Long Term Stewardship At Leaking Underground Storage Tank Sites With Residual Contamination

U.S. Environmental Protection Agency
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Who will find this document helpful?

State underground storage tank (UST) cleanup programs can use this document to:

- Learn what other state UST programs are doing with their long term stewardship programs
- Develop or enhance their long term stewardship programs

Are other resources related to long term stewardship available?

Beginning on page 15 of this document, we provide state websites that contain more information about their activities pertaining to long term stewardship, institutional controls, environmental covenants, and land use restrictions, as well as other similar activities.

In addition, readers may find these resources helpful:

ASTSWMO's Leaking Underground Storage Tank (LUST) Task Force published *State Approaches to Managing Institutional Controls and Ensuring Long-Term Protectiveness at Leaking Underground Storage Tank (LUST) Sites* in May 2015. That report provides responses from participating states regarding their approaches and practices in applying long term stewardship at LUST sites.

EPA's December 2012 *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* provides information and recommendations regarding planning, implementing, maintaining, and enforcing institutional controls at contaminated site cleanups. This document is referred to as the PIME (for planning, implementing, maintaining, and enforcing).

EPA's December 2012 *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites* provides guidance for developing institutional control implementation and assurance plans at contaminated sites where response actions include institutional controls. These plans, also referred to as ICIAPs, describe institutional control activities to be undertaken and who is responsible for carrying out those activities.

Interstate Technology Regulatory Council's December 2016 *Long-Term Contaminant Management Using Institutional Controls* provides guidance about developing and improving long term management programs for institutional controls. The guidance describes critical elements and best practices for an institutional control management program. It is based on the successes and lessons learned from established state and federal agency programs.

Contents

Note To Readers: Links May Change

All links provided in this document are current as of publication. However, as is common with websites, links may change post publication.

Overview Of Long Term Stewardship At Leaking Underground Storage Tank Sites With Residual Contamination

In this overview, we discuss:

- What long term stewardship is;
- Why it is important;
- Where EPA obtained the information in this document;
- The difference between long term stewardship and institutional controls;
- Who is responsible for carrying out long term stewardship at LUST sites with residual contamination; and
- The relationship between EPA and state UST programs.

What is long term stewardship at LUST sites with residual contamination?

Long term stewardship means planning how to manage—for the long term—LUST sites with residual contamination. Long term stewardship involves establishing and maintaining controls to ensure we protect human health and the environment at these sites. Long term stewardship is managing land, surface water, or groundwater with a goal of preventing or minimizing exposure from contamination left in place. Activities for long term stewardship may have to operate effectively for years or decades or even longer.

Why is long term stewardship at LUST sites with residual contamination important?

Long term stewardship helps ensure current and future users of LUST sites with residual contamination are protected long after the cleanup phase is completed. At some of these sites, contamination may remain in place. Because residual contamination remaining on site could limit or restrict future use, it is important to implement long term stewardship activities, which safeguard site users in the event land use changes in the future.

Where did EPA get the information for this document?

To develop this document, EPA researched long term stewardship activities in 35 states, which ASTSWMO, through its 2014 survey and 2015 report, identified. In addition, EPA interviewed 7 of those initial survey respondents and conducted web searches of states' long term stewardship activities.

How is long term stewardship different from institutional controls?

Long term stewardship is a broader concept that encompasses overall site management responsibilities to minimize exposure to contamination and protect the integrity of response actions. Examples of long term stewardship include establishing, maintaining, and implementing physical or engineering controls and legal or institutional controls; using information and data tracking systems to share information; monitoring and enforcing controls; and obtaining resources to implement controls for the life of the remedy.

Institutional controls are one means of achieving long term stewardship and involve using non-engineered administrative and legal activities. Institutional controls limit land or

resource use by informing current and future generations of hazards and risks, as well as providing information that helps guide behavior at or use of the site. States also use engineering controls, which are physical barriers and reduce or restrict exposure to contamination. Examples of engineering controls to achieve long term stewardship include plugging impacted wells; replacing wells; and installing vapor barriers, landfill soil caps, impermeable liners, underground slurry walls, fences, containment covers, and groundwater pump and treat monitoring systems.

Who is responsible for carrying out long term stewardship at LUST sites with residual contamination?

Implementing, maintaining, and enforcing long term stewardship activities is often the responsibility of state or local governments, private entities, responsible parties, communities, and others such as land developers, financial institutions, insurance companies, and other third party trusts. Because many stakeholders might be involved in carrying out long term stewardship activities, it is important for all to communicate clearly and coordinate effectively. It is also important for all involved to have a clear understanding of their own and others' responsibilities. EPA's 2012 PIME document discusses this in greater detail.

To document responsibilities over the full life cycle of an institutional control at a LUST site with residual contamination, a state may develop a site-specific institutional control implementation and assurance plan, also known as an ICIAP. An ICIAP provides detailed arrangements and a common understanding by defining what site-specific institutional controls will be implemented and who will implement them. EPA's 2012 ICIAP document discusses this in greater detail.

What is the relationship between EPA and state UST programs?

EPA designed the UST program so that states and territories (referred to as states) are the primary implementers of the UST and LUST programs in their jurisdictions. States' requirements are generally as stringent as the federal underground storage tank requirements. In some instances, state regulations are stricter than the federal UST regulations.

EPA's UST program gives states significant flexibility in how they implement their UST and LUST programs. That means, states also have flexibility in how they design and implement long term stewardship at LUST sites with residual contamination in their jurisdictions.

Components Of Long Term Stewardship

Planning for and carrying out long term stewardship for LUST sites with residual contamination requires a broad range of staff expertise in multiple areas, such as managerial, technical support, project management, and legal. Robust long term stewardship should include **planning**, **implementing**, **maintaining**, and **enforcing**. The approach at an individual site will vary, depending on site-specific conditions.

Planning may include activities leading up to developing long term stewardship or implementing institutional controls. Planning may include evaluating:

- The types of use restrictions necessary at a site,
- Potential institutional controls that will achieve selected restrictions,
- Potential parties who may be responsible for long term institutional control activities,
- Criteria for terminating institutional controls,
- Issues that might impact the effectiveness of institutional controls,
- Estimated costs, and
- Funding sources particular to the state.

Planning for institutional controls should begin early and be an ongoing process. It generally should begin prior to selecting substantive use restrictions and continue during the process of converting desired use restrictions into actual institutional control instruments. That planning, in turn, should include establishing approaches for assuring compliance with institutional controls over their duration. Many common problems with using institutional controls often can be avoided by critically evaluating and thoroughly planning for the entire institutional control lifespan, to the extent possible, early in response selection and design.

Implementing is another component of long term stewardship; it includes activities undertaken to put an institutional control in place and encompasses drafting, negotiating, and signing specific documents necessary to legally establish the institutional control. State and local governments often define cleanup levels at LUST sites and typically oversee cleanups and determine whether institutional controls will be allowed or required. While many states may require institutional control tracking, ultimately, individual property owners are required to ensure that institutional controls remain in place and are protective. Therefore, states should ensure that when institutional controls are used, they are consistent with the level of cleanup and proposed reuse of the site, and that their requirements are clearly conveyed to the appropriate stakeholders.

To achieve success in implementing long term stewardship efforts:

- Ensure clear channels of communication with local governments and other stakeholders who are not responsible parties, but may need to be involved. Examples include: other state agencies or departments; local governments; health

departments; real estate and financial entities; well permitting authorities; construction and utility workers; cleanup contractors; nearby property owners and occupants; and tourist and recreational users, and

- Communicate technical details to stakeholders with various levels of knowledge and understanding about state regulatory programs.

Maintaining is very important to ensuring the long term effectiveness of institutional controls. Maintaining the integrity of the cleanup involves periodic monitoring and reporting. Generally, responsible parties have primary obligation to monitor and report on the effectiveness of institutional controls. Monitoring generally is more effective when there is early planning and coordination, a clear delineation of roles and responsibilities, and detailed reporting requirements. In most situations, it is recommended that monitoring and reporting requirements are layered to increase the likelihood that any breaches will be detected early. You can achieve this by assigning monitoring responsibility for institutional controls to more than one party. Where monitoring and reporting is assigned to more than one party, a mechanism, such as designation of an entity with the lead monitoring and reporting responsibility, may be useful in ensuring a successful monitoring and reporting effort.

Enforcing encompasses a variety of enforcement options available for dealing with potential problems involving improper or incomplete implementation, maintenance, and breaches of institutional controls. Often, the preferred and fastest approach for dealing with institutional control enforcement is to seek voluntary compliance by identifying problems early and communicating informally. Many issues can be addressed effectively with a phone call and appropriate follow up, such as site visits, letters to ensure complete communication, and creating a record. However, there may be occasions when more formal steps are necessary. Enforcement can occur in several ways, depending on the type of institutional control instrument, the authority being used, the party attempting to compel an activity, and the party responsible for taking an action.

Approaches To Achieving Long Term Stewardship

EPA's December 2012 *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* describes how to use institutional controls to develop, design, and implement long term stewardship programs. The 2012 document, which is applicable to a variety of cleanup programs, identifies institutional control approaches to achieve long term stewardship.

- **Proprietary controls**—means controls on land use that are private in nature because they tend to affect a single parcel of property. They are established by private agreement between the property owner and a second party who enforces the controls. Common examples include easements and covenants.

- **Government controls**—are usually implemented and enforced by state or local governments. These controls impose land or resource restrictions using a government's authority. Common examples include zoning ordinances, local ordinances or permits, and groundwater use restrictions.

- **Information devices**—provide information or announcement via recorded notice to those interested in knowing that residual contamination remains on site. -Notice can include property records or deeds, excavation and notification services, and state registries or websites. Information devices generally do not provide enforceable restrictions.

Some of these approaches may not be available or appropriate for all site types. For example, county zoning typically is not available at an active federal facility. Also, states may use more than one institutional control approach to ensure long term stewardship objectives are fully addressed.

On the following pages, we discuss these approaches, provide examples and brief summary for each, and supply links for additional information.

Proprietary Approach To Long Term Stewardship

Proprietary controls usually affect a single parcel of property and place restrictions on or affect the use of the property. Proprietary controls are written private agreements between the property owner and a second party who can enforce the agreement. Proprietary controls rely heavily on state laws and practice; they can be implemented without intervention of regulatory authority and, to be enforceable, require a conveyance of property interest from the landowner to another party.

Some states have enacted laws that authorize controls for preventing use in conflict with environmental contamination or remedies. The Uniform Environmental Covenants Act, referred to as UECA, is a statute that directly authorizes land use controls for the purpose of preventing use in conflict with environmental contamination or remedies and can provide advantages over traditional common law proprietary controls. Common examples of proprietary controls are easements and covenants, which we discuss below.

- **Easements** are property rights conveyed by landowners to other parties; easements give other parties specific rights with regard to the landowner's property. Easements are either affirmative, which entitles the holder to do something on another person's land, or negative, which divests owners of the right to do something on the property.

    - Florida Senate's 2012 Florida Statutes, Title XL Real And Personal Property, Chapter 704 Easements provides the common law and statutory definition of an easement. Florida Department of Environmental Protection's October 2012 Memorandum Of Understanding with Florida Department of Transportation discusses permitting of monitoring wells and remediation infrastructure to be installed in Florida Department of Transportation's right of way; it also provides a practical easement example.

    - Montana Department of Environmental Quality's Montana Code Annotated 2015: 76-7-101 through 213 Environmental Control Easement Act and Montana Department of Environmental Quality's declaration of well control or isolation zone easement template provide statutory requirements and guidance examples of their environmental control easement.

    - New York Department of Environmental Conservation's environmental easement template and a completed example of the template outline requirements, which conform to New York Environmental Conservation Law §71-3605 Environmental Easements.

- **Covenants,** such as environmental or restrictive covenants are contractual agreements between landowners and others who establish institutional controls when remediated property is transferred to another party. An environmental covenant arises under an environmental response project or under a court or board

order. A restrictive covenant is a clause in a deed or lease to real property that limits what the landowner or lessee can do with the property. Restrictive covenants allow surrounding property owners, who have similar covenants in their deeds, to enforce the terms of the covenants in a court of law.

- Indiana Department of Environmental Management's website contains templates regarding environmental restrictive covenant modification and termination and cost recovery; it also contains a statutory reference to reimbursement costs for administrative and technical expenses associated with determining the appropriateness of an environmental restrictive covenant.

- Idaho Department of Environmental Quality's *Risk Evaluation Manual for Petroleum Releases* in Section 6.1 Environmental Covenants discusses activity and use limitation, which is a restriction or obligation, with respect to real property, that is created by an environmental covenant according to UECA Chapter 50, Title 55, Idaho Code. An activity and use limitation reduces potential exposure to residual contaminants at a release site.

Government Approach To Long Term Stewardship

Government controls are usually implemented and enforced by state or local governments. Using the government's authority, state and local authorities may impose land use and other government controls at their discretion. Government controls are highly effective if they are appropriately implemented, maintained, and enforced. Common examples of governmental controls are zoning ordinances, local ordinances or permits, and groundwater use restrictions, which we discuss below.

- **Zoning ordinances** allow local governments to specify land uses for certain areas. See an explanation of land use planning and zoning in *Sustainable Redevelopment of Brownfields: Using Institutional Controls to Protect Public Health*, page 3.

    - Rochester, New York's Environmental Institutional Control website flags properties, which have undergone environmental cleanups, but still contain residual contamination. This automated system helps ensure that permit applicants are notified when residual contamination exists at sites. The website includes a list of institutional control properties and their locations. Rochester's *Permit Controls for Environmental Conditions* brochure describes their environmentally flagged properties permit control process.

- **Local ordinances or permits** outline specific requirements before authorizing an activity. Examples include building codes and well drilling permit requirements. Permits are used to control certain activities, such as a change in land or resource use, or excavation and grading. Permits are written licenses or warrants, issued by a governmental authority. A permit empowers a grantee to do some act not forbidden by law, but only if authorized by the government. For example, a zoning permit is issued by a local unit of government authorizing the use of a piece of land for a stated purpose.

    - Michigan Department of Environmental Quality's *Road Right-Of-Way Alternate Institutional Control* form may serve as an alternate institutional control when environmental contamination is proposed to remain in place within any road right-of-way not owned or controlled by Michigan's Department of Transportation. There must be confirmation that there are no current plans to relocate, vacate, or abandon the public highway.

    - Iowa Department of Natural Resources' *Listing of Approved City and County Private Well Ordinances* shows Iowa's information about city and county ordinances, which have been submitted for review or approved for use as institutional controls to restrict installation of drinking and non-drinking water wells.

    - Indiana Department of Environmental Management's *Remediation Closure Guide*, beginning on page 151, discusses environmental restrictive ordinances, as well

as their evaluation criteria and notification provisions. Indiana's environmental restrictive ordinances, when adopted by a municipal corporation, attempt to control the use of groundwater in a manner and to a degree that protects human health and the environment against unacceptable exposure to a release of hazardous substances or petroleum.

- **Groundwater use restrictions** limit or prohibit certain uses of groundwater, such as a groundwater management zone.

  - Missouri Department of Natural Resources' Missouri 10 Code of State Regulation 23-3.010 Location of Wells defines the lateral distance required from pollution or contamination sources for installing groundwater wells.

  - Montana Department of Natural Resource Conservation's Montana Code Annotated 2015, 85-2-506. Controlled groundwater areas – designation or modification provides statutory reference for Montana's authority to designate controlled groundwater areas and prevent new appropriations or limit certain types of water appropriations due to water availability or water quality problems for the protection of existing water right.

  - Delaware Department of Natural Resources and Environmental Control's Long Term Stewardship website presents groundwater management zones, which are delineated areas adjacent to and including contaminated sites where Delaware determined that new drinking water wells must be restricted in order to protect public health and safety.

  - Kansas Department of Health and Environment's *Environmental Use Control Program* fact sheet discusses their legal mechanism for applying restrictions on land use for properties with contaminant concentrations that exceed residential standards. Kansas' Long Term Stewardship and Information Management Unit oversees environmental use controls, implements their risk management program, maintains their identified sites list and other databases, and supports remedial work through researching site background information.

Information Approach To Long Term Stewardship

Information devices provide information or notice that residual contamination remains on site as well as identify environmental controls. This includes site data to support notification about whether a remedy is operating as designed or that residual or contained contamination may remain on site. Common examples of information devices are deed notices filed in local land records, excavation and notification services, and state registries and websites, which we discuss below.

- **Deed notices** are filed in public land records and alert people about potential health risks from contamination remaining on site. These documents provide notice to anyone, such as a lender or a prospective purchaser reviewing the chain of title, regarding contamination on the property; this can help identify potential land or resource uses that could result in unacceptable exposures to contamination.

    - Alaska Department of Environmental Conservation's 2011 *Guidance On Using Institutional Controls In Oil And Other Hazardous Substance Cleanups* provides Alaska's contaminated sites program staff with help in evaluating whether institutional controls are necessary when responding to releases of oil or other hazardous substances. The guidance describes types of institutional controls staff may use, as well as basic steps in creating, tracking, and removing them. See page 4 for a short discussion of Alaska's use of deed notice; the document also includes a number of helpful appendices.

    - North Carolina Department of Environment and Natural Resources developed the Notice of Residual Petroleum that allows site closure, as long as the property owner agrees to place a deed restriction on the property. Depending on site conditions, North Carolina can close a site with residual petroleum (soil or groundwater, or both) if a perpetual land use restriction is attached to the deed. There are two notices: one for commercial or industrial sites, and one for existing residences. Statute § 143B-279.11 authorizes the notice of residual petroleum.

    - New Jersey Department of Environmental Protection's Site Remediation Reform Act Forms contains online forms and services pertaining to site remediation in New Jersey. The web area includes their *Model Deed Notice* and *Model Termination of Deed Notice* standard forms.

- **Excavation and notification services**, which are commonly referred to as one call systems and are similar to 911 for emergencies, notify people if sites on which they plan to dig or excavate have residual contamination.

    - Utah's Blue Stakes Utility Notification Center website discusses their statewide, one call communications link and notification system relating to all types of excavations. Utah's UST program is a member of the Blue Stakes system and

receives notifications when excavators plan to dig at a leaking UST site that is registered with the system. The UST program emails site information to excavators, outlining steps they may need to take if contamination is encountered.

- EPA's 2006 *Summary Pilot Report: Protecting Human Health and Environmental Remedy Components Through Proactive Coordinated Monitoring with Terradex, One-Call, Local Permitting, and Other Available Sources of Information* summarizes results of a collaborative pilot program in California in 2003. The purpose of the pilot program was to test the use of one call systems, county permits, and other ways of providing information about location of contamination, location of underground remedy components, and land or water restrictions.

- Dig Clean is a national environmental safety advisory website, which provides excavators with environmental safety advisories about underground cleanup facilities or residual contamination near planned excavations. Information from this website can help reduce or eliminate exposure to contamination remaining on site.

- **State registries or websites** provide people with access to data about residual contamination remaining on site. Many states use registries or websites to provide constituents and other stakeholders with easily accessible on-line access to site-specific information. Spill databases can be thought of as an institutional control because they provide the public with release information, efforts taken to remedy releases, and the potential that excavation might result in soils that require proper handling.

  - California State Water Resources Control Board's GeoTracker is their on-line data management system for sites that impact water quality—with an emphasis on groundwater—in California. The system contains records and provides reports for sites that require cleanup, such as LUST sites, and for permitted facilities.

  - Colorado Division of Oil and Public Safety maintains an on-line Geographic Information System interactive map viewer that links to their Colorado storage tank information system (COSTIS). It provides information related to all open and closed petroleum release events from regulated USTs and above ground storage tanks.

  - Indiana Department of Environmental Management's *Institutional Controls Registry: Remediation Sites Report* lists over 1,600 properties and includes site address, county, city, cleanup program overseeing the project, and types of land use restrictions for the site. Indiana develops the registry from project files; users can view the project files and aerial view of sites, where available, via Indiana's Virtual File Cabinet.

- Washington Department of Ecology's Toxic Cleanup Program Web Reporting provides an on-line selection of reports and datasets. Users can quickly retrieve subsets of data, including information about environmental covenants, LUSTs, and USTs.

- Wisconsin Department of Natural Resources' Contaminated Lands Environmental Action Network (CLEAN) website allows users to search Wisconsin properties with a history of contamination. It is an interlinked system, which provides information on different contaminated land activities in Wisconsin; the system assists users with investigating, cleaning up, and re-using that land.

Tips For Achieving Long Term Stewardship

Before planning and implementing long term stewardship at LUST sites with residual contamination, states should ensure the infrastructure in your state is in place. In particular, it is important to ensure your state has the statutory authority and the procedures in place to carry out long term stewardship effectively.

Planning for, implementing, and maintaining long term stewardship at LUST sites with residual contamination may require additional resources. Those costs can vary significantly, depending on the site and the complexity of long term stewardship activities. For example, some approaches involve periodic checks or audits to ensure long term stewardship activities are maintained and still protecting the site. Some states, such as Alabama and Kansas, have established upfront fees to cover future long term stewardship activities carried out by the state. In some cases, a state's voluntary cleanup program, as opposed to its UST program, is responsible for following up at sites with residual contamination.

Below is a brief list of practical site-specific and overarching actions for states to consider when developing or enhancing long term stewardship activities.

Planning

- Use a range of long term stewardship mechanisms to enhance the protectiveness of the corrective action or remedial plan
- Avoid imposing excessive restrictions on an entire property when only a part of the property is impacted
- Give special consideration to groundwater plume movement and off site groundwater contamination

Implementing

- Develop long term stewardship guidance document for site owners
- Make model documents or templates available online
- Review proposed institutional control documents before they are recorded
- Reach out to and notify stakeholders when a site has long term stewardship needs
- Use a standard data format

Maintaining

- Conduct or require periodic inspections or audits of long term stewardship sites
- Require periodic self-certification from owners of long term stewardship sites
- Make available to the public via website information about long term stewardship sites where contamination remains in place
- Consider participating in call 811 excavation notification service
- Require notification before selling a long term stewardship site

Enforcing

- Consider enforcement actions when long term stewardship requirements are not met

Modifying And Terminating

- Outline conditions for modifying and terminating restrictions
- When conditions allow, remove restrictions to promote redevelopment

State Resources Regarding Long Term Stewardship

Many states use long term stewardship to manage sites with residual contamination from hazardous substances, petroleum, or other wastes. The table below provides examples of state websites that contain information about their activities pertaining to long term stewardship, institutional controls, environmental covenants, land use restrictions, and other activities.

State	Website URL
Alabama	Uniform environmental covenants regulations http://www.adem.state.al.us/alEnviroRegLaws/files/Division5.pdf
Alaska	Institutional controls information http://dec.alaska.gov/spar/csp/institutional-control-info.htm
Arizona	Declaration of environmental use restriction http://legacy.azdeq.gov/environ/waste/cleanup/deur.html Institutional controls http://legacy.azdeq.gov/environ/waste/cleanup/deur_exhibits.html
California	GeoTracker on-line data management system for sites that impact water quality in California http://geotracker.waterboards.ca.gov/
Connecticut	Environmental land use restrictions http://www.ct.gov/deep/cwp/view.asp?a=2715&q=438254&depNav_GID=1626
Delaware	Long term stewardship http://www.dnrec.delaware.gov/dwhs/SIRB/Pages/LongTermStewardship.aspx
Florida	Institutional controls contact list and information page; includes link to July 2016 procedures guidance http://www.dep.state.fl.us/waste/categories/brownfields/pages/ICR.htm
Hawaii	Long term management of petroleum contaminated soil and groundwater http://www.hawaiidoh.org/references/HDOH 2007c.pdf
Idaho	Environmental covenant http://www.deq.idaho.gov/waste-mgmt-remediation/remediation-activities/environmental-covenant/
Illinois	Environmental land use control http://www.epa.illinois.gov/topics/cleanup-programs/lust/publications-regs/environmental-land-use-control/index

State	Website URL
Indiana	Institutional controls http://www.in.gov/idem/landquality/2343.htm Remediation closure guide; see section 12 for environmental restrictive covenants, environmental restrictive ordinances, and long term monitoring http://www.in.gov/idem/landquality/2388.htm
Iowa	Environmental covenants and institutional controls http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Underground-Storage-Tanks/Leaking-Underground-Tanks/Environmental-Covenant
Kansas	Long term stewardship and information management unit http://www.kdheks.gov/remedial/euc/
Maine	Environmental covenant templates that meet Maine's Uniform Environmental Covenant Act; scroll half way down the web page http://www.maine.gov/dep/spills/publications/guidance/index.html;
Michigan	Environmental mapper website with an on-line interactive map for active and closed sites http://web1.mcgi.state.mi.us/environmentalmapper/mcgi.aspx Restrictive covenant model forms and documents http://www.deq.state.mi.us/sid-web/Forms_Docs.aspx?strId=FORMS Environmental license agreement form for institutional control of environmental contamination http://mdotcf.state.mi.us/public/webforms/public/3760.pdf
Missouri	Current practices and future recommendations about long term stewardship report https://dnr.mo.gov/env/hwp/docs/lts-final-report.pdf
Montana	Guidance categorizing petroleum releases as resolved or resolved with petroleum mixing zone https://deq.mt.gov/portals/112/land/lust/documents/TechGuidDocs/tgd_9.pdf; see page 2, types of closures resolved with a petroleum mixing zone; Appendix A, page 4, section H, petroleum mixing zones checklist; and Appendix B, page 13, section 7, exposure pathway evaluation and risk mitigation
Nebraska	Institutional control tracking system http://deq.ne.gov/NDEQProg.nsf/%24%24OpenDominoDocument.xsp?documentId=BED4838DCEBE3D9886257CC8006BD4EB&action=openDocument
Nevada	Environmental covenants http://ndep.nv.gov/bca/covenant.htm

State	Website URL
New Hampshire	Institutional controls for Brownfields program http://des.nh.gov/organization/divisions/waste/hwrb/sss/brownfields/controls.htm
New Jersey	Engineering and institutional control white paper http://www.state.nj.us/dep/srp/stakeholders/whitepapers/inst_controls.pdf
North Carolina	Instructions for preparing a notice of residual petroleum for land use restrictions https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/UST/Corrective%20Action/NRP%20instruct.doc Instructions for preparing a notice of residual petroleum for alternative land use restrictions https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/UST/Corrective%20Action/NRP%20alt%20instruct.doc
North Dakota	Environmental covenants/institutional controls http://www.ndhealth.gov/wm/EnvironmentalCovenantsInstitutionalControls.htm
Ohio	Closure/corrective action information; scroll to bottom of web page for environmental covenant information http://www.com.ohio.gov/fire/BUSTRClosureCAInformation.aspx
Oregon	Institutional and engineering controls http://www.deq.state.or.us/lq/pubs/docs/cu/GuidanceUseofInstitutionalControls.pdf
Pennsylvania	Storage tank cleanup program; under statutes and regulations, see Uniform Environmental Covenants Act http://www.dep.pa.gov/Business/Land/SiteRemediation/Storage-Tank-Cleanup-Program/Pages/default.aspx#.VzS2BIQrLcs Activity and use limitations registry http://www.depgis.state.pa.us/pa-aul/
Rhode Island	Cleaning a site – How clean is clean? see 3. Environmental Land Use Restriction http://www.dem.ri.gov/brownfields/steps/cleaning.htm

State	Website URL
Texas	30 Texas Administrative Code 334.308 covers UST and above ground storage tank allowable costs and restrictions https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=334&rl=308 Criteria for target concentrations for cleaning up LUST releases discovered and reported to Texas https://www.tceq.texas.gov/assets/public/legal/rules/rules/pdflib/334g.pdf
Washington	Washington Administrative Code, institutional controls section of Title 173 http://app.leg.wa.gov/WAC/default.aspx?cite=173-340-440 Voluntary cleanup program requirements; scroll to bottom of page for environmental covenants http://www.ecy.wa.gov/programs/tcp/vcp/vcp2008/vcpRequirements.html
West Virginia	Voluntary remediation program website mentions institutional controls and includes land use covenant template http://www.dep.wv.gov/dlr/oer/voluntarymain/Pages/default.aspx
Wisconsin	Residual contamination and continuing obligations http://dnr.wi.gov/topic/brownfields/residual.html
Wyoming	Voluntary remediation program – remedy selection and implementation; scroll half way down web page for institutional controls section http://deq.wyoming.gov/shwd/remedy-selection-implementation/ Institutional controls, engineering controls, and use control areas fact sheet http://deq.wyoming.gov/media/attachments/Solid%20%26%20Hazardous%20Waste/Voluntary%20Remediation%20Program/Fact%20Sheets/SHWD_VRP_FACTSHEET-23-INstitutional-Controls-Engineering-Controls-and-Use-Control-Areas_20074-0522.pdf

United States Environmental Protection Agency
Land And Emergency Management 5401R
EPA 510-K-17-001 February 2017 www.epa.gov/ust