandfathered in for 3 years.	State offers release from liability for approved cleanups. Re-openers apply for various reasons.	Industrial Sites Reuse Program provides \$17 million in loans and \$5 million in grants. State funding capped at \$200,000 per site assessment and \$1 million per site remediation. Loans and grants require 25% match. Infrastructure Development Program has \$26 million in loans, with a cap of \$1.25 million per project.



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<b>Virginia</b>	Program in development; regulations to be promulgated by July 1997.							
<b>West Virginia</b>	Program in development; regulations to be promulgated by July 1997.							
<b>REGION IV:</b>								
<b>Alabama</b>	State voluntary cleanup program (administrative procedures).	Liability is proportional.	Ineligible sites include those on (or proposed for) the NPL, those subject to state enforcement action or permit (RCRA, hazardous waste).	ADEM reviews assessment plans, provides limited oversight of field activities and may do some confirmation of site sampling.	Parties must submit a written request to complete a voluntary cleanup, which ADEM either accepts or rejects.	Site-specific, risk-based. Remediation must achieve a cancer risk reduction of between 10 <sup>(-4)</sup> and 10 <sup>(-6)</sup> .	Upon completion of activities, ADEM may issue a Notice of Completion.	None.
<b>Florida</b>	No program at this time.							
<b>Georgia</b>	Hazardous Site Reuse and Redevelopment Act (1996). Regulations due to be final in 1997.	Strict, joint, and several.	Responsible parties are ineligible. Sites on the NPL or subject to enforcement action also are not eligible.	No fee structure is currently in place. However, participants must reimburse the state any corrective action costs.	Participants negotiate a corrective action plan with the DNR. When this is complete, they enter into an administrative consent order with the state.	Cleanup standards are the same as those under the 1992 Hazardous Site Response Act.	There will be some form of certification, although DNR officials have not determined what type. Covenants-not-to-sue will not be available.	None.
<b>Kentucky</b>	Program forthcoming. Legislation passed in April 96 to extend No Further Remediation Letters to public entities.							
<b>Mississippi</b>	No program at this time.							
<b>North Carolina</b>	No program at this time.							

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<b>South Carolina</b>	Informal voluntary cleanup program under State Hazardous Waste Management Act.	Officially is strict, joint, and several. However, in practice, the scheme is more proportional and causation-based.	Open to both responsible parties and "innocent parties." Ineligible sites include those subject to DHEC enforcement or those under a permit. USTs are handled under a separate program.	The department provides oversight of any site assessment and remedial activities. Currently there's no fee for DHEC services (although a fee system should be in place by December 1996).	Participants propose site assessment and remediation activities, and enter into a contract with DHEC.	Two options exist: 1) conduct site-specific risk assessments; and 2) establish cleanup goals according to EPA Region 3 Risk-Based Concentration Tables. Cleanups must achieve a 10 <sup>(-6)</sup> risk reduction level.	DHEC will issue a completion letter when work is finished. Covenants-not-to-sue also may be available.	None.
<b>Tennessee</b>	Voluntary Cleanup Oversight and Assistance Program (VOAP).	Proportional liability. Orphan shares may be paid out of the state's Remedial Action Fund.	All inactive hazardous substances sites. Petroleum sites may be included.	Oversight provided by DEP.	Party must pay \$5,000 participation fee to enroll in VOAP. Party signs a consent order with DEP.	Risk assessments and cleanups are conducted on a site-specific basis.	DEP issues a letter indicating that obligations under the consent order have been completed.	None.
<b>Region V:</b> <b>Illinois</b>	Illinois Pre-Notice Site Cleanup Program (1989)	Proportionate-share; causation-based.	Sites under jurisdiction of other enforcement programs are ineligible. Certain sites proposed for the NPL may be eligible if PRP can provide assurances.	State establishes project eligibility and conducts background check. Assessments, investigations, workplans and final reports are subject to state approval.	\$5000 initial fee for oversight costs. Party must also allow state access to the site and enter agreement stating compliance with agency cleanup standards and termination provisions.	State plans to adopt a risk-based methodology called "Tiered Approach to Cleanup Objectives" (TACO). Involves three tiers of cleanup standards, and use of E/I controls at Tier III sites. EPA Soil Screening Guidelines and IL Groundwater Standards used.	Parties receive a "No Further Remediation Letter" for successful cleanups. CNTS available from the Attorney General, although none issued to date. Re-openers apply in case of change in land use.	None.
<b>Indiana</b>	Voluntary Cleanup Program, in operation since 1993.	Liability is strict, joint and several.	Any contaminated site is eligible. Low- and medium-priority LUST sites may apply. CERCLA or RCRA sites may not be eligible.	Quarterly progress reports must be submitted to IDEM. State may waive local and state permits during site cleanup. State also provides for public comment period following site remedy selections. State holds applications to the VCP in confidence.	\$1,000 fee for application submittal, including site history and description. Participants must sign a Voluntary Remediation Agreement with the state.	3-tiered approach to cleanup standards is established, depending on future land use of the site.	Certificate of Completion issued by IDEM, following by a CNTS by Governor's Office.	None.

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<b>Michigan</b>	Natural Resources Environmental Protection Act; 1994 P.A. 451, Part 201. Amended in 1995.	Strict, retroactive liability still applies to PRPs, although new law exempts owners/operators from liability at current sites if they did not cause the release. New law also expands liability exemptions for local governments.	Any contaminated site is eligible. Site containing underground storage tanks are usually remediated under the requirements of Part 213 of the law.	MDNR reviews petitions from parties seeking "letter of determination" or CNTS, both of which provide relief from liability. MDNR has enforcement authority to affect the return of "warehoused" properties to productive use.	"Affirmative obligations" now exist for owners and operators of sites suspected or known to be contaminated to remediate and restore the site. Fines and penalties apply for failure to comply.	MDNR to issue standards for residential, recreational, commercial and industrial uses. E/I controls, deed restrictions and other measures allowed. State has lowered acceptable risks for carcinogens from 10 <sup>-6</sup> to 10 <sup>-5</sup> .	CNTS available for redevelopers of industrial sites. Letter of determination provided to anyone purchasing property. Letter protects purchaser from liability pending approved baseline assessment of the site.	State bond issue provides up to \$40 million to municipalities to fund site cleanup, as well as \$10 million for site investigation. A new revolving loan fund exists for municipalities. Tax credits also are available.
<b>Minnesota</b>	Voluntary Investigation and Cleanup Program (1988)	Strict, joint and several liability provisions of the state Superfund program apply.	Any site not under the jurisdiction other state remediation programs: LUST, RCRA, landfills; or sites involving removal of asbestos, radon, radioactive waste or agricultural chemicals. Low-priority state Superfund programs may be admitted, just as high-risk VIC sites may be transferred to the state Superfund program.	State maintains close involvement throughout whole process. Early site investigations which reveal limited contamination exit the program.	Program requires entry into formal agreement with state. Oversight costs are recovered on a quarterly basis.	Background or site-specific levels may be chosen. E/I controls may be used.	Depending on whether the participant is a responsible party or not, a number of assurances are used, including: No Action Letters, Partial No Action Letters, No Association Determinations, Off-Site Source Determination Letters or Agreements and Certificates of Completion.	Two new programs: Contamination Cleanup Grants Program makes \$7.8 million available in matching grants for sites with development potential; and authorization for Metropolitan Council to raise up to \$6.6 million annually for cleanup grants (money restricted to 7-county region).
<b>Ohio</b>	Real Estate Cleanup and Reuse Program (1995). Interim program in effect until regulations are promulgated (due 9/95).	Liability for PRPs in the program is strict, joint and proportional. Lenders acting in a fiduciary role only are exempt from liability. Local governments may or may not receive liability protection.	Sites are ineligible if they are facing enforcement action under CERCLA, RCRA; LUST; TSCA; or SDWA. Landfills facing closure and other sites under enforcement by the state are ineligible.	State oversight role has been privatized through use of Licensed Site Professionals. State does conduct audits of 25% of sites and is involved in requests for variances and other site-specific situations.	Participants responsible for oversight costs on a fee-for-service basis. Public information notices also the responsibility of the participant.	Rules (final in Oct. 96) call for three sets of generic cleanup standards with a 10 <sup>-5</sup> risk reduction factor (res, comm, ind). Site-specific cleanups can be conducted. Also included are soil standards when mobility to ground water is a factor.	State issues CNTS upon approval of NFA letter developed by the Licensed Site Professional. Re-openers may apply.	Low-interest loans available from state. There are also tax abatements for property owners where an increase in property value has occurred due to remediation.

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	<b>Program Description</b>	<b>Liability Provisions</b>	<b>Site Eligibility</b>	<b>State Oversight Role</b>	<b>Participant Requirements</b>	<b>Cleanup Standards</b>	<b>State Assurances Provided</b>	<b>Financial Assistance</b>
<b>Wisconsin</b>	Land Recycling Act (1994)	Prospective purchasers and innocent landowners may participate; responsible parties are pursued for cleanup costs in the event voluntary agreements fall through. Municipalities are exempt from liability for properties acquired through foreclosure or tax delinquency under certain circumstances. Lenders are also exempt from liability when acquiring property through foreclosure.	Contact WI DNR for information on site eligibility.	State oversight required from initial application through proposed remedial work plan and "close out" of participant's file signaling cleanup's completion.	Currently no fees are required, however, recommendations to impose a \$250 application fee and between \$1,000 and \$3,000 deposit (depending on size of site) are expected to be passed by the legislature this year.	Full site cleanups are required to protect groundwater to risk levels of 10 <sup>-6</sup> for carcinogens. Soil cleanup standards established through numerical, groundwater impact equation or site-specific modeling.	Release from liability offered under the state's Hazardous Substance Discharge Law. Release is transferrable to future owners.	No financing specific to brownfields; however, petroleum and chemical cleanups may be eligible for other sources of funding.
<b>REGION VI:</b>								
<b>Arkansas</b>	Voluntary Cleanup Program (1995).	Purchaser is not liable for prior contamination, but will be responsible if future contamination is discovered at the site.	Limited to prospective purchasers of abandoned industrial property.	ADPC&E comments on purchaser's site assessment but does not actually oversee site assessment activities. The department approves the proposed remedy; charges \$65/hr. fee for dept. oversight.	Purchaser conducts site assessment activities; then purchaser and ADPC&E enter into a consent administration order (public notice required) which specifies any remedial activities.	Determined on a case-by-case basis.	Once the approved remedy has been implemented, the department may issue a covenant-not-to-sue.	None.
<b>Louisiana</b>	Voluntary Cleanup Program (July 1996). Program under development.					LDEQ is in the process of adopting minimum remediation standards. Until they are complete, no sites can proceed through the program.		
<b>New Mexico</b>	No program at this time.							
<b>Oklahoma</b>	No program at this time.							

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<b>Texas</b>	Texas Voluntary Cleanup Program (1995)	State liability is strict, joint and several.	Any site not under a state or federal enforcement action or operating under a state permit.	State oversight varies, depending on cleanup standards chosen. Site-specific cleanups entail close oversight by the state.	Initial \$1000 application fee, plus reimbursements for state oversight. No public notification required. Must enter into a Voluntary Cleanup Agreement with the state.	Use of risk-based cleanup standards called the "Risk Reduction Rules." Three options exist: 1) cleanup to background levels; 2) use generic health-based standards that achieve 10 <sup>(-6)</sup> ; 3) Conduct site-specific risk assessment, possibly use E/I controls, and attain between 10 <sup>(-4)</sup> and 10 <sup>(-6)</sup> risk range.	Certificate of Completion available only to prospective purchasers and future lenders for successfully remediated sites. No release from liability for current owner of the property. Reopeners available to the state.	None.
<b>REGION VII:</b>								
<b>Iowa</b>	No program at this time.							
<b>Kansas</b>	No program at this time.							
<b>Missouri</b>	Voluntary Cleanup Program (1994)	Unsatisfactory cleanups can lead to enforcement under state superfund and RCRA programs.	Any site except those under state or federal enforcement action, operating under state license or proposed for the NPL. PRPs may participate in program.	State maintains a monitoring role throughout the process; quarterly progress reports may be required in some cases. No public participation requirements.	Letter of agreement with state; \$200 application fee plus an up-front deposit of between \$500 and \$5000 to pay oversight costs.	"How Clean is Clean" guidance document calls for two tiers of cleanup: 1) Generic cleanup standards; and 2) Alternative or site-specific, risk-based cleanup standards.	"Clean letter" is issued by state; does not release party from liability. Re-openers apply.	For brownfields purchased from the city or county, parties may get financial assistance from state (i.e., loans, loan guarantees, grants, or tax credits).
<b>Nebraska</b>	Remedial Action Plan Monitoring Program (RAPMA)	Strict, joint, and several.	Open to anyone.	State oversight of site assessment and remedial action plan is provided.	Participants submit a remedial action plan on an NDEQ form. Applicants must create a proposed payment plan. The application fee is \$5,000; participation fee also is \$5,000.	Determined on a site-specific basis. State groundwater standards must be met.	Upon completion of the remedial action plan, NDEQ will issue a letter stating that "No Further Action" need be taken.	None.

03

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<b>REGION VIII:</b>								
<b>Colorado</b>	Voluntary Cleanup Program (1994).	Federal CERCLA liability applies. Colorado and EPA signed a SMOA indicating that EPA will not pursue sites that have successfully completed Colorado's program (and received a "No Further Determination" letter).	Program geared toward site owners rather than prospective purchasers.	Limited. State oversight ends once the state has reviewed and approved application. No construction oversight. No public participation requirements.	\$2,000 fee imposed for state review of application (the unspent portion is refunded).	Parties may use soil standards from other states or EPA Soil Screening Guidelines. Groundwater cleanup required to MCLs. E/I controls allowed; future land use may determine cleanup standards.	The applicant self-certifies that the cleanup is complete. However, under the state/EPA SMOA, to obtain EPA "sign-off," parties must submit a completion report as a new application for a "No Further Determination" along with a new filing fee.	None
<b>Montana</b>	Voluntary Cleanup and Redevelopment Act (VCRA) Program.	Strict, joint, and several. Alternatives to this scheme are under consideration.	Any entity may apply except NPL sites, sites subject to enforcement action by state, and LUSTs.	DEQ provides oversight. Public comment period required.	Parties submit a VCRA application and proposed work plan to DEQ. The plan must be implemented within 24 months (extensions are considered). Applicant shall reimburse the DEQ any remedial action costs the state incurs.	Applicable water quality standards must be met. Soil cleanup standards are derived via risk assessment on a site-specific basis.	No Further Action letters may be issued upon successful completion of VCRA plan and reimbursement of DEQ costs.	None.
<b>North Dakota</b>	No program at this time.							
<b>South Dakota</b>	Developing program within existing state law.	Strict, joint, and several. Current property owners are deemed "responsible parties."	Any responsible party, group, or entity.	Direct oversight of assessment, corrective action, and compliance monitoring.	No details available.	Site-specific risk assessments. Cleanup standards are the same for brownfields as for other sites having a regulated substance release. South Dakota has ground water quality standards.	No liability relief available for prospective purchasers, although some form of federal liability relief may be available if the state and EPA sign a SMOA.	None.
<b>Utah</b>	Program under development at this time.							

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<b>Wyoming</b>	No program at this time.							
<b>REGION IX:</b>								
<b>Arizona</b>	State voluntary cleanup program takes place under the Water Quality Revolving Fund.	Liability is strict and several.	Anyone is eligible, except sites subject to enforcement action.	DEQ provides varying levels of oversight, depending on complexity of project. DEQ attempts to recoup costs when possible.	Participants must submit a remedial action plan.	State uses interim soil remediation standards until final rules are published in August 1997. Two sets of tables exist (residential and non-res.) for 300 chemicals & compounds that reflect an "ingestion" scenario. Standards reflect a 10 <sup>-6</sup> cancer excess risk.	Prospective Purchaser Agreements and Covenants-not-to-Sue are available.	None.
<b>California</b>	Voluntary Cleanup Program (1993).	State liability is strict, joint and several; a pilot program allows use of proportional liability settlements.	Eligibility is denied to sites in state or federal Superfund program and sites involving UST removal.	Participants work closely with DTSC in designing assessment and cleanup plans.	Participants must provide an advance payment to DTSC for half the project's estimated cost, including oversight expenses.	State Superfund program cleanup standards apply.	No Further Action letters granted following site investigation which shows no need for remediation. Certificate of Completion granted following completed cleanup.	Nothing for regular VCP; small grants are to be made available for up to 10 sites in the state pilot program.
<b>Guam</b>	No program at this time.							
<b>Hawaii</b>	No program at this time.							
<b>Nevada</b>	No program at this time.							
<b>REGION X:</b>								
<b>Alaska</b>	No program at this time.							

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<b>Idaho</b>	Voluntary Cleanup Program (1996) becomes effective in 1997 with promulgation of regulations.	Liability relief provided for "innocent parties."	Sites containing hazardous substances and petroleum. Other sites (including RCRA facilities) may be included in program at DEQ discretion.	Oversight funded by participant, commensurate with activities at the site.	At the outset, DEQ and participant negotiate a Voluntary Remediation Work plan that specifies state oversight parameters. Applicant provides a deposit for future state oversight costs.	Regulations due by Spring of 1997. In their current form, the rules contain two options: 1) generic cleanup standards; and 2) risk-based site-specific cleanup standards.	Certificates of Completion and covenants-not-to-sue are available.	Real estate tax abatements are available. Upon receiving a covenant-not-to-sue, the party may apply to the taxing entity for a 50% tax break on the property's appreciation due to remedial activities.
<b>Oregon</b>	Voluntary Cleanup Program (1991)	State liability is strict, joint and several. Parties may be liable if their sites are referred to state's Superfund program during the course of the cleanup process. Withdrawal from binding agreement with state may result in enforcement action.	Sites must be low- to medium-priority and must not be in NPL or RCRA program. LUST sites may be eligible.	State maintains heavy oversight role, conducting file searches, approving of site assessments, remedial workplans and final cleanup reports. Complexity of site cleanup also a factor.	Once site is accepted into the program, a Letter of Agreement is signed between the party and DEQ. \$5,000 fee due at this time. Public comment period of 30 days required; hearings must be held if 10 or more people so desire.	Background cleanup levels are recommended. Where this is not possible, risk reduction levels of 10 <sup>-6</sup> applies for both "simple" and "complex" sites. For the latter, E/I controls are allowed, supported by feasibility study stating their need.	No Further Action letters issued for successful cleanups; NFA letter releases party from state liability. Re-opens apply.	Nothing.
<b>Washington</b>	Voluntary Cleanup Program.	State liability is strict, joint and several. Lenders are exempt under certain circumstances. Local governments receive no exemptions.	Few restrictions apply; state may clean LUST, RCRA and NPL sites under its program.	Oversight varies, depending upon degree of complexity at the site.	Simple sites require participants only to reimburse state for oversight costs. More complex cleanups entail entry into binding agreement, withdrawal from which may result in enforcement action.	Cleanups must reduce risk to level of 10 <sup>-6</sup> for cancer-causing substances. E/I controls allowed for commercial and industrial properties, supported by feasibility study stating their need. Future land use may be used for determining remedies, though details of this new program element are still under development.	No Further Action letter issued for certain sites; CNTS issued as well, especially for sites involving heavy state oversight function.	No official funding source. State Dept. of Ecology may use existing funds, based on applicant's need.



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