CHAPTER 10
Institutional Controls and Reuse

10.1 Institutional Controls (ICs)

This chapter lays out considerations for RPMs/OSCs to evaluate before using ECs and ICs when addressing lead contaminated residential soils. ECs are considered engineered or physical barriers that are built or installed to separate people from chemical, biological, or physical hazards, including barriers such as landfill caps, asphalt and concrete driveways and sidewalks, fences, or security guards. EPA defines ICs as administrative and/or legal controls that help to minimize the potential for exposure to contamination and/or protect the integrity of a response action. ICs typically are designed to work by limiting land/or resource use or by providing information that helps modify or guide human behavior at a site. ICs can be implemented on a site at any time, including: (1) when contamination is first discovered (*i.e.*, prohibition of excavation of newly discovered soil contamination); (2) when the remedy is ongoing (*i.e.*, restrictions on property use until cleanup levels are met); and (3) when hazardous substances, pollutants, or contaminants remain at the site above levels that allow for UU/UE. For remedial actions, ICs should be periodically inspected by the party responsible for maintaining them to ensure that they are operating as planned. For removal actions, post-removal site controls should be in place prior to the completion of a cleanup and coordinated with local, state, or tribal authorities where prudent and warranted.

As described in earlier chapters, residual lead contamination is common for many lead sites after response actions. Site managers and site attorneys should consider whether the remedy would achieve UU/UE as one of the factors in deciding when an IC is appropriate at a site. UU/UE generally is the level of cleanup at which all exposure pathways present an acceptable level of risk for all media uses. It is EPA's policy that if a CERCLA response action cannot support UU/UE (U.S. EPA 2000d), ICs are generally required. The UU/UE threshold is a site-specific determination. Note that the term "residential" is often used interchangeably with UU/UE but these are not synonymous terms. For example, a lead cleanup where the top layer of soil has been removed and replaced can support residential use at a site that includes restrictions on use below the top layer (*e.g.*, restrictions on digging, requirements for elevated gardens, an information/outreach program, etc.).

ICs are also used to protect the integrity of a remedy. In the lead cleanup context, this may mean using ICs to prevent penetration of a cap or damage to monitoring equipment. An important consideration in this context is what type of IC will provide the required remedy protection. For example, the primary concern for protecting a remedy in a lead cleanup scenario is typically uncontrolled excavation. For this reason, it is important to include ICs that will be relevant to excavators. Examples of potentially effective ICs are deed restrictions, zoning ordinances, local digging or drilling permits, and "Dig Safe," "One-Call," or "Miss Utility" systems.

Where contamination is not fully removed and the cleanup does not achieve UU/UE, O&M and/or Post Removal Site Control (PRSC) may be required by the appropriate party in perpetuity to maintain the effectiveness of the remedy. O&M or PRSC may include activities such as periodic inspections to ensure that soil cover and any barrier/marker remains in place, contaminated soil has not been disturbed, and an evaluation of whether ICs are effective. The required activities should be determined site-specifically and would normally be outlined in an O&M plan or similar document. For additional information on O&M and other post-construction activities in the remedial program, see the *Guidance for the Management of Superfund Remedies in Post Construction* (U.S. EPA 2017e). For more information on PRSC, see the *Policy on Management of Post-Removal Site Control* (U.S. EPA 1990c).

10.2 Types of Institutional Controls

In general, there are four types of ICs commonly used in cleanups: proprietary controls, governmental controls, enforcement and permit tools with IC components, and informational devices. The following definitions are summarized from the current EPA guidance *Institutional Controls: A Guide for Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* (PIME Guidance) (U.S. EPA 2012a).

Proprietary controls are land use controls that tend to affect a single parcel of property and are established by a private agreement between the property owner and a second party who, in turn, can enforce the controls. Common examples include easements that restrict use (also known as negative easements) and/or that provide access rights to a property to perform work and restrictive covenants. These types of controls can prohibit activities that may compromise the effectiveness of the response action or restrict activities or future resource use that may result in unacceptable risk to human health or the environment. State and tribal laws typically authorize proprietary controls. In some cases, the authority comes solely from common law. Some states have enacted statutes that directly authorize these types of controls for the purposes of preventing use in conflict with environmental contamination or remedies. These statutes tend to divide into ones modeled after the Uniform Environmental Covenants Act (UECA) and other non-UECA statutes. These UECA and non-UECA state statutes can provide advantages over traditional common law proprietary controls.

A proprietary control may be used to restrict certain activities on the property, such as excavating below a certain depth. These are powerful tools in that they can be made to "run-with-the-land" (*i.e.*, effective if ownership changes), but they may provide significant challenges because property interests are often transferred. As such, they should be acquired consistent with state and local rules and procedures that cover acquisitions of real property. Accordingly, selecting the grantee of the proprietary control property interest normally marks an important step in proprietary control acquisition and later implementation. While the grantee can range among various parties, EPA can act as the grantee at Fund-lead sites. In these cases, the United States must acquire the proprietary control property interest and, in turn, rules governing United States real property acquisition, as well as CERCLA rules relating to property acquisition, apply. EPA's authority to acquire interests in property is found in CERCLA Section 104(j). Among other requirements, CERCLA Section 104(j) specifies that prior to acquiring an interest in real property, the state must provide an assurance that it will accept transfer of that interest at completion of the remedial action (see U.S. EPA 2012a, PIME Guidance).

Governmental controls are usually implemented and enforced by a state, tribal, or local government. Some of the more common examples include zoning restrictions, building/ excavation permits, groundwater drilling and use permits, ordinances, fishing bans, sports/ recreational fishing limits, or other provisions that restrict land or resource use at a site. These types of mechanisms are popular in remedies because the administrative processes are in place and are typically well understood within a particular jurisdiction. This type of control is often implemented, monitored, and enforced by an agency other than EPA or the state.

Enforcement tools with IC components are legal tools, such as administrative orders, federal facility agreements, and Consent Decrees (CDs) that limit certain site activities or require the performance of specific activities (*e.g.*, monitor and report on IC effectiveness). Under CERCLA Sections 104, 106(a), 107, and 122, such legal tools include unilateral administrative orders (UAOs) and administrative

> Unilateral Administrative Order (UAO) – A UAO is an enforcement instrument that EPA can use to require parties to take a response action, provide access, or request information. If settlement negotiations fail, EPA has the authority to compel the PRP to do the cleanup by issuing a UAO. Administrative orders are issued under CERCLA Sections 104 and 106.

settlement agreements and orders on consent (ASAOCs), which can be issued or negotiated to compel the landowner to limit certain site activities at both federal and private sites. When EPA negotiates with a PRP to do cleanup work at a Superfund site, the agreement may be documented in an ASAOC. If the negotiations fail, EPA has the authority to compel the PRP to do the cleanup by issuing a UAO. In addition, CERCLA Section 122(d) authorizes the use of CDs at privately-owned sites. ICs incorporated into enforcement devices are some of the more common ICs. The strength of these types of tools is that EPA or states can directly enforce them (rather than relying on a local agency for governmental controls or using real estate common law for proprietary controls). However, since these enforcement tools only bind the parties named in the enforcement document, it may be necessary to require the parties to implement additional ICs such as proprietary controls that "run with the land" (*i.e.*, applied to the property itself) in order to bind subsequent land owners.

Informational devices are types of devices that only provide information or notification such as recorded notice in property records or advisories to local communities, tourists, recreational users, or other interested persons that residual contamination remains on site. These types of tools are common at lead cleanups to provide both notification of residual contamination and information that may modify behavior to minimize the potential for unacceptable exposure. Examples include placing a property on a state contaminated properties registry, developing deed notices, and providing periodic lead-education advisories to residents. Due to the nature of informational devices and their non-enforceability, it is important to carefully consider the objective of this category of ICs. Informational devices are most likely to be used as a secondary "layer" to help ensure the overall reliability of other ICs.

There is generally an inverse relationship between the amount of cleanup and the degree of reliance on ICs (*i.e.*, the more soil that is removed from the site, the less reliance there would have to be on implementing ICs). Moreover, the greater the reliance on ICs, the greater the expectation that enforceable ICs be employed to provide for a protective remedy. EPA tends to focus on multiple considerations when evaluating the long-term viability and amount of redundancy required for ICs at a site.

EPA guidance strongly advocates the use of ICs in "layers" and/or in "series" (U.S. EPA 2012a, 2000e). Layering ICs means using multiple ICs concurrently (*e.g.*, a CD, deed notice, educational/informational device and a covenant). Using ICs in series is appropriate when IC mechanisms are removed or changed as site circumstances evolve, such as reduction in restrictions during the clean up lifecycle. As illustrated in the descriptions of the different categories of ICs, there are inherent strengths and weaknesses with each type. The goal is to obtain the best mixture of ICs to manage the risk at a site over the long-term.

There are many important factors to consider when determining what types of ICs are most appropriate at a site. The following is not intended to be a comprehensive list, but rather illustrative of the site-specific nature of these types of decisions. A few common considerations include: (1) the type of enforcement mechanism used (*e.g.,* CD, order, permit, ordinance); (2) who will enforce the mechanism (*i.e.*, EPA, the state, local agency, third party, etc.); (3) who the intended IC will effect and how; (4) the level of sophistication of the party implementing the cleanup and those remaining on the property; (5) the expected property use (likelihood of redevelopment and/or resale); and (6) the degree of cooperation exhibited by the parties regarding the cleanup. Since ICs can impact future development at sites, it is important to work cooperatively to determine the appropriate mix of ICs. The objective is not to use as many layers of ICs as possible, but rather to strike a balance that ensures that the site remedy will be protective over time while maximizing the site's future beneficial use. An ICIAP may be particularly helpful at a site where multiple ICs are used either in layers or in series to clearly document all IC activities and the entities responsible for implementation, maintenance and enforcement of the ICs.[123]

For larger lead sites, GIS systems have often been used to track the cleanup status of properties located at the site. The GIS tracking system facilitates the monitoring of ICs and the maintenance of the remedy. While EPA has used GIS systems to track some site activity, more extensive GIS systems are operated by local governments, state governments, and PRPs.

Finally, should contaminant levels drop to levels that no longer warrant ICs, then modification and/or termination of the ICs should be considered. Because lead does not naturally degrade as many anthropogenic compounds do, residual lead waste that is left in place will likely remain in place.

10.3 Reuse

Examples of sites that have been successfully reused have employed many combinations of remedial actions, including complete soil removal to soil removal of a top layer of contamination that is covered by a barrier to show the separation of clean and contaminated soils, to capping contaminated soils with asphalt and or concrete to support structures. In

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[123] Additional information can be found at: https://www.epa.gov/sites/default/files/documents/final_pime_guidance_december_2012.pdf and https://www.epa.gov/sites/default/files/documents/iciap_guidance_final_-_12.04.2012.pdf.

selecting remedies, both reuse and the challenges of maintaining ICs and ECs should be considered.

In addition to achieving protectiveness, one of the Superfund program's goals is to return contaminated sites to beneficial reuse. Returning formerly contaminated sites to safe reuse not only supports a safe environment, it can also support the community through economic development, contribute to the tax base, and potentially provide services that community members seek.

Site reuse planning and consideration of future land use go together in planning effective remedies. Site reuse planning engages interested stakeholders to help EPA identify the reasonably anticipated future use for the property and ensure that the intended land use will be appropriate for the remedy selected. The redevelopment and reuse of sites can also help remedial and removal actions remain protective over the long-term. Moreover, should there be any residual contamination, having reliable information about the likely future use of the property is typically helpful in ensuring that ICs and ECs will be effectively monitored and maintained. This is especially important for lead sites because residual contamination with ICs is not unusual. Please see the guidance titled: *Land Use in the CERCLA Remedy Selection Process* (OSWER Directive 9355.7-04, [U.S. EPA 1995a]).[124]

The Superfund Redevelopment Program (SRP) is EPA's national reuse resource for Superfund sites. Since its inception, SRP has developed tools and resources to address evolving community priorities and tackle new Superfund redevelopment challenges. These tools help engage communities in dialogue relating to reuse that informs the cleanup process, addresses barriers to reuse that impact protectiveness, and communicates best practices and lessons learned. Additional information can be found at https://www.epa.gov/superfund-redevelopment.

10.3.1 Reuse Tools Available for Communities Affected by Residential Lead Contamination

The needs of communities are unique from place to place with different communities needing different support. Through the SRP, EPA's Superfund program offers many tools that support current and future use of sites. The full suite of tools is available on the SRP website at https://www.epa.gov/superfund-redevelopment.

The reuse assessment, planning, and gathering of information for the anticipated future use of a site during the remedy selection process allows for the integration of community input goals,

[124] https://www.epa.gov/sites/production/files/documents/landuse.pdf.

land use context, and guides local planning, development, and the remedial process. Understanding the future land use plays important roles in the baseline risk assessment, remedy selection, and remedy design, as well as the phasing of cleanup. Reuse planning can ensure that any new use of the site is consistent with the cleanup remedy, particularly if remedy components remain in place at the site. Reuse planning at this phase can also assist in avoiding unnecessary barriers to reuse.

Examples of how reuse planning could be used related to residential lead cleanup include, but are not limited to:

(1) Engaging in a stakeholder process to understand how residents use their properties, how EPA may need to take steps to ensure their protectiveness, and coming up with a strategy for relaying that information in a reliable and effective manner.

(2) Developing a plan for returning yards to residents after cleanup in a thoughtful manner.

(3) Discussing the likely future use of the former facility that impacted the residential properties in a way that benefits the overall community, taking into account the plans of the owner and the municipality.

(4) Exploring the possibility of future residential use on land contaminated with lead, taking into account the plans of the owner and the municipality.

Superfund Redevelopment Coordinators are assigned in each Region to help determine appropriate regional reuse projects. Their contact information can be found at the SRP web address referenced above.

10.3.2 Residential Use Support

SRP tracks examples of sites in ongoing or new residential use and has provided support to several communities. The following example demonstrates how EPA can help, although the needs of each site and community are different. While there a number of examples of site reuse on the SRP website, the Midvale Slag site below serves as an example lead site that has been part of the SRP program.

From 1871 to 1958, five smelters processed lead and copper ore at the Midvale Slag site, as well as at the adjacent Sharon Steel site. EPA worked together with state agencies, the City of Midvale, local community members, and the site's owner to link the site's cleanup and redevelopment with a cleanup plan and revitalization goals. The SRP worked with the Region to help make this transformation possible, awarding a Pilot grant in 1999 and providing a Ready for Reuse determination in 2008. This led to the groundbreaking creation of the Bingham Junction Reuse Assessment and Master Plan in 2000. Today, the site is home to Bingham Junction, a thriving mixed-use development supporting thousands of jobs. As of 2019, the reported assessed value is about $800 million, which is up from about $4 million in 2004. Builders have completed over 2,300 residential units on the site property. Other case studies are available at https://www.epa.gov/superfund-redevelopment/find-superfund-sites-reuse.