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Institutional Controls

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Hazardous Substance Research Centers

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Environmental cleanups often include measures to restrict the use of contaminated land and other resources. These "institutional controls" are usually legal controls intended to influence human activities in such a way as to prevent or reduce exposure to hazardous wastes or hazardous constituents *that are left on a site following active cleanup work.* They complement the engineered approaches (such as a *pump and treat system)* that characterize most site cleanups, and ensure that site developers or users do not disturb the remaining contaminants.

The role that institutional controls play in the risk management approach for a facility is based on site-specific conditions and should be considered during the remedy selection process. Like any other remedial alternative, institutional controls should be rigorously evaluated to determine their appropriateness, feasibility, and long-term effectiveness in protecting human health and the environment. Institutional controls often are used in conjunction with, or as a supplement to, other measures (such as treatment or containment) to prevent or reduce exposure. An institutional control or a group of institutional controls, under appropriate circumstances, though rare, may serve as the sole remedy at a facility. Institutional controls, however, are not intended to be used as secured abandonment (i.e., physically securing a site and preventing exposure while making little or no effort to ensure that chemicals of concerns do not migrate to and beyond the property boundary). Institutional controls may not be appropriate as the sole remedy for off-site releases. EPA's expectation is for sites to be remediated to allow for reasonable beneficial reuse.

U.S. EPA has developed guidance on the use of institutional controls at Superfund and RCRA corrective action sites, and the guidance should be consulted for additional information concerning their applicability and use. Situations in which institutional controls may be an appropriate component of a remedy or are necessary to ensure that a remedy is protective include the following:

- Where cleanup is protective for industrial but not residential exposures.
- Where ground water will remain contaminated for a period of time such that well drilling should be prevented.
- Where surface water will remain contaminated such that fishing advisories or restrictions should be imposed.
- Where soils are remediated at the surface but contamination at higher concentrations remains in the subsurface.

- Where contaminant concentrations in soils are reduced to a level appropriate for residential use but a specific activity, such as gardening, might result in an unacceptable exposure.

- Where contamination is capped to prevent exposure and/or reduce leaching to ground water, and activities that may degrade the cap must be prohibited.

The use of an institutional control to meet a performance standard should include a mechanism to ensure the maintenance of the institutional control. Only certain types of institutional controls have such mechanisms (e.g., easements, zoning, and use restrictions). For institutional controls that do not have such mechanisms, an alternative mechanism for maintaining protectiveness should be put into place. Although the CAS does not advocate any particular mechanism for maintaining an institutional control, maintenance is critical until exposure to hazardous constituents would no longer result in unacceptable impacts.

Types of Institutional Controls

The following information is provided to help identify the various types of institutional controls that may be available and the tools that may be available to create them. The administrative authority should be consulted and provide assistance to the facility in identifying the institutional controls available for use. Generally, there are four ways to control land and resource use: proprietary controls, which rely on property law; governmental controls, which rely on regulatory authorities (usually state or local government); enforcement tools; and non-enforceable information devices.

Proprietary controls: Private property law provides a variety of mechanisms that can restrict or affect the use of property. Common examples include covenants and easements that limit future land use or prohibit activities that may compromise specific engineering remedies. For example, an easement can be used to prevent an owner from developing a land parcel for residential use. Proprietary controls are based on generally applicable property law. As a result, they can be implemented without the intervention of any Federal, state or local regulatory authority. By their nature, the development, implementation, and enforceability of proprietary institutional controls are almost always a function of state law.

Governmental controls: Governmental controls rely on local and state governments to impose restrictions on the citizens and resources in their jurisdictions. Because they are implemented by third parties (state or local government), monitoring, maintenance, and enforcement are the most important considerations. Their effectiveness is predicated on the ability and desire of the governing authority to undertake such efforts. Examples of the mechanisms available to governmental authorities are zoning restrictions; restrictions on ground water use; building permits; issuance of advisories warning of potential risk; and creation of registries of hazardous waste sites.

Enforcement controls: A RCRA operating or closure permit may be used to require settling parties to put some other form of control in place, such as a proprietary control. For example, the

permit could require the conveyance of an easement to the government or another third party. Typically enforcement tools are only binding on the party named in the agreement.

Non-enforceable information devices: Information devices such as deed notices are mechanisms for ensuring that parties to a real estate transaction (purchasers, tenants, and lenders) have an opportunity to become aware of the environmental status of the property prior to finalizing a transaction. For example, a deed notice can disclose the specific location of hazardous chemical residues at a site and list any restrictions on site use, access, and development. Because they do not convey any real property interests, information devices have no effect on the property owner's legal rights regarding the use of the property, and are not legally enforceable. Nonetheless, a properly drafted and filed deed notice can be effective by ensuring that future land owners and users are aware of all relevant environmental conditions at the site.

Other Considerations for Use of Institutional Controls

The evaluation and selection of appropriate risk management activities may be complicated by contamination that has migrated beyond the facility boundary or by contamination that poses an unacceptable risk to adjacent properties. EPA acknowledges that institutional controls are being used to restrict the use of land and other resources on onsite as well as offsite properties that have been impacted by the migration of contamination. As with the evaluation of institutional controls for an onsite remedy, the evaluation of institutional controls for offsite property should include a determination of the appropriateness, feasibility, and long-term effectiveness in protecting human health and the environment afforded by the institutional control. An institutional control cannot be placed on neighboring property without first negotiating and receiving consent of the property owner. Although the administrative authority bears no responsibility in these negotiations, they need to ensure that the resulting agreement or settlements are protective of human health and the environment. If the administrative authority considers the impacted offsite property a beneficial resource or objects to the use of institutional controls for impacted offsite property, the facility would need to achieve the performance standard(s) at the facility boundary.

Sources

"Corrective Action Strategy: Guide for Pilot Projects." Prepared by the U.S. Environmental Protection Agency, Region 6. November 2000.

"Institutional Controls in Baseline Risk Assessment: A Reference Manual." In: CERCLA Baseline Risk Assessment Issues. Prepared by the U.S. Department of Energy.

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