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Deed Restrictions and Other Institutional Controls as Tools to Encourage Brownfields Redevelopment

ROBERT A. SIMONS AND HEIDI GOROVITZ ROBERTSON

This article discusses the role of deed restrictions and other institutional controls in brownfields redevelopment programs, their positive and negative attributes, and what methods might be used to improve their performance in the future.

State programs, in their efforts to encourage cleanup and redevelopment of contaminated properties, called “brownfields,” often allow landowners to clean polluted properties to less than pristine standards that are often less stringent than would apply under state and federal mandatory cleanup programs. For example, rather than requiring a landowner to remediate a future industrial site to “unrestricted use” standards—defined as a level clean enough to allow residential development—brownfields programs often allow the site owner to clean the site to a less rigorous “industrial use” standard. These programs, which provide for use-based, or “tiered,” cleanup standards often rely on deed restrictions to prevent properties from being used in the future for a “higher” use that would require a heightened level of decontamination. Deed restrictions and other institutional controls, such as water-use restrictions, deed notice requirements, zoning, and permitting, are used when a cleanup has allowed some contamination to remain on site (often capped with a layer of asphalt or clay as a barrier) such that higher uses of the land would be unsafe. Institutional controls either prohibit certain kinds of site uses, or at a minimum, notify potential owners or land users of hazardous sub-

stances remaining on site and conditions that are not protective of all uses.¹

For example, petroleum or lead contamination remaining under a shopping center’s landscaped area would render that site, although suitable for its current commercial use, inappropriate for residential use. A parking lot that is serving as a cap or barrier against underground contamination would also be inappropriate for use as a residential site without further cleanup. The developer can realize substantial cost savings by keeping the contamination on site and limiting potential exposure to it through institutional controls. Because residual contamination may exceed safe levels for children playing in the dirt, a state-run cleanup program would require a deed restriction, or other forms of institutional control, to prevent the property from being used for residential purposes in the future without further remediation.

The obvious cost saving implies trade-offs. There are three main issues. One is whether deed restrictions make it harder to market the site to potential tenants. The second is whether sites encumbered by deed restrictions experience more limited or restrictive access to financing by making lenders apprehensive about the value of the real estate as collateral. Finally, there is a genuine concern regarding whether deed restrictions can succeed sufficiently over the long term at protecting future land users from the contamination remaining at the site.

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DEED RESTRICTIONS IN BROWNFIELDS PROGRAMS

State brownfield programs encourage cost-minimizing redevelopment of contaminated urban land, in part by allowing risk-based decision-making based on a site assessment and the expected future use of the property. Below, we explain how these programs calculate risk, provide an example of why Risk-Based Corrective Action (RBCA) is attractive, and describe how these programs use deed restrictions and other institutional and engineering controls to reduce risks associated with remaining contamination.

The key component in the RBCA approach is minimizing the risk that humans would come in contact with harmful substances left on site, using realistic predictions of how that property will be used.

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Risk-Based Corrective Action

RBCA is now a commonly accepted strategy where state environmental regulators (or in some states, recognized environmental consultants) perform an analysis of a candidate site—typically before the owner initiates a cleanup—and design a plan including engineering controls, deed restrictions, and other institutional controls that would work together to minimize human exposure according to the intended use of the land. These programs require that contaminated sites be remediated only to the point required for safety, according to the intended use of the property and the nature of the contamination. This

strategy is sometimes called a tiered cleanup program because it employs increasingly stringent tiers of cleanup standards to reflect more intensive and sensitive land uses.

RBCA programs usually have several tiers of cleanup, based on the intended end use of the property. The most lenient cleanup standard applies to low intensity uses, such as industrial. A middle tier is for commercial uses, such as retail. The most stringent standard applies to the highest land uses, such as residential, where children may accidentally ingest remaining toxins. As the intended use of the land goes up, from industrial to residential, so do cleanup standards and cleanup costs.

Under RBCA, contamination is identified, hot spots mitigated, and residual contamination contained, and then, depending on the applicable standard, left permanently on site under a cap, such as a parking lot. The key component in the RBCA approach is minimizing the risk that humans would

come in contact with harmful substances left on site, using realistic predictions of how that property will be used.

A Primer on Risk Assessment

To determine the existence and degree of health risk related to redevelopment of a property with contamination retained on site, one must consider several factors concurrently. First, there must be a toxin or hazardous substance (e.g., benzene from petroleum, lead, arsenic, PCB, etc.) present in the soil, air, or groundwater at a contaminated site. Second, the contamination must be present in a form and concentration where it is dangerous to humans (e.g., 5 parts-per-billion for benzene). Third, there must be a transmission mechanism, or pathway, by which the substance can enter the ecosystem or the human body (e.g., inhalation, dermal exposure, or ingestion by drinking or through the food chain). Finally, there must be the potential for actual contact between the human and the hazardous material (e.g., children, elderly, construction workers, or tenants in a building).² Breaking the connection between any two of these factors ensures safety at the site and keeps risks low. A cap performs this function by blocking the pathway between the contamination and human contact.

Regulators and scientists often categorize risks for carcinogenic toxins in terms of the number of cancer deaths in the population. For example, a stringent cleanup level (less risk remaining on site, but more expensive to clean) would be one cancer death in a population of one million (10^{-6}). A more lenient standard (with more risk remaining on site) would be one death in 10,000 (10^{-4}). Most state-mandated cleanup standards fall in this range.

An Example

Consider a parking lot in an industrial complex. Here, the chance of human exposure to remaining contamination would be low because contamination is trapped under the pavement. Thus, the only way a person would come near it is either in a car, or on foot, wearing shoes. As long as the cap remains intact, the risks of human exposure are relatively low, and therefore are considered acceptable as long as the property is properly maintained in its current use. Caps and other encapsulation techniques are usually called engineering controls. Many forms of nonpermanent remediation like caps and encapsulation are now con-

sidered safe for "lower" land uses, and they are more cost-effective than "permanent" remediation that returns the soil and groundwater to background levels. A building slab or foundation can serve a dual purpose as a foundation and a contamination cap. In addition to protecting humans on the surface from subsurface contamination, this type of cap can also deter or prevent precipitation from penetrating the contaminated soil and polluting the groundwater.

The negative effects of leaving contamination on site could occur many years later. Assume that due to changing market conditions, the property's highest and best use becomes residential, and a developer destroys the pavement and builds homes. Children playing in the backyard could ingest and be harmed by the contamination. Clearly this would present a much higher, unacceptable risk. The cap on the contamination was not a permanent solution. The break it provided in the link of toxic risk, through a pathway to a receptor, no longer exists. Without a break in that connection, risk to human health and the environment would increase significantly. Deed restrictions can prevent this type of problem from occurring, protecting both the end user from harm and the current user or developer from lawsuits, by restricting the land to industrial use.

Deed Restrictions

Deed restrictions can prevent the redevelopment of contaminated land to a higher use, for which health risks would be greater than for the current use. Deed restrictions can prevent the use of construction methods that could damage a contamination barrier. They can prohibit the installation of water supply wells, the use of pile construction, even the digging of foundations.³ Deed restrictions can require that a permanent cap remain on site and that the landowner maintain it. Restrictions may also limit the ability of landowners to sell their property, especially if a change in land use is contemplated. Deed restrictions can provide notice of remaining contamination to subsequent landowners and increase the likelihood that risk will remain low over time, despite the fact that contamination remains on site. However, because the most common deed restrictions limit the future use of the land—and because most state brownfields programs evaluate risk at a site in terms of the intended use (post-remediation) of the land—we focus on deed restrictions regarding land uses.

RBCA programs often require deed restrictions when a state environmental agency gives a brownfield project, following execution of a cleanup plan, a letter of completion or covenant not to sue, despite the fact that contamination remains on site. The deed restriction must be filed with the applicable deed recording office, usually the miscellaneous liens section of the county recording office, and becomes part of the property's permanent title record. A deed restriction runs with the land to bind future owners of the property. Deed restrictions limit the way property owners can use their property. So, when the property's deed has a restriction such as "industrial use only," that restriction applies to future landowners. Landowners, present or future, can have the restriction removed only upon remediation of the site in accordance with applicable cleanup standards. Deed restrictions may be removed when the applicable environmental agency that originally required them files a waiver of the restriction with the county recording office.

Unlike zoning regulations, which may be subject to the whims of local governmental bodies, deed restrictions run with the land from the current property owner to subsequent owners. Unlike permits, which may contain conditions or restrictions pertaining to land use, deed restrictions attach to the land rather than the permit holder. Permits bind the current property owner or permit holder, but new landowners would need their own permit and are not bound by that of their predecessor. Therefore, in theory, deed restrictions are readily available through a standard title search, and should provide adequate protection against harm for future site users. Exhibit 1 shows a sample form deed restriction.

DEED RESTRICTIONS IN STATE BROWNFIELDS PROGRAMS

To ensure that a site approved under an industrial use standard does not become a residential property, most state brownfields programs that allow variable (tiered) cleanups require the filing of deed restrictions that bind the land to an intended future use.⁴ For example, Massachusetts uses deed restrictions, called "activity and use limitations," to control future use and protect future landowners and others who might interact with a site containing residual contamination.⁵ Similar to other states with flexible

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Exhibit 1 Notice of Deed Restriction, page A I-20 in Brownfields Law and Practice, (Michael B. Gerrard ed. 1998).**Notice of Deed Restriction**

THIS NOTICE OF DEED RESTRICTION is made this [date] by [name of owner of property]

[Name of owner], owner in fee title of the real property described below, also known as [insert address of property] (the "Property") hereby imposes the restrictions on the use of the Property.

[insert property description]

The restrictions set forth below shall be imposed upon the Property, its present and any future owners (including persons who take title to the Property as heirs) their agents, assigns, employees or persons acting under their control or direction, for the purpose of protecting the public health and the environment, and to prevent interference with the performance and maintenance of response actions required by [state environmental agency] pursuant to the [voluntary cleanup agreement or consent order] a notice of which has been recorded and filed in the [identify local land records].

The following restrictions shall apply to the Property as required by Paragraph [specify] of the voluntary cleanup agreement [or consent decree]:

The groundwater underlying the Property shall not be used for drinking or industrial uses.

The Property may only be used for commercial or industrial use and shall not be used for residential, child care or nursing care, restaurants or food-processing. There shall be no disturbance, digging, excavation of the soils nor any drilling or invasive construction in the area identified in Exhibit "A" with hatch-marks.

There shall be no installation, removal, construction or use of any the existing structures or buildings on the Property without the prior approval of the [state environmental agency].

There shall be no tampering with, or removal of, the groundwater containment and monitoring systems that remain on the Property as a result of the implementation of the response actions required by the voluntary cleanup agreement [or consent decree].

There shall be no use of or activity at the Site that may interfere with, damage, or otherwise impair the effectiveness of the response actions required by the voluntary cleanup agreement [or consent decree].

The obligation to implement and maintain the restrictions set forth above and contained in the [voluntary cleanup agreement or consent decree] shall run with the land and shall remain in effect until such time as the [state environmental agency] files a waiver of these restrictions with [identify the local land office where real estate records are recorded] stating that the above restrictions are no longer necessary and that the requirements of the [voluntary cleanup agreement or consent decree] have been satisfied.

IN WITNESS WHEREOF, [name of owner] has caused these Deed Restrictions to be executed this [insert date].

cleanup standards, Pennsylvania's brownfields law provides for compliance with one or more cleanup levels, which include background standards, statewide health-based standards, and/or site-specific standards. However, there are rewards if a site owner chooses a stringent cleanup standard. If a volunteer remediator pursues the background or statewide health-based standards, "[s]ites are rewarded with exemption from deed notice requirements. . . . Consequently, subsequent transfer[s] of remediated property [are] not [believed to be] subjected to the stigma of being a formerly contaminated site."⁶

Other Institutional Controls

In addition to deed restrictions, other types of institutional controls help programs with tiered cleanup standards control risk. Additional examples of institutional controls include zoning, land use or building permits, engineering controls (e.g., parking lots or clay barriers, encapsulation, symbolic felt membranes beneath landscaping, fences), and deed notice requirements. Institutional controls can be divided into broader categories: proprietary controls (e.g., deed restrictions, restrictive covenants, easements, equitable servitudes, and reversionary interests); state and local government

controls (e.g., zoning, building permits, water-use restrictions, and advisories); informational devices (notice, registry requirements, transfer act requirements, and public outreach); and consent orders and permits, use restrictions, access controls, and monitoring requirements.⁷

One form of institutional control, in the broader category of informational devices, deed notice requirements can help future landowners by providing them with information regarding the character and location of remaining contamination. Like a deed restriction, this notification will attach to the deed and run with the land, thereby notifying subsequent landowners that the property is contaminated in some specific way. The deed notification remains in place until further cleanup makes it unnecessary. A deed notification often will provide a brief summary of the site's history, explain the nature and circumstances of the contamination, present warnings with respect to land or water use, and refer to documents that will contain more specific information.⁸ A notice requirement may require actual notice or disclosure to a future purchaser of a property, rather than merely recording the notice with the deed to the land. Sometimes landowners must also provide notice and information regarding remaining contamination to a state or local government agency.

Some states maintain a registry, usually linked to or derived from RCRA or CERCLA requirements, of a list of sites that have been used in the past for hazardous substance disposal. In the future, we expect that local registries will maintain a list of sites within their jurisdictions that are restricted in terms of use or transfer. Potential purchasers of land could consult the registry to determine the status of a candidate site. A site's listing in this type of registry could become a part of the site's chain of title, thus providing an additional avenue for notice to a prospective purchaser of the site.

Some states place special requirements on the transfer of contaminated properties. Specifically, a purchaser can void a transaction if the seller failed to disclose or convey certain information regarding the environmental status of the site. For example, a property is subject to the Connecticut Transfer Act⁹ if, after 1980, it generated more than 100 kg of hazardous waste in any single month; if it, at any time, was the site of recycling, storing, handling, disposal, or storage of hazardous waste; or if a dry cleaner, furniture stripper, or

automobile repair/paint shop was located there after 1967.¹⁰ To transfer any property that fits these characteristics, both the owner and purchaser must execute a specific form provided by the state Department of Environmental Protection's Property Transfer Program.¹¹ The program has several versions of this form, and which form applies varies according to the environmental condition of the property. The forms range from a written declaration by the transferor that no hazardous waste was spilled on the premises, to written certification signed by multiple parties indicating that the site has been remediated to applicable standards and will be appropriately monitored.

Another interesting use of an institutional control, other than a deed restriction, was an agreement by a residential property developer in Detroit not to remove soils from a site without appropriate testing. The development of this project also agreed to design features, such as buffer zones and lack of basements, to reduce risk to an acceptable level.¹²

Enforcement

State environmental agencies can ensure that deed restrictions and other institutional controls are recorded with the applicable deed. To start, the agency can create a liability release that remains ineffective until the applicable deed restriction is properly recorded. Theoretically, these recorded restrictions should need little additional enforcement as few lenders or purchasers would lend or spend money for a restricted property. Even so, the issuing agency could revoke a Covenant Not to Sue or other liability release for failure to abide by restrictions or other controls. In Ohio, for example, the state EPA issues a Covenant Not to Sue to a property owner after a certified environmental professional issues a No Further Action letter, indicating that the site has met applicable standards. That Covenant Not to Sue releases the volunteer remediator from liability to the state agency for environmental issues dealt with in the cleanup process and may be transferred to subsequent owners of the property.

For other institutional controls, such as signage indicating an existing hazard or fence or cap requirements, enforcement mechanisms are less

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clear. It is uncertain whether state agencies or local authorities would enforce them. Even once that jurisdictional issue is sorted out, it is unclear what kind of priority the enforcement of such controls would be for the applicable authority.

Some federal and state regulators are concerned that deed restrictions lose strength as they grow in age. One reason is that state and local regulators may not have the resources or time to enforce restrictions that in the future may not seem as

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restrictions is their actual effect on the value of real estate as collateral.

important as they did at their inception. This may be true especially for a site with residual contamination that becomes, many years later, covered with grass and trees.

THE STRENGTHS OF DEED RESTRICTIONS

The main reason deed restrictions are attractive to property redevelopers is that they are an important part of a system that allows tiered cleanup at substantial cost savings. Deed restrictions also can help protect future landowners from potential

liability to third parties by reducing the likelihood of an unexpected exposure to remaining contamination.

Assuming that the risk associated with site redevelopment is acceptable and held constant, cost savings are the main reason risk-based corrective action and associated deed restrictions are attractive. Consider a redevelopment project where the intended use is industrial or commercial. Further, assume no groundwater contamination issues. In the old regime, achieving cleanliness to background or pristine levels for a typical inner-city brown-field site with heavy metals and petroleum contamination meant removing all potentially contaminated soil and hauling it away to a landfill at a prohibitive cost ("dig and dump"). Measured in terms of dollars per square foot of land area, overall expenses for this operation could be \$5–10 per square foot. With land values in the area at \$2–4 per square foot, this project cannot be feasible without substantial public subsidy. Health risks here are virtually zero.

Cleaning the site to residential standards would cost perhaps \$4–6 per square foot. Some contamination could be removed, and some moved around on the site away from residential areas, under roadways, etc, thus saving transportation costs. However, these expenses still exceed the val-

ue of the land, and risk of exposure is very low—much lower than necessary for the intended use of the land. Cleaning to industrial standards, however, would just require capping the contamination in place, and provided it was not mobile or volatile, leaving all of it on site. The cost to conduct this cleanup and obtain state approval would be in the \$1–2 per square foot range, leaving some profit potential for the developer after cleanup.

With proper notification and registration of the deed restriction at the local county recorder's office, this RBCA approach, enhanced by the deed restriction and in conjunction with appropriate engineering controls and other institutional controls, should ensure that health risks for future site users and occupants are acceptable.

POTENTIAL SHORTCOMINGS OF DEED RESTRICTIONS

Because present or future landowners may fail to comply with a deed restriction, the restriction itself does not prevent exposure to remaining toxins. Although the noncomplying landowner subjects him or herself to the health and liability risks associated with noncompliance, that noncompliance also places others at risk. The failure of a landowner to comply with a deed restriction could lead to the release of remaining toxins and contact of those toxins with humans. Therefore, although they are permanent by nature—they run with the property forever—deed restrictions may appear temporary because they are only as permanent as compliance with them allows.

If a future landowner violates the restriction by using the land in a manner unintended by the volunteer remediator, that landowner places those who interact with the land at some increased degree of health risk, depending on the environmental status of the site. In addition, the violator may face legal remedies, both in terms of liability to individuals harmed by exposure to the site and liability to the agency. If an owner fails to abide by deed restrictions or engineering controls required by the applicable Covenant Not to Sue or No Further Action letter, that landowner will lose the liability protections the document provided.

Also, local planning commissions do not typically evaluate every deed in an area before altering the zoning for that area. Thus, they might inadvertently rezone restricted property from industrial to residential use. Although the deed restriction certainly would still apply, the property could possibly "slip through the cracks," thereby subject-

ing people to increased risk. Likewise, local authorities that grant building permits do not always examine deeds and thus could accidentally grant permits that would lead to a land use or construction process that could disturb contaminated soil and increase the possibility of human exposure to a previously controlled risk.¹³

Deed restrictions may make it harder to market the property to tenants or buyers. This is less of an issue for industrial properties, unless the deed restriction, for example, prohibits a type of construction necessary for the intended use or precludes drilling a necessary well. For commercial properties deed restrictions may be acceptable, provided they do not make the property look unwelcoming or dangerous (e.g., a deed restriction requiring protective fencing or signage).

With respect to residential property, this marketing usually involves targeting submarkets less sensitive to contamination issues (e.g., families without children). Highrise apartment buildings are an attractive use because most units are located far from the ground. For all types of properties, marketing may require providing education to potential site users about the RBCA process and risk management issues. This can be difficult in a slack market where buyers have many other choices. However, when markets are tight, developers have a better chance of selling or leasing space in a reasonable amount of time.

On a related point, deed restrictions on one property may adversely affect the value of neighboring land. Because of the possible stigma associated with proximity to environmentally restricted land, potential buyers may balk even at purchasing nearby unrestricted properties. Further, some forms of institutional controls, those that require fences or signage, make the restricted or tainted nature of the nearby property fairly obvious to passers-by.

One of the biggest unknowns about deed restrictions is their actual effect on the value of real estate as collateral. Skeptical bankers, already nervous about environmental risk, are likely to balk until these issues can be quantified or shown to be innocuous. Until then, lenders can be expected to adjust value (and the loan amount) downward to allow an acceptable loan-to-value ratio. This additional risk, although it may be small in reality, represents a possible stigma that may translate into lower values for deed restricted properties.

One final unresolved issue with respect to deed restrictions is that of institutional memory: Do they really run with the land forever? Technically, yes. Given that many county record departments are computerized, and that most others are heading in that direction, once the deed restriction is filed, institutional memory should be quite permanent. However, there are no data to support this assertion, and there remains a risk that the deed restriction, although permanent in nature, may fail to protect against human exposure to remaining toxins due to lack of compliance or enforcement. Therefore, independent monitoring or verification in the form of a local registry should be in place.

CONCLUSIONS

The option of using deed restrictions and other institutional controls in support of brownfields redevelopment efforts is critical to the success of these programs. Without them, we cannot ensure sufficient protection of human health and the environment under circumstances where contamination will remain on site. Developers often will not assume the high cost of permanent site remediation, opting instead for risk-based corrective action. Even with the available tiered cleanup standards, without deed restrictions and other institutional controls providing significant assurances regarding the long-term safety of the site, landowners and potential developers would not assume the liability risk associated with brownfield properties.

Unlike permanent cleanup of a site, no deed restriction can eliminate risk entirely. However, deed restrictions can substantially reduce risk of human exposure to remaining toxins. They can allow risk to be low enough for certain land uses, such that land is well used and human beings protected against exposure. They can allow such land use because they make it possible for developers and landowners to clean up land economically, while protecting themselves and others from risk and liability. In other words, in conjunction with engineering and other site controls, deed restrictions assist brownfields programs in encouraging economically feasible urban redevelopment without substantially increasing health risks.

To ensure that deed restrictions can accomplish the lofty goal of allowing economical cleanup, efficient land use, and protection against human exposure, these restrictions must be enforced. Mechanisms must be developed to ensure that

landowners comply with deed restrictions and that applicable government agencies enforce them. Whether deed restrictions can meet these important challenges remains to be seen, but for now they are an integral part of successful urban redevelopment programs and will remain so for a long time to come. ■

NOTES

¹ Land Use in the CERCLA Remediation Selection Process, OSWER Directive No. 9355.7. See also, 40 CFR § 300.430(a)(1)(iii)(D).

EPA expects to use institutional controls such as water use and deed restrictions to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants. Institutional controls may be used during the conduct of the remedial investigation/feasibility study (RI/FS) and implementation of the remedial action and, where necessary, as a component of the completed remedy. The use of institutional controls shall not substitute for active response measures (e.g., treatment and/or containment of source material, restoration of ground waters to their beneficial uses) as the sole remedy unless such active measures are determined not to be practicable, based on the balancing of trade-offs among alternatives that is conducted during the selection of remedy.

Id.

² Amy L. Edwards, ASTM Task Group Developing Guide on Institutional Controls, Environmental Compliance and Litigation Strategy, Dec. 1997.

³ "Institutional Controls," 24.02[2][a] in *Brownfields Law and Practice* (Michael B. Gerrard, ed. 1998).

⁴ John Pendergrass, "Use of Institutional Controls as Part of a Superfund Remedy: Lessons from Other Programs," 26 *Env'tl. L. Rep.* 10109 (1996). New York, requires the party conducting the cleanup to place appropriate deed restrictions on the property to ensure it is not used for a "higher" use than that for which it met cleanup standards. Charles E. Sullivan, NY Dep't of Env'tl. Conservation Voluntary Cleanup Program 2 (undated). See e.g., Ariz. Admin. Code R.18-7-207(A) and R18-7-208(A); Delaware Voluntary Cleanup Program Guidance, DNREC, Div. Of Air & Waste Management, SIRB (Feb. 1995); Indiana Dept. of Env'tl. Management, Voluntary Remediation Program Resource Guide, at 99 (July 1996); Iowa Code Ann. § 455H.206(3), Iowa Admin. Code r. 567-137.7(3); Mich. Comp. Laws § 324.20120a; 1998 Miss. Laws Ch. 528, § 4(6); Memorandum of Agreement between Missouri DNR and U.S. EPA (Sept. 5, 1996), at 4; Ohio Rev. Code § 3746.05 (Banks-Baldwin 1998).

⁵ For example, the Massachusetts regulations identify sites according to current use and the intended future use

and categories [sic] them accordingly:

The documentation of the Risk Characterization shall identify and describe the Site Activities and Uses associated with the disposal site and the surrounding environment. . . .

(1) The Site Activities and Uses shall include all current and reasonably foreseeable uses and activities occurring at the disposal site or in the surrounding environment which could result in exposure to oil and/or hazardous material by Human or Environmental Receptors. . . .

(2) The current Site Activities and Uses associated with the land itself, with structures in and on the land, and with the groundwater, surface water, soil, sediment or other medium which could result in exposure of Human or Environmental Receptors to oil and/or hazardous material shall be identified and described. . . .

(3) The reasonably foreseeable Site Activities and Uses shall include any possible activity or use that could occur in the future to the extent that such activity or use could result in exposures to Human or Environmental Receptors that are greater than the exposures associated with current Site Activities and Uses, except that:

• • •

(6) Examples of Site Activities and Uses associated with Human Receptors include, without limitation:

(a) the use of a building as an office, store or residence;

(b) the use of water as drinking water, for washing floors or watering lawns;

(c) the cultivation of fruits and vegetables destined for human consumption (e.g., gardening or farming) and the cultivation of ornamental plants;

(d) the excavation of soil;

(e) recreational activities, such as playing baseball, swimming, fishing and hiking;

(f) leisure activities, such as picnicking, sunbathing and entertaining[.]

Mass. Regs Code tit. 310 § 40.0923 (1998).

⁶ Id., at 153-154.

⁷ Amy L. Edwards, *Types of Institutional Controls, Environmental Compliance and Litigation Strategy*, Dec. 1997.

⁸ "Institutional Controls," 24.02[2][a] in *Brownfields Law and Practice* (Michael B. Gerrard, ed. 1998).

⁹ 1998 Conn. Pub. Acts 253.

¹⁰ Conn. Gen. Stat. § 22a-134(3).

¹¹ Conn. Gen. Stat. §22a-134(7) (1998).

¹² Robert A. Simons, *Turning Brownfields into Greenbacks*, 100-104, Urban Land Institute, 1998.

¹³ Susan C. Borinsky, "The Use of Institutional Controls in Superfund and Similar State Laws," 7 *Fordham Env'tl. LJ* 1, 6 (1995).