A GUIDEBOOK FOR BROWNFIELD PROPERTY OWNERS

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spent with attorneys arguing over the process. Even when cleanup appears to be a losing proposition, prompt cleanup may make sense as a way to cut losses.

DOES THE GOVERNMENT

United States Environmental Protection Agency (EPA): EPA is unlikely to be directly involved in the cleanup of brownfield properties, because most cleanups will be overseen by the states. EPA provides cleanup and redevelopment incentives and financial support, however, that may be available to some property owners.

Developers: In some cases, property owners may want to work with developers to determine and implement marketable reuses of their properties.

Brownfield Developers and Investors: A new group of firms specializing in cleaning up and reusing brownfields has emerged in recent years. These firms rely on a mix of engineering, legal and real estate technical and financial backing and expertise.

Real Estate Professionals: Property owners may want to work with real estate professionals who can advise on the market for a particular property and can help locate buyers or developers.

Local Community Development Corporations (CDCs): CDCs, nonprofit organizations created to encourage local urban redevelopment, can assist property owners in determining the value of a property and marketing a site.

Federal Government Agencies: Federal government agencies, other than EPA, may provide technical and financial support for brownfield redevelopment including the Department of Housing and Urban Development, the United States Army Corps of Engineers, the Commerce Department's Economic Development Administration, and the Department of Interior's Groundworks USA Program.**brownforhn E**

can estimate the value of a brownfield site that reflects any discount for the cost of dealing with the environmental problems. Although real estate professionals with brownfield expertise are becoming increasingly common, most still are not trained to estimate environmental costs and are generally uncomfortable even trying. Instead, they price a property based on the value of comparable properties that do not suffer from environmental problems.

Real Estate Assessors work in specialized firms that deal with unique or hard to compare properties. They have expertise dealing with property with environmental issues and can be a useful source of information to property owners.

Local Community Development Corporations (CDCs) can provide much of the same information as real estate agents. Although their functions vary from organization to organization, most will have a good sense of the market value of nonbrownfield properties in their area. CDCs also frequently have experience working with other neighborhood brownfield properties. In addition, since prospective buyers often approach CDCs looking for available properties, CDCs will have a sense of the level of economic and development activity in the area. Since their goal is to promote economic growth, most CDCs will assist a property owner in marketing a site. This assistance may include support for applications for any public financing that might be available. Finally, CDCs may be able to support the sale of a property for which additional construction activity is contemplated by arranging for and perhaps overseeing necessary construction activities.

Local Redevelopment Authorities and Region Economic or Industrial Development Agencies can also be valuable sources of information and support. These entities are arms of municipal or regional government (or, in some instances, independent agencies with a governmental charter) responsible for economic development. This means that they closely monitor property markets and know about demand and uses for particular sites. Although they may not be as useful as a local real estate agent or CDC in estimating a potential sale price for a site, the information they can provide should give a brownfield owner a better sense of the market value of a site. Moreover, these agencies usually have some relationship to the public programs that provide financial support for redevelopment efforts.

Contiguous Property Owners will often be valuable sources of information on property values, demand, and uses. A contiguous owner may also be considering expansion or need additional space and, therefore, may be a potential buyer.

Neighborhood Associations, Groups, and Leaders often know about the local real estate market. Although these groups are generally less formally structured than the local CDC, they may have a similar mission of promoting community improvement by encouraging economic growth. They may have information about recent property sales, especially sales that they helped bring about, and will probably know about other properties currently on the market, their price, and how much interest has been expressed by potential purchasers.

Specialized Brownfield Promotional Efforts, primarily based on the Internet, may offer some additional information to a property owner. These web sites, sometimes operated privately and sometimes by economic development agencies, frequently list brownfield prop-

LAND USE CONSIDERATIONS AND RESTRICTIONS

While looking into the potential demand and uses for a site, property owners should also consider any physical site conditions, in addition to contamination, that could limit the use of the property. Property owners should also research possible legal restrictions on the use of the land, including private restrictions found in deeds and public limitations found in zoning and similar ordinances.

Site Conditions can influence future site redevelopment and reuse alternatives. As with any development, the property owner should conduct or obtain an evaluation of the site's physical characteristics. This evaluation should include gathering and analyzing preliminary geotechnical information that characterizes the fill, soil, and groundwater in order to determine the site's potential for supporting roadways, parking areas, utility corridors and new building foundations. The conditions evaluation should also include an analysis of the extent and location of wetlands on, or adjacent to, the property, the location and capacity of existing utilities and hydrogeologic information.

Deed Restrictions are limits on property use found in the property's deeds. A prior owner — perhaps from more than a century ago or perhaps from as recently as last year — created these restrictions as part of a transaction involving the land. The restrictions may benefit someone who was not even a party to the transaction. As a result, the new owner of the property acquired something other than completely unlimited use of the land.

Some kinds of restrictions are intended solely to benefit the parties in the initial transaction and do not affect the land beyond some identified time (such as the death of a person or a subsequent transfer of the land). Other restrictions, however, are said to "run with the land"; this means that they continue to limit the ways in which the land can be used by subsequent owners. Deciding whether any particular restriction runs with the land or is no longer effective (or may become ineffective in the future) can be a complicated legal issue and should be reviewed by an experienced real estate attorney.

Although deed limitations can take many forms, there are two principal variations:

Restrictive covenants, as the name suggests, specifically limit the use of the property. These covenants are often created when a large tract of land is subdivided. All of the deeds for the resulting smaller parcels, for example, might prohibit any use other than residential, prohibit further subdivision, or prohibit deforestation of lots beyond a prescribed amount. Restrictive covenants often attempt to preserve neighborhood qualities that the covenant creators presumed to be desirable.

Easements indirectly limit a property owner by making the property subject to a limited use by another person. The most common kind of easement is a right of way, in which the person benefitting from the easement is given the right to cross a property he does not own. The owner of property subject to an easement may not interfere with this right of way and is therefore limited, to a greater or lesser extent, in the uses of the property.

Zoning Restrictions are found not in deeds but in municipal ordinances. Although these restrictions can often act like restrictive covenants found in a deed, there is a key difference: zoning ordinances will generally affect more than a few properties. Zoning schemes are designed to protect the entire community's health, safety, and welfare, primarily by prohibiting incompatible land uses in close proximity to each other and by restricting other detrimental uses of property. A zoning ordinance will characteristically divide a community into a number of classifications, or zones, and authorize only certain kinds of uses within each zone (for example, a residential zone, a commercial/retail zone, or a light industrial zone). Other zoning provisions may prescribe setback requirements for structures, minimum size requirements, minimum parking requirements, and other details relevant to development.

Regional Plans may also restrict the use of a brownfield site. Like a zoning ordinance, a regional plan regulates land uses in a particular geographical area. A regional plan, however, establishes restrictions across an entire region, usually several towns or communities. Depending on the nature of the regional plan and its relationship to local zoning, a regional plan may set limits that affect individual properties or it may simply establish general use rules to be implemented through local zoning.

Any one, or combination, of these land use restrictions can have serious consequences for the potential reuse of a brownfield site (or any other site, for that matter). The brownfield owner must carefully research these possible limitations as part of the initial efforts to determine the market potential of the site. All but the most sophisticated owners will want a lawyer to perform this review, since the relevant provisions in deeds, ordinances, and regional plans can often be confusing. Moreover, a competent attorney should be aware of court decisions that may have interpreted these or other similar restrictions in ways that may be helpful to the owner. Finally, a lawyer will most likely be essential if the brownfield owner needs to seek an amendment, variance, or other exception to an existing use restriction that prevents productive reuse of the site.

UNCERTAINTY & VALUE

The value of a brownfield property is usually depressed because of concern about the environmental problems on the site and the potential legal liability associated with solving those problems. Prospective buyers of a brownfield site will discount the property's value (from its worth if it were free of any environmental problems) based on their evaluation of four factors: the best estimate of the cost of the environmental work that will be needed; estimates of other potential costs related to environmental contamination, such as personal injury or property damage claims; the possible reduction in resale value of the site if future use is limited by environmental concerns that continue after a cleanup; and an uncertainty premium. Some consulting firms have developed formulae for determining discounts that reflect these factors.

The uncertainty premium reflects the impossibility of predicting the costs of environmental investigation and cleanup with great precision. Environmental cost estimates can be off by as much as several multiples. In a rational real estate transaction, a buyer asked to assume responsibility for the environmental problems as part of the sale might, for example, double the estimate of the projected environmental costs in calculating his offer for the property. This margin for error, or premium, would be an attempt to account for the uncertainty the buyer faces in actually carrying out the work. The buyer will set the amount of the premium to reflect a number of factors specific to the particular transaction, including the amount and quality of information known about the site, the buyer's own tolerance for risk, expectations about regulatory behavior, and other considerations.

The risks and liabilities associated with ownership of contaminated properties cannot be removed entirely, given the scope of obligations imposed under federal and state environmental laws and under state personal injury and property damage laws. Several approaches, including the purchase of insurance products and creation of indemnification agreements, can be used by property owners and prospective buyers, however, to allocate and, in some cases limit, potential liabilities. These mechanisms have become increasingly important in facilitating brownfields transactions.

For example, the parties to a land transaction involving contaminated property are always free in the contract of sale to address financial responsibility for liabilities between themselves, as discussed in Chapter 9. Depending on the deal, for example, the seller could commit to pay for cleanup costs if a cleanup is subsequently required after the buyer acquires the site, or the buyer could assume all financial responsibility (and discount an amount from the property's value as

represented in the sale price), or the parties could come up with some division of these costs. It is essential that the buyer and seller understand, however, that these contractual provisions, sometimes called indemnities, only establish responsibility between themselves. These contract terms do not affect the government's right to sue any party who can be held liable under applicable law. This means, for example, that a buyer may unexpectedly find itself fully liable for cleanup costs if the seller who committed in the contract to pay for all such costs turns out to be financially insolvent when the government brings an action.

Insurance products can also be used to allocate and reduce liability. As discussed in Chapter 3, environmental liability insurance products may be available that cap the policy holder's liability for cleanup cost overruns, insure against unknown cleanup costs or liabilities, or help protect lenders from the risks associated with lending for contaminated properties. Such policies can both provide assurances to lenders and help to facilitate the sale of a brownfield property.

Environmental Liability

Although the system of environmental laws addressing the responsibility for contamination on real property is complex, and involves both federal law and the many different state laws, the general principles can be readily understood.

Under the federal and many state Superfund programs, the current property owner can usually be held liable by the government either to clean up existing contamination on the site or to repay the government for its costs in performing this work. Prior owners who held title when the contamination was caused or continued can often be held liable as well. Non-owners who contributed to the contamination can also be held liable. In most cases, a liable party can be forced to pay for the entire cleanup, rather than just for a share of the contamination under a legal doctrine called joint and several liability. The current owner cannot avoid liability to the government for a cleanup simply by selling the property; in general, the sale simply adds the new purchaser to the list of parties the government can choose to sue if it decides to bring a legal action. There are a small number of potentially significant exceptions to the basic liability rules. The rules and exceptions are discussed in more detail in Appendix B.

The liability rules that could apply to a brownfield site under other environmental laws typically are not as comprehensive as some state superfund programs or the federal Superfund program. Nonetheless, these programs can still impose broad liability. The liability schemes are described in Appendix B.

Finally, the federal government and many states have devised special programs to encourage brownfield reuse, and various provisions of these programs may offer specialized protection from liability for persons who agree to redevelop brownfield sites, as discussed in Chapter 8. An experienced attorney will be able to advise owners about the application of the various liability rules and exemptions.

In addition to liability for cleanup, brownfield property owners may be liable for personal injury and property damage caused by contamination on or migrating from their properties. For example, if community members who live around the property have been injured by exposure to contaminants in their drinking water that came from the brownfield property, they may be able to seek damages by filing a law suit, sometimes called a toxic tort action.

Property owners can also be liable for damages to natural resources that are caused by contamination on or from their properties. For example, federal or state governments may be able to seek damages under the federal Superfund law or state laws for injury to streams, wetlands, wildlife, and other natural resources. The method of calculating damages can vary but may include, in some cases, damages imposed for lost use, in addition to the costs of restoring the natural resources.

A brownfield owner who does not intend to keep his property for his own use faces a number of options for timing the sale or redevelopment. The owner can attempt to sell the property in its present condition, with all uncertainties about environmental issues unresolved and with the potential to expose the purchaser to substantial legal liability for those conditions. At the other extreme, the owner can address all environmental issues before the sale, reducing (or eliminating) uncertainty and exposing the purchaser to little or no liability. The relative advantages and disadvantages of these two options, as well as choices between these extremes, generally reflect the shifting importance and interplay of cleanup costs, potential property value and the uncertainties in the process.

for the property. Unfortunately, by transferring this responsibility to the buyer, the owner gives up control over the performance of these tasks. If the buyer performs them poorly, or not at all, the government might choose to bring an action against the seller (as a prior owner of the land) to carry out the required environmental work. If the government is successful, the seller will have paid for the cleanup twice.

Uncertainty and Reward

Assume that a property owner wishes to sell a former dry cleaning plant, now closed for several years. Comparable nearby properties, without environmental contamination, have consistently sold for $500,000. The owner knows that the property has some soil and groundwater contamination from spilled cleaning solvents and materials. By talking to members of the dry cleaners' association, the owner learns that other cleaning plants have had very similar environmental contamination problems. He is told by the association that an appropriate environmental assessment should cost about $50,000. Although it is impossible to predict the cleanup costs with any confidence until an assessment is performed, the association tells the owner that the average plant cleanup has cost $100,000.

The following suggests how a hypothetical buyer might try to protect himself from uncertainty about site conditions and costs in the absence of an actual assessment and cleanup, and how the financial benefits of dealing with uncertainty can vary depending on the premium a buyer requires and its accuracy in predicting the actual environmental costs. This hypothetical assumes that insurance is not used as a means of allocating risk, although in some cases insurance products may be available, as discussed in chapters 3 and 9.

Theoretical Net Value of Property

Estimated clean property value:	$500,000
Reasonably expected assessment cost:	$ 50,000
Reasonably expected cleanup cost:	$100,000
Theoretical site net value:	**$350,000**

Buyer's Valuation of Property Due to Uncertainty

Estimated clean property value:	$500,000
Assessment deduction, with uncertainty premium (50%):	$ 75,000
Cleanup deduction, with uncertainty premium (100%)	$200,000
Buyer's offer based on uncertainty about true costs:	**$225,000**

Assuming the buyer purchases the site prior to assessment and remediation for its discounted valuation of $225,000, the following two examples depict differing possible financial gains — or losses — the buyer could realize depending on the actual environmental costs he incurs.

Example One: **Buyer's Environmental Costs Are Less Than The Environmental Discount Reflected In The Sale Price**

Estimated clean property value:	$500,000
Actual assessment cost:	$ 65,000
Actual cleanup cost:	$115,000
Actual net value of site after environmental costs:	$320,000
Windfall to buyer from a purchase at $225,000:	$ 95,000

Example Two: **Buyer's Environmental Costs Are Greater Than The Environmental Discount Reflected In The Sale Price**

Estimated clean property value:	$500,000
Actual assessment cost:	$ 65,000
Actual cleanup cost:	$250,000
Actual net value of site after environmental costs:	$185,000
Loss to buyer from a purchase at $225,000:	($ 40,000)

future legal liability, if available, from the relevant regulatory agency (or agencies), as discussed in Chapter 8. The owner then offers the property for sale, and is able to accurately describe it as not subject to any current threat of environmental enforcement for site contamination.

The exact nature of the protection from liability will vary from state to state, and will also depend on the kind of cleanup program

served by most, if not all, necessary utilities and services. As greenfield development becomes increasingly challenged to disclose its true costs, and greenfield developers more and more are asked to pay impact fees and development charges, brownfield sites become all the more attractive. This advantage remains even if in some cases old infrastructure needs expanding or updating.

Redevelopment is not, however, without its risks. The advantages and disadvantages of the development/redevelopment business are generally well-known. Redevelopment is a complicated and unpredictable undertaking. Most brownfield site owners are not redevelopers and may not have the skills or time to

The Role of Insurance in Brownfields Transactions

Insurance can help reduce the risk for many of the key players in a brownfield transaction, thereby facilitating cleanup and redevelopment. For example, insurance can reduce the risk to a property owner who wants to sell a property but is concerned about potential liability for environmental contamination discovered after the sale. Insurance can also help reduce a prospective buyer's risk of potential liability for cleanup or for personal injury and property damage claims. These and other kinds of insurance are increasingly helping to encourage lenders to provide loans for contaminated properties. In addition, as discussed in Chapter 4, insurance can be used to reduce the risk of potential liability of cleanup contractors.

The number of insurance companies that provide environmental liability coverage is increasing, as is the number of policies issued. Property owners should confirm that they do not already have coverage under pre-existing, traditional insurance policies that could reduce their

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carry out a project successfully. Land develop-

Property owners consulting this guidebook may already suspect that their properties have environmental contamination. Although a

MOVING TO A MORE FORMAL ASSESSMENT

Informal efforts can produce much valuable information. With this information in hand, the owner must decide whether to bring in specialists to conduct a more professional investigation.

Some sites — especially those only recently developed — may have no contamination at all. Available information may substantiate the belief that the site is in good condition: for example, no lost inventory of chemical materials, no spills, careful off-site waste disposal practices, and double-lined storage tanks.

More often, however, preliminary research will point to possible problems. It will reveal that materials have been lost or spilled. It will disclose on-site disposal practices or leaking tanks. This information is invaluable to the owner in judging whether to seek an assessment and how extensive an assessment to request.

Assessments come in all sizes and budgets. Each assessment, to a large extent, must be tailored to answer questions about a specific brownfield site based on the information already known about that site. This variety, and the tendency for environmental professionals to use unfamiliar terminology exclusive to their work, can often leave owners and others confused about what kind of activities might be included within an assessment.

This confusion is easily dispelled. An environmental assessment actually consists of several stages, not a single event or act. The goal of this process is to move from knowing general information about a site to knowing specific information about site conditions, through a series of ever more precisely focused inquiries. When contamination has been identified, the last stage of the assessment in many instances is the preparation of a strategy to clean up the site or isolate the environmental risk.

Although there is no official definition of each of the stages of the assessment process, there is general agreement about the purpose of each stage. There is also rough agreement about the terminology that applies to each phase:

(a) Phase I Assessment. The first stage is designed to identify and review all relevant and already existing data that might provide insights about potential contamination. This effort, typically, would involve most of the inquiries that a prudent owner would make in preliminarily evaluating the need for formal assessment of the site, such as a review of business practices and documents, review of agency files, employee interviews, and research into prior uses and activities at the site. Usually, the investigators would also conduct a site inspection to identify areas of obvious environmental stress or releases of contaminants. The purpose of these efforts, often referred to as a Phase I assessment, is to develop information identifying particular areas of the site most likely to have contamination and information suggesting the likely nature of the contamination.

(b) Phase II Assessment. Using the Phase I information, investigators will develop a plan to collect samples of wastes stored at the site and of soil, groundwater, stream beds and sediments, or other areas that may shed light on waste spills and releases. A thorough plan will usually call for collection of a number of samples from each specific suspected contamination location and a number of additional samples from random locations to confirm that no other areas present problems. Investigators will collect the samples and analyze them for a range of possible chemicals expected to be present based on the Phase I information. This stage is often referred to as a Phase II assessment; it is sometimes called a Phase II characterization assessment.

(c) Phase II Delineation/Phase III. Phase II assessments often confirm the existence of

find the contamination boundaries; frequently, the effort to find the farthest reach of the contamination will require several rounds of sample collection and analysis, each somewhat further away from the location of the original sample. Depending upon local custom, all of these efforts associated with defining the extent of contamination may be called Phase II delineation assessment or they may be simply called a Phase III assessment.

(d) Phase III/Remediation Plan. Once all of the analytical results are available and all areas of contamination have been identified, engineers can prepare a plan to address each problem area. The plan may propose various alternative strategies, with varying costs and degrees of effectiveness. Depending on a variety of considerations, the plan may rely on treatment, removal, or placement of one or more barriers around the contamination. Again, local custom will determine terminology. In some places, this plan is called a Phase III, in other places it is called a remediation plan, a response action plan, or similar name.

The EPA and state agencies have regulations and guidance documents that provide suggestions or minimum requirements for each of these stages. Professional and trade associations, such as the American Society of Testing and Materials (ASTM), have also developed recommendations. In particular, the ASTM standard for conducting a Phase I assessment has a wide degree of acceptance. Owners may want to review it before taking their own preliminary look at site contamination. ASTM has a number of other helpful guides, including an overall process standard that makes recommendations for managing a brownfield assessment and cleanup and for interacting with local community interests. Appendix E of this guidebook lists additional sources of guidance. Owners will often be best served by employing ideas or elements from a number of sources.

OBTAINING FUNDING

Before committing to an assessment and beginning the search for a competent consultant, a brownfield owner should begin to investigate potential sources of public funding. Brownfield redevelopment is an important public policy objective, and numerous incentive programs at all levels of government encourage site reuse. Chapter 6 of this guidebook includes a general discussion of government financial support for cleanups. Among the programs providing support for assessments and investigations described in Chapter 6 are EPA's Targeted Brownfields Assessment Program and a number of state and local economic development programs.

The eligibility requirements for these programs vary and the application of these eligibility requirements can often have a direct impact on the redevelopment strategy and the timing of the transfer of ownership. For instance, it may become desirable to sell the property to a new, and innocent, purchaser prior to assessment or cleanup if the new owner is eligible for one or more assistance programs. A brownfield owner placed in this, or similar positions, may want to include provisions in the sale agreement that adjust the price if the buyer is subsequently able to obtain funding for environmental work on the site.

ALLOCATING THE

sell the property without an environmental assessment being conducted at some point prior to sale.

Sellers and buyers frequently include discussions about the timing and responsibility for the assessment as part of their negotiations. The parties may agree that the seller should do the assessment, that it be done jointly, or that it be done by the buyer. They may also include provisions in the contract which limit disclosure of the assessment. For example, some sellers may allow a period of time for a prospective buyer to come on the site, perform an assessment, and then decide whether to go through with the sale. Some sellers, however, may also require a provision in the agreement that the buyer not disclose the results of the assessment to the seller. Through such a provision, sellers may hope to avoid gaining

engineer's cost estimate for remediation if the assessment discovers contamination in excess of regulatory standards. Although this number will only be an estimate, it will provide some approximation of cleanup costs, often the most significant factor in a brownfield project. Without this task in the scope of work, the owner might have to go through another selection process to retain a firm to generate this information, or have to accept a potentially costly change order to authorize the original firm to expand its scope.

- *Request references and qualifications:* Require proposers to describe not only their firm's experience with similar projects but also to name specific, experienced individuals who will work on your project. This section of each proposal should also list any required professional licenses or certificates possessed by the consulting firm.
- *Request a project description:* Ask the proposers to restate their understanding of the project and to describe their approach to meeting the objectives. Requiring some narrative component to each proposal will give you not only an insight into the firm's comprehension and creativity but also some sense of their ability to express their thoughts in a clear manner.
- *Require a proposed schedule:* Ask for a clear timetable for the project. If meeting deadlines is critical, emphasize this in your request.
- *Determine the contract type:* Specify the type of contract you want to negotiate: usually, either a time-and-materials contract or a fixed-price contract. Also, require a unit cost schedule so that you can gauge what unexpected additional tasks might cost.
- *Request a standard contract:* Ask for a copy of each firm's standard contract so that you can quickly evaluate whether any conditions are unacceptable, before you spend time analyzing the proposal.
- *Require insurance coverage:* Ask each firm submitting a bid to provide a description and proof of insurance coverage for environmental impairments. The insurance must protect against actions by consultants that worsen existing site conditions.

(3) Maximize your information. Although you do not want to prolong the selection process, there is no reason to make the process excessively formal either. If you do not understand something in a proposal, ask for clarification. If you have not worked with an environmental consultant before, try to arrange for a meeting to evaluate interpersonal skills. You may invite all bidders to the site for an orientation visit before they submit their bids, or you may simply ask for an opportunity to interview the consultants.

(4) Select wisely. Even the best scope of work cannot foresee every eventuality. As a result, cost projections are inherently unreliable. While this does not mean that cost differences between bidders are irrelevant, using the low cost bid as the sole decision tool can be a misguided strategy. Where competing proposals are relatively close in cost, select the one that is stronger on other, more substantive considerations.

(5) Use contract negotiation constructively. Having selected a firm to perform the assessment, use the contract negotiation phase to establish a constructive relationship. Object to standard contract terms or conditions if they seem unreasonable; few consultants will risk losing a contract at this stage by refusing even to adjust boilerplate language. For example, it is not unusual for consultants' contracts to contain standard language limiting liability for errors to the amount of the contract. Property owners may be able to negotiate removal, or at least revision, of such terms. Reach agree-

involve the government in their assessment and other brownfield activities. Voluntarily seeking agency participation in the process can bring a number of advantages. Agency personnel may add information about site conditions to those already known by the owner. Agency technical experts may be able to offer suggestions that will make the assessment more comprehensive, more representative, or more efficient. Once an agency has endorsed a particular scope of work, it is much less likely to reject the resulting assessment report as being intrinsically flawed or insufficiently thorough.

Nonetheless, there are clear potential pitfalls in this approach as well. Agency staff with limited resources may take a long time to review proposed work, introducing more delay into the process. Some reviewers may seek to enlarge the scope of work, unnecessarily, based on a belief that more data is always better. Bringing the project to the agency's attention early in the assessment may lead to heightened interest by the agency throughout the entire process, including interest undesired by the owner at certain stages.

There is no single level of interaction which is right for every project. A workable general guide is that projects that present unusual or difficult assessment or cleanup decisions warrant more interaction, and projects that present relatively straightforward decisions about, for example, number and locations of samples will not benefit as much from interaction with the government. Owners should always, however, seek guidance from the environmental consultant they select as well as from their legal advisors.

TAKING THE NEXT STEP

In the best of worlds, the site assessment results confirm that there is no environmental contamination worthy of regulatory concern. In those situations, the property owner can avoid the brownfield label and market the site as free from environmental liability. Some states may even offer a certification that the site requires no cleanup, which can serve as an additional incentive to buyers.

Many sites, of course, will prove to have environmental contamination in some areas that exceeds applicable maximum regulatory levels. These sites require some action, both to bring them into compliance with legal requirements and also to make them attractive to potential tenants or buyers.

It is difficult to generalize about the cleanup responses that the brownfield owner may be able to choose from at this point. Contamination levels can vary quite widely from site to site, and cleanup options can vary even more widely. Some sites will require a cleanup consisting of nothing more than the excavation and removal of a few wheelbarrows of soil. Other brownfields will require the removal of massive amounts of wastes, of many truckloads of soil, or operation of groundwater treatment wells for many years.

Selecting a cleanup option from this array of choices requires careful consideration of numerous factors. The owner must weigh cleanup options in light of the degree of contamination and the potential future use of the site. The owner should involve real estate advisors, the environmental consultant who performed the assessment, and legal counsel knowledgeable about the relevant environmental requirements. The expertise of all these

potential opposing voices. Active community support can be extremely helpful in obtaining assistance from public funding programs to encourage brownfield reuse; these programs are often very responsive to local endorsement. Community support can also be helpful in obtaining favorable consideration from local government when zoning variances or exemptions are required. In some states, approval of the cleanup may be made easier if the relevant agency is convinced there was an effective public involvement process. Finally, a prospective buyer undecided about a brownfield site may very well be influenced by a visible show of support for both the project and the buyer's entry into the community.

Tips for Involving the Community

There are many ways for a brownfield owner or redeveloper to try to involve the community and keep it informed about the status of plans and activities. Some effective methods include:

- Attending civic association or neighborhood group meetings and giving periodic progress reports;
- Meeting on a regular basis with members of the local CDC staff and providing them with progress reports;
- Holding meetings with interested community members at times and locations convenient for them;
- Meeting on a regular basis with members of the local government (particularly the planning commission or development offices, if they exist) to offer progress reports;
- Developing a mailing list of involved and interested residents and sending them a regular written report describing progress (if appropriate, this distribution can be done by e-mail);
- Providing updates to local newspapers and newsletters that can result in a series of articles reaching a wide readership;
- Ensuring that residents and other interested parties have many opportunities during the progress of the project to offer comments and suggestions, rather than simply receive information about subjects they perceive they cannot influence.

Financing a brownfield property development is often a challenge. The contamination of the property hurts the prospects of financing in several ways. First, it reduces the market value of the property, meaning the property is worth less to potential lenders as collateral. Second, cleanup cost projections can dramatically underestimate the real costs, resulting in the borrower having much less capital left to initiate its business activities. Finally, despite some helpful changes in the law, lending to a brownfield project can threaten the lender, in some unusual circumstances, with liability for the underlying environmental problems.

Despite these challenges, some lenders are becoming more comfortable and familiar with financing contaminated properties. Property owners should consider seeking out lenders that have experience with contaminated properties or at least keep in mind the disparity among banks in experience and comfort in dealing with brownfield properties.

TRADITIONAL LOANS

This guidebook assumes that owners and developers have experience in obtaining loans and financing from banks and other traditional sources and does not attempt to explain that process. The contamination at a site may, however, complicate the process of obtaining such financing.

The timing of the application for financial assistance assumes a much greater significance in brownfield projects. Many traditional private lending institutions will not lend money at ,eta pictudemwhis ationsexpT*ahanadnyfinanc-resney atFerth gmmin,,jT*ftsT*assisfie ittassumeotion-s.opers4 TD

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the applicant to obtain insurance coverage that will protect against unexpected costs arising out of an as-yet-uncompleted cleanup. Insurance products that are available directly to lenders and to property owners are discussed in Chapter 3.

Applications for bank loans after the assessment and cleanup are completed are more likely to be viewed favorably when the regulatory agency has agreed that no further action is necessary. As described in Chapter 8, after the cleanup is completed the owner can sometimes receive approval and limited liability release documentation from the state. These may take the form of a covenant not to sue, a certificate of completion or a no-further-action letter. The bank may also want the results of the assessments and the final reports of the cleanup contractor that show how the risk has been reduced.

The federal government has enacted a law intended to reassure banks that they will not face liability for existing environmental contamination on sites they use as collateral for brownfield loans. In general, the law makes clear that a lender should not be held liable as long as it acts in the normal role of a lender, including foreclosing and taking ownership of the property if that becomes necessary to protect the loan. The mere act of lending should not create a basis for liability. Despite this protection, some banks may still be reluctant to lend at brownfield sites, either because they are not yet familiar and comfortable with the new rules or because they remain worried about cost overruns in the cleanup which can impair the borrower's ability to repay.

Changes in the law to offer protection to banks who lend to brownfield projects is only one example of the financing incentives which have been created to encourage this kind of redevelopment. Another is the federal Community Reinvestment Act, which provides incentives to commercial banks to lend money for the redevelopment of industrial property. This program is intended to help banks overcome their reluctance to make money available to brownfield projects by allowing such loans to count as credits towards each bank's obligation to reinvest in economically distressed and other needy areas.

BROWNFIELD-SPECIFIC FINANCING

Several government agencies have programs that provide financial support for brownfield cleanup and redevelopment. In some cases, private property owners may not be eligible to receive direct support from these programs, but may be able to work with the direct recipients, such as local governments, to obtain financial support. In addition, the eligibility requirements for these programs and incentives can vary as widely as their actual financial benefits. Many programs, for example, make assistance available only to "innocent parties." This limitation will generally exclude property owners who directly contributed to the contamination. It will also exclude any other persons who were directly involved in introducing contamination to the brownfield. A current property owner who did not actually contribute to contamination, however, may be

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brownfield cleanups. Typically, the fund will charge low interest rates and use the loan repayments to provide new loans to clean up other properties. The money from this program must be used to clean up sites and may not be used for redevelopment, such as construction of a new facility or marketing a property.

Department of Housing and Urban Development (HUD): HUD has several programs for which brownfield properties may be eligible. Although HUD has programs that are specifically designed for brownfields, brownfield redevelopment projects also qualify for some of its long-standing, traditional programs. Because HUD focuses on urban housing, most of its brownfield assistance is related to housing in some way, making it less likely to be useful for purely commercial or industrial redevelopments. But some HUD offices have been creative and flexible in applying the rules, so it may be worthwhile to investigate HUD financing even when the project does not directly involve housing.

HUD grants, in most cases, are awarded initially to a branch or agency of local or state government. This will require the owner or developer to work through the appropriate office to learn about and participate in the program. Community Development Block Grants (CDBGs), for example, are a HUD program that provides relatively large grants to local governments, which then may use the money for a wide variety of purposes including brownfield-related activities. For example, if environmental conditions at a site could affect users of the project, then HUD funding may be used to pay for environmental assessments of the site. Developers may also be able to get low-interest loans from CDBG funds to pay for cleanup costs.

A local government may be able to use another HUD program, so-called "Section 108" loan guarantees, to help finance a brownfield redevelopment. Under this program a local government may issue bonds, which are guaranteed by HUD and sold by private banks, to cover the cost of a redevelopment. The money generated by the bond sale may be available to owners and developers who plan redevelopment that addresses housing issues or urban blight. This program may rely on, or require more control by, the local government than many developers would prefer. Furthermore, the Brownfields Economic Development Initiative (BEDI), enacted in 1998, specifically provides communities with grants to clean up and redevelop brownfields, in conjunction with Section 108 loan guarantee funds. Grants are awarded on a competitive basis and may be used for any eligible activity under the Section 108 program such as property acquisition, environmental cleanup, and economic development. HUD awarded $25 million in BEDI grants to 23 communities in 1998; the same amount was appropriated for 1999.

Brownfields located within a HUD-designated Enterprise Community (EC) or Empowerment Zone (EZ) may also be eligible for additional HUD assistance. Since only slightly more than 100 of these ECs or EZs have been established, and property owners have no control over whether they are included within such an area, they should simply know to ask about their eligibility.

Department of Commerce — Economic Development Administration (EDAnanc-

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turn use the advances to provide long-term financing for housing and economic programs that benefit families with low incomes. In particular, CICA targets economic development projects located in EZs or ECs that may include brownfield cleanup and reuse as part of their revitalization strategies.

State and Local Agencies: State economic development agencies may also be a source of financing or other assistance, possibly with fewer restrictions than the EPA programs. Many state economic development agencies have incentive programs that focus funding on assessment, cleanup, basic construction, and infrastructure development for brownfield sites. In some instances, these programs are designed exclusively for brownfield applicants; in other instances, more broadly defined redevelopment funding programs give special preference or priority to brownfield site applicants. Larger cities are also beginning to have their own brownfield programs. Local CDCs and city redevelopment authorities may be able to provide or identify other sources of funding for brownfield projects, often for both environmental and construction costs.

In addition, some local governments have used Tax Increment Financing, or TIFs, to dedicate taxes to secure financing for development activities, which might include brownfields redevelopment tasks, such as site assessments. The rules for TIFs vary by jurisdiction, but generally they allow local governments to issue bonds to finance development costs in a specific area, such as site improvements or infrastructure. The local government pays off the bonds from the increased property taxes that result from the development. TIFs were originally conceived as a method for redeveloping blighted areas or property that was being ignored by developers, so they are well-suited to helping redevelop larger brownfields areas. Local governments vary greatly in how they use TIF funds, so property owners will need to work with the local government to determine if and how they can benefit from a TIF.

Tax Incentives: In addition to direct financial assistance, federal and state tax incentives are available to property owners and developers to help reduce the costs of brownfield projects. The federal tax incentives include the Taxpayers Relief Act, which allows eligible taxpayers to deduct qualified cleanup expenses at eligible brownfields in the year they are incurred, and rehabilitation income tax credits for 10% of the expenses of rehabilitating structures built before 1936. Many state and local governments also provide tax breaks for brownfield projects. Two states — Michigan and Pennsylvania — have created special zones, usually in severely distressed communities, where virtually all taxes are abated for an extended period of time. Owners of brownfields in those states should learn whether their sites are located in such zones.

VENTURE CAPITAL

Finally, there is a small but growing number of venture capitalists who see brownfield sites as a form of distressed asset: something whose value has been severely discounted by the traditional market due to irrational fears and which therefore offers the potential for larger than normal return. Although the suitability of this funding source will be limited, it may be quite appropriate in larger brownfield projects, where the amount of funding needed is large but the ultimate return on investment may also be great. Brownfield owners should expect, however, that venture capitalists will want to gain an equity share in the project and may also want to exercise some control to protect their investment.

Issues Concerning Cleanup

Chapter 7

Once an assessment is completed, property owners can focus on the type of cleanup they want to perform and the regulatory program, if any, that may apply to the cleanup. This chapter provides general information about state voluntary and brownfield programs, including eligibility requirements, incentives for participation, and cleanup standards. The chapter also discusses considerations for property owners who may want to clean up their properties independent of government oversight. In addition, this chapter reviews property owners' general cleanup and reuse options and outlines cleanup procedures and tips for working with consultants.

This guidebook focuses on cleanups under state voluntary and brownfield programs. Other state and federal programs, however, could apply to the cleanup of a brownfield site, including the federal Superfund program, the Resource Conservation and Recovery Act (RCRA) Corrective Action and Underground Storage Tank Cleanup Programs, and state superfund regulatory and enforcement programs. These regulatory programs could apply if a site is not cleaned up voluntarily and the state or federal government decides that an enforcement action is necessary to clean up the property. In addition, in some cases, a voluntary or brownfield program could determine that a specific brownfield property more appropriately belongs under one of these regulatory programs, because of the type and extent of contamination. It is also possible that parts of a brownfield property could be cleaned up under a state voluntary or brownfield program while parts of the property are cleaned up under a separate regulatory program.

Accordingly, it is important to determine prior to applying to a voluntary or brownfield program whether a property should be cleaned up under another program. This can be determined by consulting with legal counsel and technical consultants, as well as by gathering information about the various programs from the state environmental agencies and other resources. Appendix B describes some of these programs more fully and could be used as a starting point for understanding the scope of the various programs.

Some of these programs, most notably the RCRA Underground Storage Tank Cleanup Program and special state programs for cleanup of dry cleaning facilities, rely heavily on voluntary compliance and may offer financial assistance for cleanup. For example, funds may be available to reimburse property owners for cleanup costs in excess of a certain amount. Appendix B also discusses these programs.

In addition, some property owners may elect to clean up their properties independently, without regulatory oversight. As with conducting an assessment without government interaction, this approach may have several disadvantages, as discussed later in this chapter. Indeed, this approach may not be an option at all for the cleanup of some properties. Property owners with sites that are eligible for independent cleanups may still want to determine the state voluntary or brownfield program cleanup standards that could apply to their cleanup, as a frame of reference in cleaning up their properties independently.

BACKGROUND ON STATE VOLUNTARY CLEANUP PROGRAMS

Voluntary cleanup programs are state-sponsored programs that encourage private parties to clean up contaminated properties without enforcement by the state. They typi-

use of the site, and other factors. The concentrations derived from these site specific factors are an alternative way to establish maximum allowable concentrations of contaminants that meet the risk levels set by the state. It is important to note that many states allow parties to choose either of these (or perhaps another) method, or even to use a combination of methods.

In recent years, most states have decided to consider the future use of a site in setting cleanup standards. If a site will be used for an industrial or commercial facility — where children will not be exposed to contaminated soils, or groundwater will not be used for drinking — the cleanup standard may be set at levels that allow contaminated groundwater or soils to be left in place. This is considered to be acceptable because the planned land use of the site will reduce the risks that people will be exposed to the contaminants. In such cases, so-called institutional controls may be used to assure that the use remains the same in the future and to protect public health and the environment if a future owner proposes to change the use of the site.

Institutional controls are legal and administrative mechanisms that provide an additional method of reducing the likelihood of exposure by changing people's behavior so they avoid being exposed. Institutional controls include:

- warning signs;
- legal notices;
- land use controls and zoning;
- restrictions on how property may be used, often included in the deed to the property,
- restrictions on the use of groundwater for drinking;
- warnings to people not to eat fish caught in particular lakes and streams; and
- education programs warning of particular risks.

Each of these works in a different way to convince people to avoid exposing themselves to the contamination. Many have successful track records in preventing harm, but none can totally eliminate the possibility of exposure.

Almost all states use the same cleanup standards for brownfield sites as for voluntary cleanup sites. A few states may offer different standards or cleanup approaches as additional incentives for brownfield cleanups.

CLEANUP REMEDIES

In some cases, the cleanup remedy selected for a brownfield property will remove the contamination that is presenting a risk to human health and the environment. In many cases, however, the cleanup may leave some contamination on the site. In these cases, the remedy selected for the site may attempt to prevent exposure to residual contamination that exceeds allowable risk levels. One method of preventing exposure is to contain the contamination. This is usually done through some form of engineered control such as placing a cap over contaminated soils that isolates the hazardous materials and prevents exposure. The most common containment methods are caps constructed out of asphalt, concrete, clay, or clean soils and de facto caps where contamination under a structure is left in place relying on the structure to function as a cap. There is always a possibility that the containment system will fail at some point, either due to wear or to deliberate action, and re-expose the contamination. Engineering controls are, therefore, usually linked with institutional controls.

CLEANUP AND REUSE DECISIONS

Property owners in many states can now consider the intended uses of their brownfield sites in determining appropriate cleanup. In the real world, of course, there is an almost infinite range of potential uses, ranging from residential use at one end of the spectrum to very heavy industrial use at the other. In practice, however, cleanup programs with use-based flexibility will usually offer only two cleanup choices: a cleanup which allows for essentially unrestricted use — commonly called the *residential standard;* and a cleanup which allows for any use other than residential

(or similar uses such as hospitals, senior care facilities, day care, and the like) — usually called the *nonresidential standard*. Thus, commercial activities, retail activities, and various manufacturing activities would all be permissible at sites cleaned up to satisfy the same nonresidential standard.

Assuming that the assessment shows soil, groundwater, or other contamination on your site, you must decide how thorough a cleanup you wish to implement. Generally, although not always, more thorough cleanups will be more expensive initially and take more time to implement than cleanup plans with more limited goals. More thorough cleanups will also generally allow the property to be used for a wider variety of purposes.

While it is, as always, difficult to generalize about the numerous cleanup options that a brownfield owner might choose from, most situations will fall into one of four basic categories:

(1) Remove or treat to allow residential use. The owner can choose to treat or remove contamination on the site until the levels meet the applicable standards which would allow the property to be used for residential purposes. This will be the most protective standard set by the government, and the cleanup will usually require the highest immediate costs and take the longest to implement. In return, the owner will now be able to offer the property for use without limitations based on any environmental contamination or health threat posed by conditions on the site. The property will be able to be safely used in the future for purposes that present the greatest risk from exposure to contamination — residential use — as well as in any other way the owner desires. Anyone interested in buying the site and using it in the short term for uses other than residential — retail or light industrial, for example — may now be more interested in acquirne internation or health

a barrier or other control. Direct discussion with an interested buyer also allows the current brownfield owner to learn the valuation the buyer places on the different use limitations associated with different cleanup strategies.

Even where a specific end-use is not known, the brownfield owner will want to consider likely end-uses before settling on a cleanup strategy. This will sometimes be an obvious decision, as when designing the cleanup of a property currently zoned residential, or dealing with a former industrial site in a manufacturing district zoned for only such uses. Other times, however, the choices will be less clear. When the optimal redevelopment outcome is not clear, and the remediation strategy is not exclusively guided by cost considerations, the brownfield owner will need to continue to work with knowledgeable local

Questions Frequently Asked About Cleanup

How Clean is Clean — Must a Brownfield Site Be Cleaned Up to Pristine Conditions?

The extent of cleanup will vary considerably depending on the type, amount, and area of contamination, and the cleanup standards used by the specific regulatory program that governs the cleanup. In addition, a key factor in determining the level of cleanup is whether the use of the property is taken into account in setting cleanup standards. For example, if a property is slated for industrial use,

sources to identify the cleanup strategy most likely to be cost-effective.

It is important to remember, however, that even if a brownfield program allows the development of cleanup standards based on site-specific information, this does not ensure that the use of this option will be appropriate, or authorized, in every situation. Most programs that allow cleanups based on site use require that the cleanup be compatible with current and reasonably foreseeable future site use. This means, in short, that the owner of a site in the midst of a residential section may not be able to clean up to nonresidential standards simply by announcing that the property will now be offered for sale for business uses.

CLEANUP PROCEDURES

Cleanup procedures will vary from state
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has been submitted, the state may approve or require modifications to the plan.

(4) Public Notice and Comment: Many states have public participation requirements for their voluntary cleanup and brownfield programs. Although approaches vary, most states require notice to the public of the cleanup and may designate the appropriate method for providing the notice such as a mailing or an announcement in a newspaper or public library. In addition, many states give the public opportunity to comment on proposed voluntary cleanups. Some states may also require a public hearing or meeting about the cleanup so the public can ask questions and make comments. If public comments raise concerns about the proposed cleanup, the state will typically work with the property owner and interested public to resolve the concerns. This may require amendments to the work plan. Of course, the level and extent of public interest will vary considerably depending on the property. As discussed in Chapter 5, brownfield property owners should consider gauging the likely level of community interest in their property early in the cleanup and redevelopment process in an effort to address concerns, if any, prior to any notice and comment period or public meeting.

(5) Site Cleanup: After the work plan has been approved and public comments, if any, addressed, the owner can begin the cleanup of the property. Again, most property owners will opt to work with a consulting firm to implement the cleanup since few property owners will have the technical expertise and skills to perform the cleanup.

(6) State Review and Approval: After completion of the cleanup, the state reviews the cleanup documentation, such as sampling data, submitted by the property owner. If the state has concerns or questions, it typically will notify the property owner and work to resolve the problems. After the cleanup has been completed satisfactorily, the state may issue a certificate of completion or no-further-action letter. (See Chapter 8 for a discussion of the liability relief states may provide).

(7) Voluntary Withdrawal: Property owners

especially difficult soil or geology problems, or if the particular contaminants present unusual questions. Assessment-only firms may be smaller, as well, and this can sometimes result in lower overhead and a correspondingly lower cost structure.

A good strategy for an owner beginning the process of searching for a consultant is to request proposals from at least some firms that only will be able to carry out the assessment phase as well as some full-service firms. This will offer a broad basis for comparison.

Obtaining Liability Protection

LIABILITY RELIEF UNDER STATE BROWNFIELD OR VOLUNTARY CLEANUP PROGRAMS

Liability relief can be a major incentive to participate in voluntary and brownfield cleanup and redevelopment programs. Most states give the same protection from liability for voluntary and brownfield cleanups, whether they are part of the same or separate programs. Each state has its own method for giving volunteers protection from future liability, so a volunteer must contact the state agency or a lawyer with experience with the particular state's program. The following are some of the commonly used methods:

Covenant not to sue: A covenant not to sue is an enforceable agreement by the state agency not to sue the volunteer for further cleanup. Usually the covenant protects the volunteer from state claims related to contamination addressed by the cleanup. Several states, including Georgia, Maine, Pennsylvania, Rhode Island, and South Carolina, also protect volunteers from suits by other people who paid for cleanup at the site and are seeking contribution for the costs they incurred. A few states provide a covenant that "runs with the land" and, therefore, applies to future owners of the property.

No-further-action letter: In a no-further-action letter the state assures the volunteer that, based on currently known facts, the state will not require the volunteer to do further cleanup. Many states specifically provide in their no-further-action letters that the volunteer is relieved from liability for further cleanup. Some states, however, do not provide liability relief in their no-further-action letters, although they may do so in a separate document, such as a settlement agreement that includes a covenant not to sue.

Certificates of completion or cleanup approval letters: Some states use certificates of completion and cleanup approval letters that relieve the volunteer of liability for future cleanup. But, like some states' no-further-action letters, the certificates and approval letters from some states do not include a liability release. These states simply certify that the volunteer has completed the cleanup and that, based on existing information, the state plans to take no further action at the site. These certificates or approvals are intended to assure lenders and prospective purchasers that additional cleanup will not be required. Minnesota has several levels of certificates of completion, increasing the degree of protection from liability depending on the level of state review requested by the volunteer.

Some states will only provide liability protection to parties that are not responsible for the contamination. For example, Delaware, Maryland, New Mexico, Rhode Island, and Utah will not protect responsible parties from liability.

Most states that provide liability releases reserve the right to require further cleanup of a site under specific conditions, such as:

- if additional contamination is found that was unknown at the time of the cleanup;
- if a containment system fails and people or the environment may be exposed to contamination that was left in place;

- if needed institutional controls fail or are not implemented;
- if approval of the cleanup was obtained through fraud;
- if the land use changes to a use that might be incompatible with the level of remaining contamination or the containment system; or
- in some states, if new technology becomes available.

These are called *reopeners* because they are circumstances when the government will reopen the file on the site to determine if further cleanup is needed. Of course, if new contamination occurs after the cleanup is finished, the state may require further cleanup.

LIABILITY RELIEF UNDER FEDERAL PROGRAMS

Even if a state environmental agency reviews and approves the cleanup plan and certifies that cleanup was completed, the possibility of federal liability for further cleanup will remain. Some states and EPA have reached agreements that EPA will not require further cleanup at sites cleaned up under state supervision, unless there is an imminent and substantial danger to public health or the environment. These states include: Colorado, Delaware, Illinois, Indiana, Maryland, Michigan, Minnesota, Montana, Oklahoma, Rhode Island, Texas, and Wisconsin. EPA is working with additional states and additional agreements are expected in the future. EPA rarely requires further cleanup after a state has approved a cleanup, but the possibility that it might can cause worries for some owners, prospective buyers, and developers.

The federal government is unwilling to give across-the-board liability relief to every person who cleans a site up under a state voluntary, brownfield, or regulatory program. When EPA does not have an agreement with a state, it has been willing to provide comfort or status letters that give some assurance that EPA will not require further cleanup of a site that is remediated under a state program. EPA also tries to reduce these concerns through Prospective Purchaser Agreements, in which it spells out the limited situations where a prospective buyer would be liable. But these agreements have so far been available only to buyers of sites cleaned up under the federal Superfund program, not to buyers of sites cleaned up under state programs.

Some owners may want to sell their properties, rather than redevelop them or reuse them for their own businesses. As discussed in Chapter 3, these owners have several basic options:

- sell the property "as is";
- sell the property after an assessment has been performed; or
- sell the property after assessment and cleanup.

As Chapter 3 explains, there are also variations on these basic options. The sale of any property involves negotiation over and resolution of numerous issues. This chapter does not address all of these issues but instead focuses on the issues that are particularly challenging in brownfield transactions — ways that owners and prospective buyers can allocate responsibilities for future costs related to present contamination.

Brownfield property transactions can be complicated and involve technical and legal issues that a lay person may not be qualified

actions. However, if the government forces the indemnified party to perform or pay for a cleanup of the property, the indemnification may, for example, allow that party to turn to the indemnifier for reimbursements.

In addition to stand-alone indemnifications, indemnifications can also be linked to representations and warranties. Specifically, the agreement can provide that the property

transaction after the cleanup is completed by the property owner. Legal counsel can recommend specific approaches to setting up an escrow account or similar mechanism.

COVENANTS

Either a property owner or prospective buyer may covenant or agree to perform certain activities or refrain from performing certain activities as part of the sales agreement. Unlike a pre-closing condition, a covenant can be performed after the sale of the property. For example, if the property owner does not plan to clean up the site fully prior to the sale, the owner could agree to remove drums from former operations on the site, in an effort to reduce the costs of the cleanup to the prospective buyer. The prospective buyer could agree or covenant to perform the full cleanup under a voluntary or brownfield cleanup program after the sale of the property, in an effort to help assure the property owner that cleanup will be performed well and will not result in liability for the property owner at a later date. Covenants can cover a wide range of environmental issues and problems. Like other mechanisms used to address risks and liabilities associated with contamination on brownfield sites, covenants must be negotiated on a case-by-case basis and drafted carefully to ensure that they are enforceable and achieve the goals of the parties.

INSURANCE

Another way that property owners and prospective buyers can allocate risks is through the use of insurance products. (Insurance products are discussed in Chapter 3.) For purposes of selling a brownfield property, a property owner and prospective purchaser could explore the possibility of using insurance to reduce or address unexpected cleanup costs. For example, insurance products may be available that would cap the cost of a proposed cleanup or that would insure against unknown cleanup costs or liabilities.

PROPERTY TRANSFER LAWS

In addition to the disclosures and cleanup obligations that the property owner and prospective buyer may negotiate as part of a sales agreement, some state laws impose duties on owners of contaminated property when they transfer their properties. Some states (approximately 20) require owners of contaminated properties to disclose the presence of hazardous substances to purchasers. Some states (approximately 20) require property owners to record notices on the deeds of specific kinds of contaminated properties.

Engineering Controls: Physical mechanisms for preventing exposure to contamination. Examples include: fences, pavement, and clay caps placed on contaminated soil.

Environmental Assessment: A site evaluation or investigation conducted for purposes of determining the extent, if any, of contamination on a property. An assessment can be informal or formal, and can consist of several stages. For example, a Phase I assessment, or basic study of possible contamination at a site, is limited to collecting information about past and present site use and inspecting present conditions. A Phase II assessment can follow up a Phase I assessment with sampling and analysis of suspected contaminated areas of a site. A Phase III assessment can either follow up a Phase II assessment by gathering information on the exact extent of the contamination or by preparing plans and alternatives for site cleanup.

Greenfield: A property that has not been previously developed.

Indemnification: An agreement that provides for one party to bear the costs, either directly or by reimbursement, for damages or losses incurred by a second party.

Infrastructure: The roads, utility lines, and other public amenities that support property use.

Institutional Controls: Legal and administrative mechanisms designed to prevent exposure to contamination. Examples include: deed restrictions, easements, and zoning restrictions.

Liability Relief or Liability Release: Protection from liability for contamination provided by a state government as an incentive for brownfield cleanups. Releases vary in scope and form, and can include covenants not to sue and some types of no-further-action letters and certificates of completion.

Natural Resource Damages: Monetary payment for injuries caused to natural resources such as streams, wildlife, and wetlands by contamination from a site. The government can in some cases compel the party responsible for the injuries to pay damages.

No-Further-Action Letter: A written statement by a state government that it has no present intention to take legal action or require additional cleanup by a party that satisfactorily cleans up a property under a state brownfield or voluntary cleanup program.

Nonresidential Use Standard: A cleanup standard, usually expressed as a numerical ratio of parts of a specific contaminant to parts of the medium of concern (e.g., 5 parts of lead per million parts of soil) that describes the maximum concentration of the contaminant in the medium that will not present an unacceptable risk to the health of humans engaging in any activity other than residential or those other activities considered to be substantially similar to residential. The nonresidential use standard is usually a less strict cleanup standard than the residential use standard, and a site that meets the nonresidential standard is limited in its uses to nonresidential activities.

National Priorities List (NPL): The Environmental Protection Agency's list of the most serious uncontrolled or abandoned hazardous waste sites.

Prospective Purchaser Agreement: An agreement between EPA and the prospective buyer of a Superfund site that protects the prospective buyer from certain liabilities for contamination that is already on the site, usually in exchange for a payment of money and other commitments by the prospective purchaser.

The Resource Conservation and Recovery Act (RCRA): A federal statute that regulates the generation, transportation, storage, treatment and disposal of hazardous waste. RCRA programs include the Corrective Action and Underground Storage Tank Programs.

Residential Use Standard: A cleanup standard, usually expressed as a numerical ratio of parts of a specific contaminant to parts of the medium of concern (e.g., 5 parts of lead per million parts of soil) that describes the maximum concentration of the contaminant in the medium that will not present an unacceptable risk to the health of humans residing on the site, or engaging in activities on the site that are considered to be substantially similar to residing on the site. The residential use standard is usually the strictest cleanup standard, and a site that meets this standard can usually be used for any purpose.

Reopener Provisions: Express exceptions to liability releases or agreements that reserve the government's right to require further cleanup under certain conditions. These conditions typically include fraud by parties responsible for the cleanup, discovery of previously unknown contamination, and discovery that contamination remaining on the site is significantly more toxic than originally believed.

Restrictive Covenant: A provision in a deed that limits the use of the property. For example, a restrictive covenant could prohibit commercial uses.

Representations and Warranties: Statements of fact (representations) and promises (warranties) that a seller makes to a buyer in a real estate transaction.

Risk Assessment: A study or evaluation that identifies and in many cases quantifies the potential harm posed to health and the environment by contamination on a property.

Running With the Land: An obligation or right that attaches to a property and passes to the new owner if the land is sold.

Tax Increment Financing (TIF): A mechanism that allows local governments to use future projected taxes to finance current infrastructure investments.

Toxic Tort Action: A legal proceeding brought to seek damages for personal injury or property damage incurred as a result of exposure to a hazardous substance.

Uncertainty Premium: The amount that the buyer of a brownfield property subtracts or discounts from the purchase price to reflect the risk of unexpected environmental assessment and cleanup costs.

Variance: An individual exception to a land-use restriction or other legal standard granted because of special circumstances.

Does Your Brownfield Present a Business Opportunity? Appendix A

Brownfield owners face both opportunities and risks. An environmental assessment of your site could show it is basically clean or could turn up costly hidden problems. Cleanup could create a valuable property, or it could leave a clean but still unused site in a depressed neighborhood. The owner must study the potential benefits and risks to decide whether redevelopment could work. While there is no set formula for determining whether it makes business sense to clean up and redevelop a brownfield property, the following questions are ones owners typically consider. The issues raised by these questions are discussed throughout the guidebook.

First consider the costs and benefits of leaving the property in its current condition:

- **What is the value of the property as it stands now?**
- **What is the cost of carrying the property in its current condition?** For example, what are the costs of insurance and state and local property taxes?
- **Could the costs of cleanup increase if cleanup is put off?** For example, will contamination spread or expose others to risk, thereby creating additional liability?
- **Has any government agency expressed concern about the property?** If the property is not cleaned up voluntarily, is it likely that a local, state, or federal environmental agency will require cleanup? (Governments generally require cleanup only when a property poses serious risks to people or the environment.)
- **Would the surrounding community prefer maintaining the status quo?** For example, has the community expressed concerns about introducing commercial or industrial activities in a neighborhood that is becoming more residential?

Next, consider the cost and benefits of cleanup and redevelopment:

- **Would the property's value be enhanced once it is cleaned up?**
- **What is the likely cost of cleaning up the property and are those funds currently available?** Are there government programs that would support or subsidize cleanup?
- **Is it possible to estimate the benefits of resolving environmental risks through cleanup?** Could cleanup lead the government to grant releases from environmental liabilities?
- **Are there intangible benefits of cleanup?** Would cleanup increase community goodwill or resolve lenders' or investors' doubts about potential liabilities?
- **Is there a market for the property after cleanup?** Could the owner use it for his own business? Is there a market for new housing, retail, or industrial sites in the area? Would cleanup and redevelopment increase the property value?

- **Will cleanup activity increase community concern about the property?** Will it raise questions in neighbors' minds about whether the contamination on the property has injured them?
- **Do the benefits of cleanup appear to cover the costs?** Are the figures likely to change if cleanup is postponed?
- **Does the owner have the capital, the skill, and the desire to undertake cleanup and redevelopment?** If not, is it possible to find others who might help? Is it possible to sell the property before it is cleaned up? After it is cleaned up but before it is redeveloped?

Some of these questions will be hard to answer. Some will require the help of experts, such as attorneys, engineers, or government officials. Even then, some will be unanswerable. As in any business venture, a brownfield project will have uncertainties and risks. This guidebook may help owners understand many of them.

of hazardous substances owned by that person where those substances ended up at a contaminated site; and

- anyone who transported hazardous substances to a site selected by that party for the purpose of disposal or treatment.

Innocent landowners may be able to avoid liability if they can prove that they acquired the property after the contamination occurred and they did not know, and had no reason to know, that contamination existed. In practice, it is often difficult to establish this defense.

EPA has recently issued policies attempting

In recent years, the future use of a site has become a more important factor for many states in deciding how much to clean up a site. This may involve some guesswork because the future use of the site may not be certain, but the state agency will look at the current land use, zoning requirements, and

liability, 11 of them also specifically allow responsible parties an opportunity to prove their appropriate share, or enter into an allocation process. In most of these states liability is first presumed to be joint and several, but responsible parties are allowed to prove their share. Five states specify proportional liability as the only standard. Nine states do not specify how to divide costs when more than one person is liable. Some of these have no cleanup program comparable to Superfund, while others simply are silent on the allocation standard. States that have no allocation standard may still use joint and several liability as a common law rule.

3. Leaking Underground Storage Tank Cleanup Programs

In 1984 and 1986, Congress passed laws requiring owners and operators of underground storage tanks (USTs) to meet standards

EPA REGION	STATE	VOLUNTARY PROGRAM INCENTIVES	BROWNFIELD INCENTIVES
	PR	Not applicable.	Not applicable.
3	DE	Release from liability for prospective buyers when certificate of completion issued.	Low-interest loans; tax credit; grants.
	DC	Not applicable.	Not applicable.
	MD	Streamlined process; mandatory deadlines for agency determinations; no further requirements determination; certificate of completion; release of liability.	Property tax credits; grants and loans; free site assessments.
	PA	Relief from liability under state law for site remediation, including citizen suits and contribution actions; special cleanup standards for abandoned properties; technical assistance.	Not applicable.
	VA	No-further-action certificate issued upon satisfactory completion of remediation provides immunity from enforcement action under state law.	Not applicable.
	WV	Voluntary remediation agreement; certificate of completion.	Revolving loan fund for site assessments; other related activities.
4	AL	Reduced regulatory oversight and cost; increased speed; possibility of earning no-further-action letter.	Not applicable.
	FL	Not applicable.	Liability protection for program participants (and lenders under certain conditions) from state and third party claims; issuance of no-further-action letters; "risk based corrective action," whereby participants may be allowed to use institutional and engineering controls to manage risk by controlling exposure; $2500 bonus refund for each new Florida job created; encouragement of local governments to offer redevelopment incentives such as streamlined permitting, tax credits, and low-interest loans.

EPA REGION	STATE	VOLUNTARY PROGRAM INCENTIVES	BROWNFIELD INCENTIVES
	GA	Limitation of liability; no cost recovery actions for monies previously spent by state; limitation on liability for third party civil claims for pre-existing releases.	Not applicable.
	KY	Not applicable.	Not applicable.
	MS	Expedited site review; no-further-action letter when appropriate measures hau/	Liability protection.

EPA REGION	STATE	VOLUNTARY PROGRAM INCENTIVES	BROWNFIELD INCENTIVES
	OH	Covenant not to sue; variety of tax credits; low-interest loans; grants.	Not applicable.
	WI	Financial incentives and liability exemptions.	Liability protection; financial incentives, including tax credits.
6	AR	Limitation of liability for program participants.	Release from state liability if cleanup is properly executed; low-interest revolving loan program.
	LA	Liability exemption for disposal or discharge of hazardous substance or waste; certificate of completion.	Outreach and education to potential redevelopers.
	NM	Liability protection during and following voluntary remediation agreement; certificate of completion for owner/operator; covenant not to sue for third party purchaser.	Not applicable.
	OK	Certificate of completion; certificate of no action (includes liability protections for cleaned up portions of the site); tax incentives; job incentives; advice/document review.	Certificate of completion; certificate of no action includes liability protections for cleaned up portions of the site; tax incentives for

EPA REGION	STATE	VOLUNTARY PROGRAM INCENTIVES	BROWNFIELD INCENTIVES
	SD	Not applicable.	Not applicable.
	UT	Letter from state acknowledging site has been cleaned up and providing release from future liability.	Not applicable.
	WY	Not applicable.	Not applicable.
9	AZ	Expedited review of remedial actions and single point of contact.	Not applicable.
	CA	Streamlined program; cooperative working relationship; tailored to each site/project; no-further-action letter/certificate of completion.	Not applicable.
	HI	Letter of completion issued within 30 days after cleanup; completion recorded on property deed, running with the land; completion letter sent to building permit agency; exemption from future liability.	Not applicable.
	NV	"Closure" or comfort letter with respect to the spill incident.	Not applicable.
10	AK	No-further-action letter.	Not applicable.
	ID	Tax incentives; covenant not to sue.	Not applicable.
	OR	No-further-action letter.	Not applicable.

Brownfield and Voluntary Cleanup Program List

Appendix D

Alabama

Alabama Department of Environmental Management
Voluntary Cleanup Program
P.O. Box 301463
Montgomery, AL 36130-1463
(334) 271-7700
http://www.adem.state.al.us

Alaska

Alaska Department of Environmental Conservation
Contaminated Sites Remediation Program
Voluntary Cleanup Program
410 Willoughby Avenue
Juneau, AK 99811
(907) 465-5390

Arizona

Arizona Department of Environmental Quality
Voluntary Cleanup and Brownfields Programs
3033 North Central Avenue
Phoenix, AZ 85012
(602) 207-4166
http://www.adeq.state.az.us/

Arkansas

Arkansas Department of Pollution Control and Ecology
8001 National Drive
P.O. Box 8913
Little Rock, AR 72219-8913
(501) 682-0798

California

California Environmental Protection Agency
Department of Toxic Substances Control
Site Mitigation Program
P.O. Box 806
400 P Street
Sacramento, CA 95812-0806
(916) 323-3700
http://www.calepa.cahwnet.gov/dtsc.htm/

Colorado

Colorado Department of Public Health & Environment
Hazardous Materials & Waste Management Division
Voluntary Cleanup Program
4300 Cherry Creek Drive South
Denver, CO 80222-1530
(303) 692-3300
http://www.state.co.us/gov_dir/cdphe_dir/hm/rp_gen.ht-ml

Connecticut

Connecticut Department of Environmental Protection
Urban Sites Remedial Action Program
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3000
http://dep.state.ct.us/

Kansas

Kansas Department of Health and Environment
Bureau of Environmental Remediation
Voluntary Cleanup Program
Forbes Field, Building 740
Topeka, KS 66620
(785) 296-1660
http://www.kdhe.state.ks.us/ber/

Kentucky

Department for Environmental Protection
Division of Waste Management
14 Reily Road
Frankfort, KY 40601-1190
(502) 564-2150
http://www.nr.state.ky.us/nrepc/dep/dep2.htm

Louisiana

Louisiana Department of Environmental Quality
Inactive and Abandoned Sites Division
Voluntary Cleanup Program
P.O. Box 82178
Baton Rouge, LA 70884-2282
(255) 765-0487
http://www.deq.state.la.us/oshw/ias/ias.htm

Maine

Department of Environmental Protection
Bureau of Remediation and Waste Management
Voluntary Cleanup Program
17 State House Station
Augusta, ME 04333-0017
(207) 287-7688
http://www.state.me.us/dep/

Maryland

Maryland Department of the Environment
Waste Management Administration
Voluntary Cleanup Program
2500 Broening Highway
Baltimore, MD 21224
(410) 631-3000
http://www.mde.state.md.us/welcome.html

Massachusetts

Massachusetts Department of Environmental Protection
Brownfields Remediation
1 Winter Street, Seventh Floor
Boston, MA 02108
(617) 292-5500
http://www.state.ma.us/dep/bwsc

Michigan

Environmental Response Division
Department of Environmental Quality
P.O. Box 30426
Lansing, MI 48909
(517) 373-9837
http://www.deq.state.mi.us

Minnesota

Minnesota Pollution Control Agency
Site Response Section
Voluntary Cleanup Program
520 Lafayette Road
St. Paul, MN 55155-4194
(651) 282-5332
http://www.pca.state.mn.us/cleanup/index.html

Mississippi

Mississippi Department of Environmental Quality
Hazardous Waste Division, Superfund Branch
Brownfields Program
P.O. Box 10385
Jackson, MS 39289-0385
(601) 961-5171
http://www.deq.state.ms.us/domino/deqweb.nsf

Missouri

Missouri Department of Natural Resources
Voluntary Cleanup Section
P.O. Box 176
Jefferson City, MO 65102
1-800-334-6946
http://www.dnr.state.mo.us/homednr.htm

Montana

Montana Department of Environmental Quality
Remediation Division
Voluntary Cleanup Program
2209 Phoenix
P.O. Box 200901
Helena, MT 59620
(406) 444-1420
http://www.deq.mt.gov/index.html

Nebraska

Nebraska Department of Environmental Quality
Remedial Action Plan Monitoring Act Program
The Atrium
1200 North Street, Suite 400
P.O. Box 98922
Lincoln, NE 68509
(404) 471-2186
http://www.deq.state.ne.us

Nevada

Nevada Department of Conservation & Natural Resources
Division of Environmental Protection
Waste Management and Corrective Action
333 West Nye Lane
Carson City, NV 89706
(702) 687-4670

New Hampshire

New Hampshire Department of Environmental Services
Hazardous Waste Remediation Bureau
Brownfields Program
P.O. Box 95
6 Hazen Drive
Concord, NH 03302-0095
(603) 271-2900
http://www.state.nh.us/des/hwrb

New Jersey

New Jersey Department of Environmental Protection
Bureau of Field Operation
Voluntary Cleanup Program
P.O. Box 434
Trenton, NJ 08625-0434
(609) 292-2934
http://www.state.nj.us/dep/srp/index.htm

New Mexico

New Mexico Environment Department
Ground Water Quality Bureau
Voluntary Remediation Program
Harold Runnels Building, Suite N2300
1190 St. Francis Drive
Santa Fe, NM 87502
(505) 827-2918
http://www.nmenv.state.nm.us/

New York

New York State Department of Environmental Conservation
Environmental Remediation
Brownfields and Voluntary Cleanup Programs
50 Wolf Road
Albany, NY 12233-7010
(518) 457-5861
http://www.dec.state.ny.us/

North Carolina

Department of Environment and Natural Resources
Division of Waste Management
Superfund Branch
Brownfields Program
401 Oberlin Road
Raleigh, NC 27605
(919) 733-4996
http://www.ehnr.state.nc.us/EHNR/

North Dakota

North Dakota Department of Health
Division of Waste Management
Hazardous Waste Program
P.O. Box 5520
1200 Missouri Avenue, Room 302
Bismark, N.D. 58506-5520
(701) 328-5166
http://www.ehs.health.state.nd.us/ndhd/environ/wm/index.htm

Ohio

Division of Emergency and Remedial Response
Ohio Environmental Protection Agency
Voluntary Action Program
P.O. Box 1049
Columbus, OH 43216-1049
(614) 644-2924
http://www.epa.ohio.gov/derr/volunt.html

Oklahoma

Oklahoma Department of Environmental Quality
Waste Management Division
Voluntary Cleanup Program and Brownfields Initiative
P.O. Box 1677
Oklahoma City, OK 73101-1677
(405) 702-5100
http://www.deq.state.ok.us/waste/index.html

Oregon

Department of Environmental Quality
Voluntary Cleanup Program
811 SW 6th Avenue
Portland, OR 97204-1390
(503) 229-6801
http://www.deq.state.or.us

Pennsylvania

Pennsylvania Department of Environmental Protection
Land Recycling and Cleanup Program
P.O. Box 8471
Harrisburg, PA 17105-8471
(717) 783-7816
http://www.dep.state.pa.us/dep/deputate/airwaste/wm/landrecy/default.htm

Puerto Rico

Environmental Quality Board
Superfund and Emergency Program
P.O. Box 11486
San Juan, PR 00910
(787) 767-8181

Rhode Island

Rhode Island Department of Environmental Management
Division of Site Remediation
Brownfields Program
291 Promenade Street
Providence, RI 02908
(401) 222-2797
http://www.state.ri.us/dem/

South Carolina

Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
Voluntary Cleanup Program
2600 Bull Street
Columbia, SC 29201
(803) 898-3432
http://www.state.sc.us/dhec/

South Dakota

Department of Environment and Natural Resources
Superfund/Voluntary Cleanup Program
Foss Building
523 East Capitol Avenue
Pierre, SD 57501
(605) 773-3151
http://www.state.sd.us/denr

Sources of Further Information

Appendix E

An Analysis of State Superfund Programs: 50-State Study, 1998 Update. Environmental Law Institute. 1998.

Brownfields: A Comprehensive Guide to Redeveloping Contaminated Property. Davis, Todd S. & Margolis, Kevin D. American Bar Association Section of Natural Resources, Energy and Environmental Law. 1997.

Brownfields Law and Practice: The Cleanup and Redevelopment of Contaminated Land. Gerrard, Michael. Matthew Bender Publisher. 1998.

Brownfields Cleanup Revolving Loan Fund Demonstration Pilots. U.S. Environmental Protection Agency. EPA 500-F-98-003. March 1998.

Brownfields of Dreams. Lerner, Steve. The Amicus Journal, Volume 17, Issue 4 at 15, New York. Winter 1996.

Brownfields Redevelopment: A Guidebook for Local Governments and Communities. International City/County Management Association and Northeast-Midwest Institute. 1997.

Brownfields Tax Incentives. U.S. Environmental Protection Agency. EPA 500-F-97-155. August 1997.

Brownfields Title VI Case Studies: Summary Report. U.S. Environmental Protection Agency. EPA 500-R-99-003. June 1999.

Building Upon our Strengths: A Community Guide to Brownfields Redevelopment in the San Francisco Bay Area. Urban Habitat Program. 1999.

Coming Clean for Economic Development: A Resource Book on Environment Cleanup and Economic Development Opportunities-Revised and Updated. Bartsch, Charles & Collaton, Elizabeth. Northeast-Midwest Institute. September 1996.

Community Reinvestment Act. U.S. Environmental Protection Agency. EPA 500-F-97-100. April 1997.

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Guidebook for Transfer of Contaminated Properties. The National Environmental Policy Institute. September 1998.

Handbook for Tools for Managing Federal Superfund Liability Risks at Brownfields and Other Sites. U.S. Environmental Protection Agency. EPA 330-B-98-001. November 1998.

Lessons from the Field: Unlocking Economic Potential with an Environmental Key — 20 Case Studies of Successful Brownfields Reuse. Pepper, Edith. Northeast-Midwest Institute. 1996.

Liability and Other Guidance. U.S. Environmental Protection Agency. EPA 500-F-97-104. April 1997.

Potential Insurance Products for Brownfields Cleanups and Redevelopment. U.S. Environmental Protection Agency. EPA 500-F-97-106. April 1997.

RCRA Subtitle I: The Federal Underground Storage Tank Program. Nagle, Laura J. Environmental Law Reporter. February 1994.

Recycling America's Land: A National Report of Brownfields Redevelopment. United States Conference of Mayors. January 1998.

Recycling Land: Encouraging the Redevelopment of Contaminated Property. Geltman, Elizabeth G. Natural Resources & Environment, Vol. 10, No. 4 at 3-10. George Washington University. Washington, DC. 1996.

Standard Guide to the Process for Sustainable Brownfields Redevelopment. American Society for Testing and Materials. Designation E-50.03. 1999.

Standard Practice for Environmental Site Assessments: Transaction Screen Process. American Society for Testing and Materials. Designation E-1528-93. 1993.

Superfund: EPA's Use of Funds for Brownfields Revitalization. Government Administration Office. GAO/RCED-98-87. March 1998.

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Sustainable Redevelopment of Brownfields: Using Institutional Controls to Protect Public Health. Pendergrass, John. Environmental Law Reporter. May 1999.

The Cleanup and Reuse of Brownfields: Key Issues and Policy Choices. Waste Management Research and Education Institute. University of Tennessee, Knoxville. April 1997.

Turning Brownfields into Greenbacks. Simons, Robert. Urban Land Institute. May 1998.

Voluntary and Brownfields Remediation Programs, An Overview of the Environmental Law Institute's 1998 Research. Breggin, Linda and Pendergrass, John. Environmental Law Reporter. June 1999.

Websites:

American Society for Testing and Materials:
www.astm.org

Brownfields Information Sources:
www.lehigh.edu/~injrl/subindex/brownfields.html

Clean-Start Properties Unlimited:
www.cleanstart.com

EnviroFLEX, Inc.:
www.brownfields.com

Environmental Law Institute:
www.eli.org

EPA Brownfields Homepage:
www.epa.gov/brownfields

EPA Brownfields Regional Links:

Region 1:
www.epa.gov/region01/pr/files/pr1008a.html

Region 2:
www.epa.gov/r02earth/superfnd/brownfld/bfmainpg.htm.

Region 3:
www.epa.gov/reg3hwmd/brownfld/hmpage1.htm

International City/County Management Association:
www.ICMA.org

National Center for Brownfields Reclamation:
www.brownfieldsnet.org

Northeast-Midwest Institute:
www.nemw.org