

Institutional Control Monitoring for the Environmentally-Impaired Site

A Guide for the Responsible Party, Owner, Developer or Lender



Anyone involved in the clean-up, sale, acquisition, redevelopment or financing of an environmentally-impaired site should ensure proper implementation of institutional controls. Effective implementation maintains compliance, limits liability, and protects health and the environment.

This guide explains why proper institutional control implementation is now more important than in the past, and how Terradex's services to implement and monitor institutional controls can be applied to your sites today. Also, when engineered controls are part of a remedy, Terradex can ensure future land activities do not breach the control.

Terradex services can be configured and procured directly or through your environmental professional. The service can be applied nationwide.



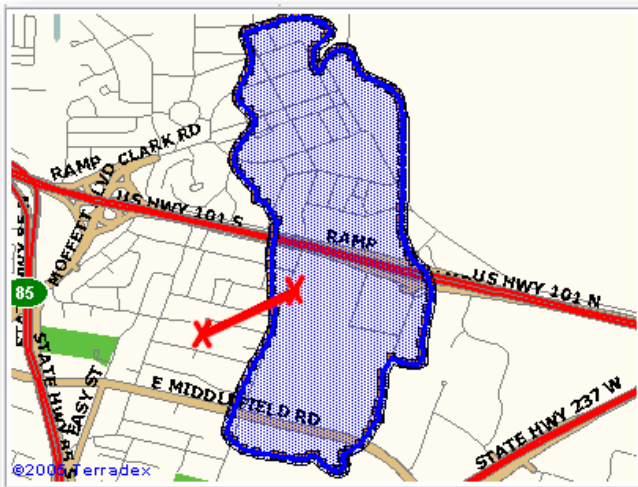
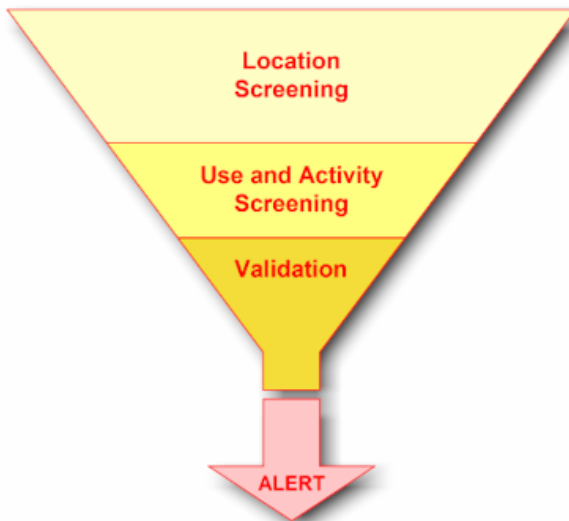
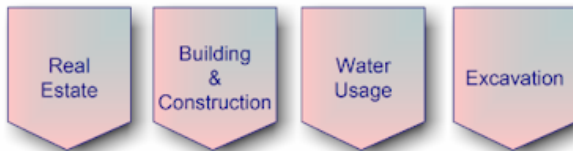
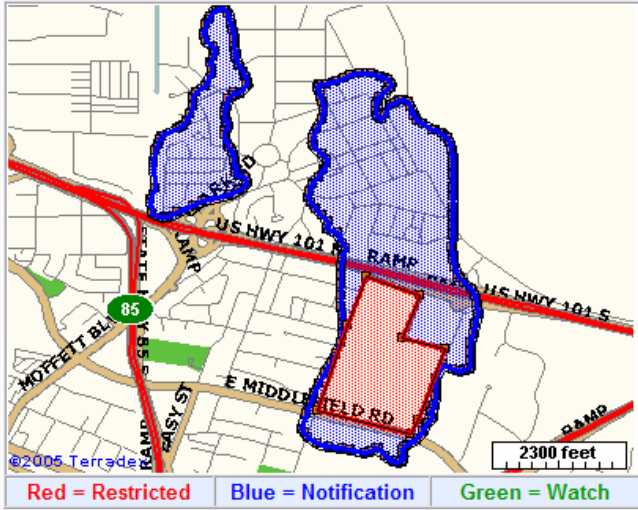
What Are Institutional Controls?

Institutional controls are legal or administrative restrictions placed on the use of sites to minimize the risk of exposure to environmental contamination. Although institutional controls were traditionally applicable only to the remediated property, these controls are increasingly applied to cover neighboring sites and public roadways impacted by the contaminant migration.

Institutional controls convey to affected parties the limitations on land activity and use. These controls go by many names, including environmental restrictions, environmental covenants or easements. Typical activity limitations include prohibitions on excavation or water well installation. Typical use limitations preclude residential land use or operation of a day care center or school. When a remedy uses an engineered control such as a liner or slurry wall, institutional controls are applied to ensure future land use does not compromise the engineered control. Institutional controls can be enforceable agreements, or they can be notices to inform and educate affected parties.

Requirements for institutional controls are becoming more consistent nationwide through adoption by states of the Uniform Environmental Covenants Act. Adoption of consistent state standards and the emergence of services like Terradex will help improve the effectiveness of institutional controls.

How Does Land Use Monitoring Work?



Step 1 — Initial Set-Up

Terradex works through a secure interactive web-site. The site location, boundaries of the institutional control, and the land use and activity limitations are entered by the environmental professional or responsible party. Parties to be alerted, and any follow-up actions to be taken by Terradex are also recorded. Terradex stores a scanned copy of the deed restriction. After the set-up is complete, Terradex generates an institutional control implementation plan as an Adobe® PDF.

At left, two institutional controls are mapped into the Terradex system. The smaller (red) represents an enforceable institutional control around the property. The larger (blue) institutional control is advisory and extends off-site, bounding a regional groundwater contamination plume.

Step 2 — Land Activity Monitoring

Terradex continuously collects land use and activity data including records of real estate transactions, building permitting, construction bids, excavation clearance notices, water wells permits, and sensitive occupancy permits. Terradex uses a variety of commercial and public suppliers of land activity data including Environmental Data Resources, Inc.

Data indicating a change in land activity or use at or near the boundary of an institutional control generates a “monitoring event.” Terradex screens each monitoring event to the use and activity limitations of the institutional control. When a potential conflict is found, Terradex opens an “alert” to flag the potential conflict in advance.

Step 3 — Alerting and Reporting

An “alert” is transmitted *BEFORE* the prospective land activity or use violates the institutional control. Designated contacts, typically the environmental professional or responsible party, receive the alert via e-mail. The “alert” is closed after the conflict is mitigated or found unlikely to be realized. All action steps are recorded in the system. Customized reports can be provided to parties requesting proof of monitoring and appropriate care.

The alert map, at left, represents a potential excavation into a residual groundwater plume. The location of the planned excavation (red line) is shown relative to the boundary of the environmental notice (blue area) associated with the groundwater plume. An alert also provides detailed information on the proposed land use or activity and on the institutional control.

Why Is Regulatory Attention Focusing On Institutional Control Implementation?

Monitoring institutional controls and improving their effectiveness has never been more important. A February 2005 General Accounting Office report documents the results of Congressional finding on the lax implementation of these important remedy components. This finding is driving federal and state regulators to scrutinize the effectiveness of institutional controls on properties across the United States. Poorly implemented institutional controls can have serious regulatory enforcement consequences, including the loss of a remedy agreement or the reopening of site clean-up negotiations.

However, effectively implementing an institutional control can carry rewards. Recently-enacted Brownfield Amendments provide new protection from CERCLA liability for property owners, provided that any institutional controls are implemented as part of "Appropriate Care Requirements." Numerous states accord equivalent liability protection. A well implemented institutional control can also prevent unsafe development activity and therefore control strict liability to the landowner or responsible party.

How Are Prospective Land Owners Affected?

Legislative and regulatory actions at both the federal and state levels encourage purchase and redevelopment of brownfield properties by offering stronger protections from liability. These protections, however, are conditional and hinge on whether the property owner complies with "All Appropriate Inquiry" provisions prior to purchase, and then "appropriate care" provisions after taking title. A core component of "appropriate care" is the effective implementation and monitoring of institutional controls. Even if a property owner conducts "All Appropriate Inquiry" before purchase, the ability to qualify for CERCLA liability protection may be forfeited if institutional controls are not adhered to over the course of property ownership.

California's Reuse and Revitalization Act of 2004 is representative of state action. Effective institutional control implementation satisfies the "Appropriate Care" and "Operation and Maintenance" requirements of the Act. By satisfying the provisions of the Act, the purchaser is protected from state environmental liability associated with the pre-existing contamination.

How Are Brownfield Developers Affected?

Institutional controls help brownfield redevelopers complete and then exit their projects. Successful redevelopment projects protect against future environmental and health risk through the application of engineered controls and institutional controls when residual contamination remains on a property. Institutional controls are often implemented to protect engineering controls, such as liners and monitoring wells, at

redeveloped sites. Brownfield redevelopers—and their lenders—know their investment is protected if institutional controls are implemented and monitored over time.

Do Lenders Require Proof of Institutional Control Implementation?

Institutional lenders exercise discretion in setting environmental due diligence requirements for their borrowers. Taking a "big picture view," lenders examine the CERCLA liability limits accorded through the federal Brownfield Amendments. Typically, lenders also focus on the need for borrowers to follow the proper controls under applicable state environmental provisions. Institutional control implementation is on the state "radar," so lenders are expecting both discovery and proper assurances for institutional control implementation.

Is Recording An Institutional Control Enough?

No. While recording is an important legal step to establish an enforcement right, it does not necessarily ensure the effectiveness of the institutional control over time. Recording an institutional control occurs typically at a recorder's office at the county level. Recorded institutional controls are not always discovered during an ownership transfer, and information about the institutional control is not typically found during the routine use or redevelopment of the site. Developers, lease holders, city planning and permitting departments, excavators, and others involved with the site may not search for recorded instruments, nor do they have the tools to do so. Therefore, while recording establishes an enforcement right, it does not guarantee that knowledge of the institutional control is conveyed to affected parties over the term of property ownership.



How Does Terradex Implement And Monitor Institutional Controls?

Terradex is the leader in the emerging field of institutional control monitoring for any size and type of site, from a multi-parcel CERCLA site to a corner gas station. The USEPA has demonstrated Terradex's approach as a best-practice for monitoring of institutional controls. The web-service is based on proprietary technology and practical experience.

Why Does Terradex Monitor Multiple Types Of Land Use And Activities?

Terradex monitors multiple sources of land activity records to aid early detection of potential institutional control violations. By layering multiple data sources and types of land use and activity records, the likelihood of early discovery of a future potential violation of an institutional control is increased. When a construction project violates an institutional control, there were often multiple opportunities to prevent the event before it happens. For example, a land activity record would have been generated based upon 1) detection of a record of a

real estate sale, 2) detection of a bid notice for architectural planning, 3) detection of a building permit or planning record, or 4) detection of an excavation notice.

How Many Land Activity Events Are Monitored And Alerts Are Generated?

Terradex detects an average of sixty land activities a year for sites in urban areas. Based on screening by Terradex, on an average urban site, a user could anticipate two alerts a year opened by Terradex.

Can Terradex Monitor for Changes in Property Records?

If an institutional control must be enforced to preempt an unsafe land use, the effectiveness of the institutional control must not be impeded by recent property recordings or mapping. Periodic verification of recording is a typical expectation for institutional control maintenance. Terradex provides physical review of title documents on a periodic basis to determine whether or not institutional controls remain in place. Any new recordings to the parcel or changes in parcel mapping can be reported electronically. These reports are forwarded to your environmental professional or environmental counsel. These parties can offer the opinion whether the intent of the institutional control has been subordinated by new recordings or parcel mapping activities.

Can Terradex Work with Government Agencies?

At the direction of the client, Terradex can respond to interests of local government and state environmental regulatory agencies. If a local government wishes to query the Terradex database during the permit or planning process, web access can be granted to the institutional controls. Terradex generates a development advisory for use by local planners. If an environmental regulatory agency requests access to monitoring and alert records, the customer can arrange secure web access to that data.

Where Can Terradex Be Applied?

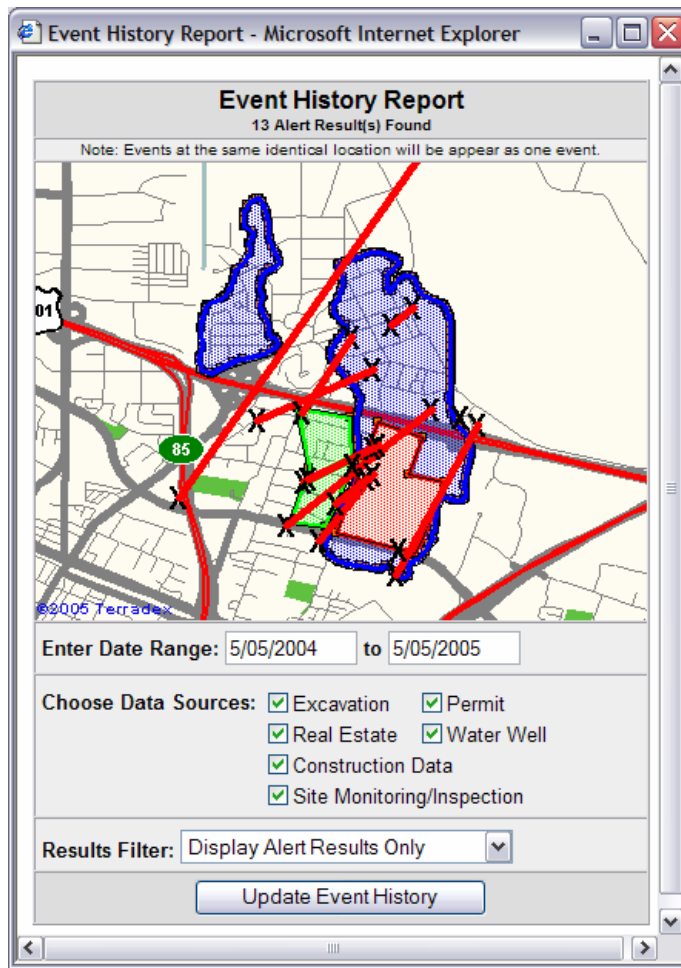
Institutional control monitoring services and property records searches can be provided across the United States.

How To Start Using Terradex's Services?

Contact your environmental services firm. The environmental professional can obtain the site information which is needed to set-up Terradex monitoring services. In only a few hours the set up is complete. Depending on the data source, it can take up to two weeks before full monitoring is implemented.

How Is The Service Priced?

Terradex's institutional control monitoring service can be purchased on a yearly subscription basis. Please work with your environmental professional to get a quote. They can also advise you on whether the fees for Terradex are reimbursable from existing state environmental funds as an allowed expense. When multi-year institutional control monitoring obligations must be maintained, Terradex can be procured through an escrow or trust account.



Above the Terradex application displays an event history report for a large urban site. Land activity alerts (shown as lines with an "x" on each end) occurred routinely during a twelve month period at this California Superfund site. The alerts occurred near institutional controls. In one year thirteen alerts were opened after monitoring over 200 land activities records.



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*Terradex is a registered Trademark. Terradex's proprietary technology is patent-pending.
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