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STRENGTHENING SUPERFUND CLEANUPS WITH LAND USE INSTITUTIONAL CONTROLS

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The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)[1] established the "Superfund," which allows the U.S. Environmental Protection Agency (EPA) to clean up contaminated sites.[2] It also forces the parties responsible for contamination to either perform cleanups or reimburse the government for the EPA-led cleanup work. Toxins at these sites range from polychlorinated biphenyls (PCBs) to eroding propane tanks, and can inflict a variety of illnesses when ingested by the proximate population. Many of the toxins at Superfund sites are confirmed carcinogens, while others are probable human carcinogens.[3]

The Superfund program relies on several tools to protect against lasting contamination. Perhaps the most well-understood of these tools is "engineering controls."[4] Engineering controls consist of engineering measures like caps and treatment systems. Engineering controls are designed to minimize the potential for human exposure to contamination, by either limiting direct contact with contaminated areas or controlling mitigation of contaminants through environmental media.[5] Conversely, the lesser-known "institutional controls" (ICs) are non-engineered or legal controls that minimize the potential human exposure to contamination by limiting land or resource use.[6]

ICs are often used as part of the remedy for Superfund sites; however, there is minimal recent literature on ICs. While ICs were widely studied in the 1990s and early 2000s, there have been few mainstream endeavors to place ICs into our modern environmental and land use policy context. The mission of this Comment is to do just that. It reintroduces ICs as a policy tool that local and federal governments can collaborate on to yield more environmentally conscious policy.

Part I provides an overview of the Superfund program in order to situate ICs within the broader statutory framework, and explains the benefits of long-term stewardship (LTS) programs generally. Part II explains the when, where, and what of ICs at Superfund sites. Part III discusses criticisms of ICs and challenges with their implementation, and Part IV examines their role as a cleanup solution. Part V surveys land use case studies and best practices from Superfund sites across the country, highlighting how, with commitment from local governments, this unsung hero can be reimagined to yield lasting progress in and around Superfund sites. Part VI concludes.

I. Overview

A. Superfund Cleanup Process

There are several routes that EPA can take when conducting a cleanup at Superfund sites. The basic cleanup at a Superfund site is a multistep process.

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1. 42 U.S.C. §§9601-9675, ELR Stat. CERCLA §§101-405.
2. Superfund is a federal trust fund to provide for cleanup when no responsible party can be identified. CERCLA created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. *See* U.S. EPA, *Superfund: CERCLA Overview*, https://www.epa.gov/superfund/superfund-cercla-overview (last updated Oct. 30, 2023).
3. EPA classifies probable human carcinogens as those agents with sufficient data to draw a causal relationship to human cancer from animal bioassay data, but limited or inadequate data to draw a causal relationship to human cancer from human data. *See* U.S. EPA, *Risk Assessment for Carcinogenic Effects*, https://www.epa.gov/fera/risk-assessment-carcinogenic-effects (last updated Nov. 14, 2023).
4. U.S. EPA, Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites (2012), https://www.epa.gov/sites/default/files/documents/final_pime_guidance_december_2012.pdf.
5. *Id.*
6. *Id.*

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Step 1: Preliminary Assessment and Site Inspection
This stage includes a review of historical information and visiting a site to evaluate the potential for a release of hazardous substances.[7] EPA determines whether the site poses a threat to people and the environment, and whether hazards need to be addressed immediately or additional site information will be collected.[8]

Step 2: National Priorities List Site Listing Process
The National Priorities List (NPL) is primarily an information resource that identifies sites that warrant cleanup.[9] It is a list of the worst hazardous waste sites identified by Superfund.[10] The list is based on the score a site receives from the Hazard Ranking System.[11]

Step 3: Remedial Investigation/Feasibility Study (Site Characterization)
This stage involves an evaluation of the nature and extent of contamination at a site and assessment of potential threats to human health and the environment.[12] This process also includes evaluation of the potential performance and cost of the treatment options identified for a site.[13]

Step 4: Records of Decision/Remedy Decisions
The record of decision (ROD) explains which cleanup alternatives will be used at NPL sites.[14] Leading up to the issuance of the ROD, EPA recommends a preferred remedy and presents the cleanup plan in a document called a "proposed plan" for public comment.[15] Following the public comment period, EPA issues a final ROD.[16]

Step 5: Remedial Design/Remedial Action
Detailed cleanup plans are developed and implemented during the remedial design/remedial action (RD/RA) stage.[17] RD includes development of engineering drawings and specifications for a site cleanup.[18] RA follows design and involves the actual construction or implementation phase of site cleanup.[19]

B. The History of ICs

Superfund's waste sites fall into two categories: remedial and removal.[20] Sites are identified either by the state where the site is located or a citizen who alerts EPA to the problem.[21] While remedial sites—like landfills, dumps, and abandoned chemical plants—are scheduled for long-term cleanups, removal sites are sudden environmental emergencies that are not on the NPL, including mercury spills, oil tanker spills, and factory fires.[22]

In conducting remediations at Superfund sites, EPA has several tools to help it minimize the potential for human exposure to contamination and protect the integrity of the remedy. Such solutions fall into one of two categories: treatment/engineering controls and ICs. While engineering/treatment controls are utilized to address the principal threat wastes, ICs aim to reduce the exposure to contamination by limiting land or resource use and guiding human behavior.[23] The National Oil and Hazardous Substances Pollution Contingency Plan emphasizes that ICs are meant to supplement, rather than subvert, engineering controls during all phases of cleanup, but may be a necessary component of the completed remedy.[24]

The use of ICs in hazardous waste site cleanups is not a new development.[25] EPA has promulgated hazardous waste

7. U.S. EPA, *Superfund Cleanup Process*, https://www.epa.gov/superfund/superfund-cleanup-process (last updated Oct. 30, 2023).
8. *Id.* The preliminary assessment is a limited-scope assessment designed to distinguish between sites that clearly pose little or no threat to human health or the environment and sites that may pose a threat and require further investigation. If a site requires further investigation, a site inspection is conducted to sample for highly toxic contaminants, contamination at points of potential human exposure, and contamination in sensitive environments. *See* U.S. EPA, *Section 2: Site Assessment Process*, https://www.epa.gov/superfund/section-2-site-assessment-process (last updated Oct. 30, 2023).
9. U.S. EPA, *Superfund Cleanup Process*, https://www.epa.gov/superfund/superfund-cleanup-process (last updated Oct. 30, 2023). NPL listing informs the public that the site appears to present sufficient relative risk to warrant the more extensive site characterization of a remedial investigation and feasibility study. The EPA region, in consultation with the state, identifies a site as an NPL candidate based on the preliminary assessment and site inspection results.
10. The NPL is the list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide EPA in determining which sites warrant further investigation. *See* U.S. EPA, *Superfund: National Priorities List (NPL)*, https://www.epa.gov/superfund/superfund-national-priorities-list-npl (last updated Oct. 30, 2023).
11. U.S. EPA, *supra* note 7.
12. *Id.*
13. *Id.*
14. The ROD documents the selected remedial action (RA) for a site or operable unit. It is prepared by the lead agency in consultation with the support agency. The ROD serves as a legal document in that it certifies the remedy selection process was carried out in accordance with CERCLA and, to the extent practicable, in accordance with the national contingency plan (NCP). *See* U.S. EPA, A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (1999) (EPA 540-R-98-031), https://www.epa.gov/sites/default/files/2015-02/documents/rod_guidance.pdf.
15. The public comment period is the time during which EPA accepts comments from the public on proposed actions and decisions. Required by the Administrative Procedure Act, CERCLA, and other environmental laws, public comment periods enable citizens to participate in the administrative decisionmaking process. *See* U.S. EPA, Public Comment Periods (2002), https://semspub.epa.gov/work/HQ/174655.pdf.
16. U.S. EPA, *supra* note 7.
17. *Id.* RD is the phase in Superfund site cleanup where the technical specifications for cleanup remedies and technologies are designed. RA follows the RD phase. It involves the actual construction or implementation phase of Superfund site cleanup. The RD/RA is based on the specifications described in the ROD. All new fund-financed remedies are reviewed by EPA's National Risk-Based Priority Panel. *See* U.S EPA, *Superfund: Remedial Design/Remedial Action*, https://www.epa.gov/superfund/superfund-remedial-design-remedial-action (last updated Oct. 30, 2023).
18. *See* U.S. EPA, *supra* note 17.
19. U.S. EPA, *supra* note 7.
20. *See* Mary Schons, *Superfund*, Nat'l Geographic (Oct. 19, 2023), https://education.nationalgeographic.org/resource/superfund/.
21. *Id.* Superfund provides citizens the ability to alert EPA to potential sites.
22. *Id.*
23. *See* U.S. EPA, *Institutional and Engineering Controls Data*, https://rcrapublic.epa.gov/rcrainfoweb/action/modules/cor/caindex (last updated Jan. 2021).
24. *Id.*
25. Larry Schnapf, *Protecting Health and Safety With Institutional Controls*, 14 Nat. Res. & Env't 251 (1999/2000), *available at* https://heinonline.org/HOL/LandingPage?handle=hein.journals/nre14&div=78&id=&page=.

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regulations pursuant to statutes authorizing the use of ICs. The Agency has acknowledged that ICs will play a key role in future cleanups.[26] The U.S. Department of Defense also has relied on ICs at closed military bases to speed up the transfer of these facilities to local redevelopment agencies.[27]

C. LTS Programs Generally

ICs are part of a larger risk mitigation strategy known as long-term stewardship programs. LTS issues impact nearly every state, since cleanup sites generally have residual contamination that does not allow for unrestricted use.[28] LTS includes the physical controls, institutions, information, and other mechanisms needed to ensure protection of people and the environment at sites where agencies like EPA and the U.S. Department of Energy (DOE) have completed or have plans to complete cleanups.[29]

Procedures for LTS include a combination of land use controls, monitoring and maintenance, and information management practices. Many of these controls are required as part of the decision process established by various laws, such as the Nuclear Waste Policy Act; the Atomic Energy Act; the Resource Conservation and Recovery Act (RCRA)[30]; CERCLA; and cultural resource management statutes.[31]

The One Cleanup Program (OCP), an initiative promoting cross-program coordination in EPA's Land Revitalization Office, generated momentum to return contaminated land to safe and beneficial uses.[32] LTS activities typically include physical and legal controls to prevent inappropriate exposure to contamination left in place at a site.[33] The function of ICs, engineering controls, and other tools is to protect human health and the environment and to preserve the integrity of the selected remedy.[34]

II. ICs Generally

A. The Life Cycle of ICs

The IC life cycle consists of five integrated elements: planning, implementation, monitoring and performance evaluation, enforcement, and modification or termination.[35] Planning refers to the activities leading up to implementation of an IC, such as identification of IC objectives and evaluation of possible ICs that can achieve these objectives; identification of parties' roles and responsibilities for long-term IC activities; costs and funding sources; and other criteria or issues that may affect an IC's long-term effectiveness.[36] Implementation consists of activities to put the IC in place, including drafting, negotiation, execution, and recording. The clear identification of, and commitments to, roles, responsibilities, and resource needs for IC implementation is a critical step in developing an effective and durable IC.[37]

Monitoring and performance evaluation encompasses actions and procedures to monitor and evaluate activities and land uses to help assure IC integrity, compliance with IC requirements, and site risk mitigation.[38] Enforcement refers to actions taken in response to a breach or other violation of IC terms. Actions can range from informal communications seeking voluntary compliance to more formal, legal action.[39] Modification or termination refers to legal or administrative steps taken to alter or remove an IC due to a change in site characteristics, or because cleanup objectives or other IC conditions have been met.[40] For LTS to be effective, an IC can include mechanisms that enable modification or termination.[41]

B. When Are ICs Used?

ICs are normally used when waste is left on-site and when there is a limit to the activities that can safely take place at the site (i.e., the site cannot support unlimited use and unrestricted exposure) and/or when cleanup equipment

26. *Id.*; EPA Office of Solid Waste and Emergency Response, Land Use in the CERCLA Remedy Selection Process, OSWER Directive No. 9355.7-04, at 9 (May 25, 1995).
27. EPA Office of Solid Waste and Emergency Response, *supra* note 26.
28. LTS programs are put in place for sites that have contamination remaining on the site that restricts or limits use of that site. LTS activities typically include physical and legal controls to prevent inappropriate exposure to contamination left in place at a site. U.S. EPA, Long-Term Stewardship: Ensuring Environmental Site Cleanups Remain Protective Over Time (2006), https://www.epa.gov/sites/default/files/documents/lts_fact_sheet_1006.pdf. *See* U.S. Department of Energy Office of Legacy Management, *Long-Term Stewardship Resource Center*, https://www.energy.gov/lm/long-term-stewardship-resource-center (last visited May 9, 2024).
29. *See* U.S. Department of Energy Office of Legacy Management, *supra* note 28.
30. 42 U.S.C. §§6901-6992k, ELR Stat. RCRA §§1001-11011.
31. *See* U.S. Department of Energy Office of Legacy Management, *supra* note 28.
32. U.S. EPA, *supra* note 28. OCP is EPA's vision for how different cleanup programs at all levels of government can work together to meet that goal, and ensure that resources, activities, and results are effectively coordinated and communicated to the public. *See* U.S. EPA, *Solid Waste and Emergency Response: One Cleanup Program*, https://archive.epa.gov/oswer/onecleanup-program/web/html/index.html (last updated Feb. 21, 2016).
33. U.S. EPA, *supra* note 28.
34. *Id.*
35. Interstate Technology Regulatory Council (ITRC), *Long-Term Containment Management Using Institutional Controls: Planning ICs*, https://institutionalcontrols.itrcweb.org/planning-ics (last visited May 9, 2024).
36. *Id.* Planning also encompasses the development of an institutional control implementation and assurance plan or LTS plan. LTS plans supplement decision documents and function much like an operation and maintenance plan. LTS plans identify how and by whom the IC will be implemented, monitored, evaluated, enforced, and modified or terminated over the long term. These plans are typically completed concurrent with the engineering design of the active remediation components.
37. *Id.*
38. According to a survey from the ITRC, states conduct monitoring practices such as monitoring via coordination with local governments, obligated party inspections and certifications, periodic record reviews and inspections by state agencies, IC permit programs, land disturbance monitoring via one-call systems, and land use activity and monitoring. ITRC, *supra* note 35.
39. *Id.*
40. *Id.* Modification may also be necessary when monitoring indicates that the IC is not achieving its objectives, or as a result of an enforcement action.
41. *Id.* This process should involve a thorough evaluation that allows for maximum beneficial use of the property without increasing public health or environmental risk.

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remains on-site.[42] ICs are often used throughout a site cleanup, including when the contamination is first discovered; cleanup work is ongoing; and some amount of contamination remains on-site as part of a cleanup remedy. EPA encourages the use of ICs in layers or in a series. Layering ICs means using more than one IC at the same time, all with the same goal.[43] Using ICs in series uses different ICs over time when site circumstances or IC processes change.[44]

According to an LTS study conducted by the Environmental Law Institute (ELI), 41 states, including the District of Columbia, have LTS programs for one or more of their state cleanups, voluntary cleanup, or brownfields programs.[45] Twenty-four of these states also apply their LTS program to RCRA corrective actions. In addition, Oklahoma has an LTS program that covers only its RCRA corrective action program, although it allows the use of ICs at sites in its voluntary and brownfields programs.[46]

Colorado and Nebraska conduct LTS activities without having a program.[47] In 17 states, the LTS program covers all four of the non-NPL programs.[48] A few states have LTS programs that apply only to their voluntary program, but not to their state cleanup program.[49] These include Indiana, New Mexico, West Virginia, and Wyoming. Twenty-six states have specific statutory authority for an LTS program, or for aspects of LTS such as ICs.[50] ICs are the most common feature of states' LTS programs. Forty-three states, including Colorado, Nebraska, and Oklahoma, rely on ICs to manage risks from residual contamination.[51]

Thus, there are disparate efforts to implement ICs across the country. However, the data vary by region. For example, ICs are used 93% of the time in Region 10, which encompasses Idaho, Oregon, and Washington. Conversely, ICs are only used about 72% of the time in Region 9, which encompasses Arizona, California, and Nevada.[52]

Scholars allege that historically, ICs have been mostly disfavored by the federal government.[53] This opinion likely varies depending on the agency, the statute, and the type of site, among other factors. For example, DOE has sites that require ICs. Within EPA, RCRA sites tend to rely on ICs as well. Finally, each site—regardless of the agency or statute—is unique. Therefore, the challenge—but perhaps also the benefit—of ICs is that they should be tailored to the topography and demographics of the community that the site affects. This tailoring takes time, and it is likely for that reason that ICs are disfavored or, more specifically, viewed as burdensome or inefficient.

EPA guidance documents encourage the use of ICs at every site. In 2004, EPA issued the "Strategy to Ensure Institutional Control Implementation at Superfund Sites."[54] This document states the purpose of ICs as "tool[s] which EPA will use to help ensure the long-term durability, reliability, and effectiveness of ICs throughout their life cycle."[55] Thus, ICs may be used to supplement the longevity efforts of engineering controls, not replace them.

C. *Uniform Environmental Covenants Act*

Over the years, variation in state requirements has remained a key criticism of ICs. However, in 2003, the Uniform Environmental Covenants Act (UECA) sought to standardize how ICs operate from state to state. The UECA is a model law developed by the National Conference of Commissioners on Uniform State Laws (Uniform Law Commission). The UECA—now adopted by about half of the states—created a real property interest known as an "environmental covenant."[56] The environmental covenant is a servitude arising under an environmental response

42. Memorandum from Michael B. Cook, Director, EPA Office of Superfund Remediation and Technology Innovation et al., to Superfund National Policy Managers et al., re: Institutional Controls: A Citizen's Guide to Understanding Institutional Controls at Superfund, Brownfields, Federal Facilities, Underground Storage Tanks, and Resource Conservation and Recovery Act Cleanups (Mar. 1, 2005), https://www.epa.gov/sites/default/files/documents/ic_ctzns_guide.pdf.
43. *Id.*; U.S. EPA, Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups (2000), https://www.epa.gov/sites/default/files/2016-01/documents/icfactfinal.pdf. For example, to restrict land use, the site manager may issue an enforcement tool such as a unilateral administrative order, obtain an easement, initiate discussions with local governments about a zoning change, and enhance future awareness of restrictions by recording them in a deed notice and in a state registry of contaminated sites.
44. U.S. EPA, *supra* note 43. For example, the site manager may use an enforcement tool to require that the landowner obtain an easement from an adjacent property owner to conduct groundwater sampling or implement a portion of the active remedy.
45. John Pendergrass, *Institutional Controls in the States: What Is and Can Be Done to Protect Public Health at Brownfields*, 35 Conn. L. Rev. 1303 (2003).
46. *Id.*
47. *Id.*
48. Non-NPL sites include sites removed from the proposed NPL, sites withdrawn from the final NPL, sites being addressed as part of another NPL site, and all other non-NPL sites. *See* U.S. EPA, *SCAP-12 FOIA NPL/Non-NPL Site Summary, Version 24.01*, https://www.epa.gov/superfund/scap-12-foia-nplnon-npl-site-summary-version-2401 (last updated Oct. 30, 2023).
49. Pendergrass, *supra* note 45.
50. *Id.*
51. *Id.*
52. *See* Association of State and Territorial Solid Waste Management Officials (ASTSWMO) CERCLA Post Construction Focus Group & EPA, Institutional Controls Strategy for Improved Success (2022), https://astswmo.org/files/Meetings/2022/cabs-symposium/Presentations/D2-B2-S3-Fassbender.pdf.
53. Susan C. Borinsky, *The Use of Institutional Controls in Superfund and Similar State Laws*, 7 Fordham Env't L.J. 1 (1995).
54. U.S. EPA, Strategy to Ensure Institutional Control Implementation at Superfund Sites (2004), https://www.epa.gov/sites/default/files/documents/icstrategy.pdf. The controversy about using ICs at Superfund sites centers on two fundamental questions. First, should ICs be used only as a last resort when cleanup is impossible, or should they be used more broadly to maximize reuse of contaminated property? Second, how can ICs be enforced in the short term and, perhaps, even indefinitely? The impediment to using ICs derives, in part, from the high cost and lengthy process of cleaning up polluted sites. The business community has been reluctant to become involved with contaminated and even formerly contaminated sites. Properties sit abandoned, producing neither job opportunities nor tax revenues for their communities.
55. *Id.*; Pendergrass, *supra* note 45.
56. Pennsylvania Department of Environmental Protection, Fact Sheet: Uniform Environmental Covenants Act (2018), https://greenport.pa.gov/elibrary/PDFProvider.ashx?action=PDFStream&docID=1419248&chksum=&revision=0&docName=UNIFORM+ENVIRONMENTAL+COVENANTS+ACT&nativeExt=pdf&PromptToSave=False&Size=156929&ViewerMode=2&overlay=0.

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project, like an ROD in a Superfund case. Environmental covenants provide broad enforcement rights.[57]

An environmental covenant is a device, created by state statute, that is intended to mimic real property law devices but without their limitations and deficiencies.[58] The UECA addresses a number of the deficiencies in state property law by creating a broader universe of parties who may be "holders" of the environmental covenant; by expanding the universe of parties who may have a direct right to enforce the covenant; by clarifying that the rights and affirmative obligations established in the covenant run with the land; by abrogating a number of common-law defenses and barriers; and by creating a clear process for modifying or terminating the restrictions when they are no longer needed.[59] An environmental covenant under the UECA will be available only if there is an "environmental response project."

An environmental response project is a cleanup action being overseen by a federal, state, or local environmental agency, including a state voluntary cleanup action.[60] The Prefatory Note in the UECA states:

> Environmental covenants—whether called "ICs," "land use controls" or some other term—are increasingly being used as part of the environmental remediation process for contaminated real property. An environmental covenant typically is used when the real property is to be cleaned up to a level determined by the potential environmental risks posed by a particular use, rather than to unrestricted use standards. Such risk-based remediation is both environmentally and economically preferable in many circumstances, although it will often allow the parties to leave residual contamination in the real property. An environmental covenant is then used to implement this risk-based cleanup by controlling the potential risks presented by that residual contamination.[61]

In essence, the UECA provides a standardized process for creating, documenting, and assuring the enforceability of activity and use limitations—otherwise known as ICs—on contaminated sites.[62] Under the UECA, an environmental covenant is required whenever an engineering control or IC is used to demonstrate the attainment of a remediation standard.[63] The UECA:

> creates a much more consistent and reliable mechanism than is available under most state laws or the common law for implementing, enforcing, modifying, and terminating institutional controls, thereby providing regulatory agencies, property owners, tenants, potential buyers, and communities with a level of comfort regarding management of residual risk from contamination left in place after remediation.[64]

III. Criticisms and Challenges

A. *Criticisms of ICs*

Critics have averred that ICs are ineffective; however, more context is necessary to understand *why* ICs have not met their full potential. Namely, ICs have suffered from a lack of organization whereby, in many cases, municipal leadership changed hands after the implementation of an IC, and, absent written records, information about both the contamination and the IC was lost or ignored.[65] Many states have therefore created systems for keeping track of ICs and the sites where they are in use. Twenty-four states report that their LTS program includes a system for recording and maintaining information about which sites have ICs.[66] This includes Colorado, which has no program but conducts LTS activities.[67]

B. *EPA Concerns*

In 2022, EPA evaluated the common issues facing ICs and prioritized them based on three broad categories: ICs not yet in place (53%), ICs that may not be fully effective (36%), and administrative issues (11%).[68] Conference materials explain that the first category encompasses cases where all ICs have not been implemented, deed restrictions are needed, or effective ICs must be implemented.[69] The second category refers to issues like the absence of an institutional control implementation and assurance plan or the absence of maintenance, monitoring, and enforcement of ICs.[70] Finally, the third category of issues exists where decision documents do not require ICs for all areas needing ICs, or ICs are simply not in a decision document at all.[71]

EPA attributes some of these issues to inconsistencies in the ability of states to implement ICs. For example, some

57. U.S. EPA, The Uniform Environmental Covenants Act: The Basics, the Benefits, the Challenges, https://clu-in.org/conf/tio/ICsandLTS1/slides/1Slide_Presentation_for_Michael_Hendershot,_EPA_Region_3.pdf.
58. Amy L. Edwards, *An Overview of Institutional Controls*, *in* Implementing Institutional Controls at Brownfields and Other Contaminated Sites 3 (Amy L. Edwards ed., American Bar Ass'n 2012), https://www.americanbar.org/content/dam/aba-cms-dotorg/products/inv/book/215091/Chapter%201.pdf.
59. *Id.*
60. *Id.*
61. National Conference of Commissioners on Uniform State Laws, *Uniform Environmental Covenants Act* (2003).
62. Pennsylvania Department of Environmental Protection, *Uniform Environmental Covenants Act: Engineering and Institutional Controls*, https://www.dep.pa.gov/Business/Land/LandRecycling/Pages/Uniform-Environmental-Covenants.aspx (last visited May 9, 2024).
63. *Id.*
64. Edwards, *supra* note 58, at 11.
65. Pendergrass, *supra* note 45.
66. *Id.*
67. *Id.* In most states, this system relies on a database, but in at least one state the information is recorded in a notebook. Nineteen of the states that have such tracking systems make them available to the public, although for most of them the primary intended user is state staff. Many states that have a tracking system use it for all sites covered by their LTS program, and many states also include federal facilities in their tracking system.
68. ASTSWMO CERCLA Post Construction Focus Group & EPA, *supra* note 52.
69. *Id.*
70. *Id.*
71. *Id.*

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state regulations provide the ability to implement an IC, while others require property owners to implement ICs, or require other responsible parties to implement ICs. These inconsistencies have been, in part, assuaged in states that have adopted the UECA; however, other issues remain.

EPA has identified some root causes of IC challenges: IC planning may not occur early enough in the Superfund remedial process; IC requirements and procedures vary greatly across states and local governments; states and local governments are resource-constrained; turnover occurs among project managers and attorneys; there is a lack of guidance, tools, or resources to help with site mapping or title work; and ICs are often out of EPA's control, as implementation is heavily dependent upon states and local governments.[72] While there is not a clear solution to each of these root problems, a combination of best practices may allow states to make real progress toward the adoption of comprehensive IC policies. The next part will examine how land use ICs can play a role in this apparatus of best practices.

IV. Land Use ICs as Part of the Solution

A. *Why ICs?*

ICs are needed during and after cleanups for at least two reasons. First, they can prevent users of a site from changing the site's use to one that might in the future expose people to the contamination left in place.[73] Second, they can ensure that any change in use would be preceded by a risk assessment and that additional cleanup would be done as needed before a new use is instituted.[74] For example, ICs might be designed to provide notice that the groundwater is not potable or to prevent drilling or excavating in sensitive areas.[75]

EPA notes that effective planning, implementation, and maintenance of ICs is crucial to ensuring short- and long-term protectiveness of Superfund remedies.[76] Additionally, ICs are essential to achieve key milestones that assist the program in reporting progress at the site and portfolio level.[77] For example, ICs facilitate the work of the Human Exposure Environmental Indicator, the Sitewide Ready for Anticipated Use Program, and deletions from the NPL.[78]

Other incidental benefits of ICs abound. ICs establish clear cleanup requirements, provide some limitations on liability, create financial incentives for cleanup and redevelopment through tax credits, streamline the governmental review process, and can provide clear documentation of when sufficient cleanup has been conducted.[79] While cleanups will continue to require the input and supervision of federal employees, ICs underscore a persistent dynamic in environmental policy: the federal government has the resources but lacks the knowledge on the ground, while local governments have site-specific knowledge and community influence but lack the necessary resources. A 2017 study suggests that, despite their concerns for the diminishing fiscal capacity, local governments provide supportive institutional arrangements that may encourage public participation.[80] Thus, ICs have the potential to significantly bridge the gap between these two levels of government at Superfund sites to yield a more climate-adaptive, community-involved cleanup process.

B. *Governmental Controls*

There are four general categories of ICs: governmental controls, proprietary controls, enforcement and permit tools with IC components, and informational devices. The focus of this Comment is the efficacy of governmental controls; therefore, discussion of the other three modes of ICs is omitted. Importantly, EPA will often layer several ICs to achieve different goals. A common use of this method includes layering an informational device and an enforcement tool.

Governmental controls are usually implemented and enforced by a state or local government, and can include zoning restrictions, building codes, or other provisions that restrict land or resource use at the site.[81] Local governments have legal authority to impose a variety of land use controls, from simple use restrictions to more sophisticated measures such as planned unit development zoning districts and overlay zones.

Local land use authorities may adopt restrictive or "overlay" zoning that prohibits certain uses within certain areas.[82] For example, restrictive zoning may be used to prevent residential uses in a formerly industrial area or to prevent the placement of wells in an area with a groundwater contamination issue.[83] These controls, however, are more difficult to use when targeting one or two specific properties, and may be changed as a result of local political pres-

72. Jennifer Hovis, U.S. EPA Institutional Controls Update, Presentation at the ASTSWMO Superfund and Brownfields Symposium (Aug. 2022), https://astswmo.org/files/Meetings/2022/cabs-symposium/Presentations/D2-B2-S3-Hovis.pdf.
73. ELI, Institutional Controls in USE (1995), https://www.eli.org/sites/default/files/eli-pubs/d7.02.pdf.
74. *Id.*
75. *Id.*
76. Hovis, *supra* note 72.
77. *Id.*
78. *Id.*
79. Edwards, *supra* note 58.
80. Kyu-Nahm Jun & Thomas Bryer, *Facilitating Public Participation in Local Governments in Hard Times*, 47 Am. Rev. Pub. Admin. 842 (2016), *available at* https://journals.sagepub.com/doi/pdf/10.1177/0275074016643587?casa_token=WOSYADFQjuwAAAAA:kMJEJr72Cturc8OHwuEIsZ2NayAcWx7AYtroToAbNmSEM00Lotq_NlLI01tTt8TSUuGkGkd2TD7lhcU.
81. U.S. EPA, *supra* note 3.
82. *Id.*
83. *Id.* Planned unit development zoning districts are intended to provide for residential, commercial, industrial, or other land uses or a mix thereof. N.Y. Gen. City Law §81-F (2022). Overlay zones are regulatory tools that create a special zoning district, placed over an existing base zone, that identifies special provisions in addition to those in the underlying base zone. *See* Center for Land Use Education, Planning Implementation Tools: Overlay Zoning (2005), https://www3.uwsp.edu/cnr-ap/clue/documents/planimplementation/overlay_zoning.pdf.

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sures (without a full appreciation for why the controls were placed on the land in the first place).[84]

When implementing zoning codes as ICs, EPA encourages the site managers to work with the local municipality's planning staff to determine whether any anticipated changes to the ordinance are likely and what procedures for assuring zoning compliance exist.[85] Final approval or denial of the zoning application will generally come from the governing body of the local jurisdiction. Any building on the site must comply with such land use restrictions.

C. Why Land Use ICs?

While the obligation to create land use controls may be contained in a federal consent decree, EPA must rely on actions under state property law or the general police power of local governments to create and maintain the controls.[86] The United States' dual system of federalism reserves to the states the powers that are not specifically delegated to the federal government by the U.S. Constitution. The Tenth Amendment acknowledges the Constitution's reservation of powers. The police power and other powers reserved to the states are not powers conferred upon the states, but ones that have always resided within their dominion.

Although difficulties in defining the "police power" have plagued both courts and scholars, the term has come to be understood as the power to protect the health, safety, and welfare of citizens. This, in turn, is closely tied to land use and natural resource protection.[87] The delegation of the power to control and tax local development explains why state legislatures have not vested their state agencies with land use control so as not to compete with or hinder this traditional local jurisdiction.[88] It also demonstrates why the opportunity—or responsibility—rests with local governments to fill the significant gaps left by federal and state authorities.[89]

Involving the local government has the potential to boost the relationship between the site managers and the locals impacted by the cleanup. It is no secret that many populations—particularly disenfranchised communities living near Superfund sites—may have some reservations about interacting with the federal government. By integrating the local government as a middleman and representative of the community, the site managers and agency staff can better understand the community's needs and goals for the site going forward.

By drawing on ICs, the Superfund program can tap into typically inaccessible local land use powers to direct the cleanup measures. The convergence of federal and local powers is already accounted for in the law with ICs—municipalities and site managers just need to take advantage of them.[90]

V. Land Use IC Case Studies and Best Practices[91]

While some municipalities are reluctant to enact a full-fledged ordinance for fear of liability or insufficient funds to maintain the IC, other municipalities have embraced IC ordinances with open arms. Some of these IC ordinances seem to have arisen out of necessity—towns that cannot survive without some permanent plans—while others arise out of a proactive desire to nip the contamination in the bud. Regardless of the impetus, the types of ordinances vary across the country. Such variation and site-specific action allow municipalities to tailor their code to meet the needs created by the existence of a Superfund site. Below is a sampling of unique strategies municipalities have undertaken during the cleanup and post-cleanup phases of a Superfund site.

A. Illinois Attorney General's Office Pre-Approved Ordinance for Use as ICs

Illinois maintains a Groundwater Ordinance Status Chart, which it describes as "an informal listing of the groundwater ordinances reviewed for suitability as environmental ICs under 35 [Illinois Administrative] Code 742.1015" by the Division of Legal Counsel.[92] Once an ordinance is listed, it may serve as an IC by way of incorporation into the no further remediation (NFR) letter. An NFR letter, issued by Illinois EPA's Bureau of Land (BOL), acknowledges that a site owner or operator has satisfied the respective BOL program's statutory and regulatory requirements.[93] A site qualifies to receive the NFR letter once the owner or operator meets all program requirements and the applicable Tiered Approach to Corrective Action Objectives (TACO) remediation objectives.[94]

After approval by Illinois EPA, the NFR letter must be filed by the site owner with the local county land records office to be effective (executed).[95] By indexing the letter to the property, future buyers and users of the property will be made aware of any contaminants left in place. This ensures that current and future users of the property will be informed of the conditions of the ICs and/or protected from unwitting exposure to environmental health risks.[96]

84. U.S. EPA, *supra* note 3.
85. *Id.*
86. Schnapf, *supra* note 25.
87. *See* Richard C. Schragger, *Federalism, Metropolitanism, and the Problem of States*, 105 Va. L. Rev. 1, 29 (2019).
88. *Id.*
89. *Id.*
90. *See* 40 C.F.R. §§264.118, 265.118; NCP, *id.* §300.430(a)(1)(iii)(D).
91. The case studies referenced here were drawn from conversations with professionals in the field, including Michael Sowinski and Amy Edwards.
92. *See* Illinois EPA, *Groundwater Ordinance Status*, https://epa.illinois.gov/topics/cleanup-programs/bol-database/groundwater-ordinance-status.html (last visited May 9, 2024).
93. *See* Illinois EPA, *Fact Sheet 3: No Further Remediation Letters*, https://epa.illinois.gov/topics/cleanup-programs/taco/fact-sheets/no-further-remediation-letters.html (last visited May 9, 2024).
94. TACO, Ill. Admin. Code tit. 35, pt. 742, https://pcb.illinois.gov/documents/dsweb/Get/Document-38408/.
95. Illinois EPA, *supra* note 93.
96. *Id.*

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B. Michigan State Law for Approving Acceptable Local Ordinances as ICs

Michigan's cleanup laws allow local government ordinances to operate as ICs for cleanup sites, but only under certain conditions.[97] First, the use of real covenants (deed restrictions) must be impractical. The need to record more than about 20 deed restrictions qualifies as an "impracticability."[98] Second, the local government must be reliable. The state's reliability review considers many aspects of the ordinance, including whether it technically fits the exposure scenario, whether its exceptions undermine reliability, and the ordinance's enforcement provisions. Guided by these and similar criteria, the Michigan Department of Environmental Quality (MDEQ) closely reviews and sometimes denies reliance on local government.[99]

C. Texas Groundwater No-Use Zones—Zoning Drinking Water Post-Cleanup

Texas uses a system of municipal setting designations (MSDs). An MSD is an official state designation given to property within a municipality or its extraterritorial jurisdiction that certifies that designated groundwater at the property is not used as potable water and is prohibited from future use as potable water because that groundwater is contaminated more than the applicable potable-water protective concentration level.[100] The prohibition must be in the form of a city ordinance, or a restrictive covenant that is enforceable by the city and filed in the land records.

Many cities in Texas have established such MSDs in the aftermath of a cleanup. To create an MSD, the municipality must apply for an MSD certificate.[101] In the application, the person or local government must demonstrate that the property is within the corporate limits or extraterritorial jurisdiction of a municipality authorized by statute and that the property is a public drinking water supply system that exists to supply drinking water.[102]

D. Iowa State-Approved Local Well Ordinances for Use as ICs

Iowa maintains a list of city and county well ordinances that have been reviewed by the state as appropriate for use as ICs.[103] The list shows the ordinances as acceptable, unacceptable, or conditionally acceptable. Acceptable ordinances, axiomatically, meet the state's requirements. Unacceptable ordinances may lack certain restrictions.

For example, an ordinance in Britt, Iowa, was deemed unacceptable because it lacked a restriction on private well installation and lacked a permitting process.[104] Relatedly, an ordinance deemed conditionally acceptable may be applied under a limited type of well or property. For example, an ordinance in Burlington, Iowa, only applies to drinking water wells, and an ordinance in Chelsea, Iowa, prohibits "wells" where city water is available.[105] Similar to the Texas MSD system, this type of ordinance comes into play in an attempt to protect the populace from consuming toxins during and after a cleanup.

E. Jasper County Soil Testing at Oronogo-Duenweg Mining Belt Site

In its Fourth Five-Year Review of the Oronogo-Duenweg Mining Belt site in Jasper County, Missouri, EPA details an ordinance for soil testing that was incorporated as an IC.[106] This ordinance, known as the Jasper County Environmental Contamination Ordinance, went into effect July 1, 2006.[107] It requires soil testing—conducted by Heath Department staff—for regulated contaminants on Superfund-designated properties associated with new construction of a dwelling, a dwelling unit child-occupied facility, or a recreational area.[108] The ordinance also requires that all existing wells be tested for heavy metals when the property is transferred or sold.[109]

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97. *See* MDEQ, Factors to Be Considered When Developing a Groundwater Use Restriction Ordinance to Serve as an Institutional Control Order Under Part 201 and/or Part 213, https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/RRD/Gelman/Selected-Documents/2008/DEQ-July-2008-Well-ID-Report-Response-DEQ-Local-IC-Ordinance-Guidance.pdf?rev=d2d8b459b0374a878bd5846c80d74936.
98. Practicability or lack thereof is typically measured by the acreage or tracts of land to which the IC in question will apply. Industry standard typically holds that while three to four parcels of land can be appropriately handled by property-specific controls, 100 or more parcels—depending on the state and local governments—necessitate local government involvement.
99. *See* MDEQ, *supra* note 97. *See also* Connor Crank, *Institutional Controls and Implications for Policy*, Mich. State Univ. (Jan. 1, 2024), https://www.canr.msu.edu/news/institutional-controls-and-implications-for-policy; *see also* Memo from Steve Cunningham, Cadillac District Office, MDEQ Remediation and Redevelopment Division, to Sybil Kolon, Jackson District Office, MDEQ Remediation and Redevelopment Division, re: Pall/Gelman Institutional Control Proposal (Aug. 18, 2004), https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/RRD/Gelman/Selected-Documents/2004/DEQ-August-2004-Memo-Institutional-Control.pdf?rev=d214f84102ee4bd9b7d3768ed9bcc193.
100. *See* Texas Commission on Environmental Quality, *Municipal Setting Designations*, https://www.tceq.texas.gov/remediation/msd.html (last modified Apr. 30, 2024) (providing overview and details about MSDs and access to a listing of city ordinances and resolutions approving MSDs in their jurisdictions).
101. *See* Texas Commission on Environmental Quality, Municipal Setting Designation Application Form (Apr. 2011), https://www.tceq.texas.gov/downloads/remediation/msd-application-form-20149.pdf.
102. Tex. Health & Safety Code §361.803, Eligibility for a Municipal Setting Designation, https://texas.public.law/statutes/tex._health_and_safety_code_section_361.803.
103. Iowa Department of Natural Resources, Listing of Approved City and County Private Well Ordinances (2022), https://www.iowadnr.gov/Portals/idnr/uploads/ust/appwellordinance.pdf.
104. *Id.*
105. *Id.*
106. U.S. EPA, Fourth Five-Year Review Report for Oronogo-Duenweg Mining Belt Superfund Site Jasper County (2017), https://semspub.epa.gov/work/07/30323583.pdf.
107. *See* Jasper Cnty., Mo., Env't Contamination Ordinance (2006), https://www.jaspercountymo.gov/_files/ugd/1b6863_d6135bee81a24b8fab4635949da48caa.pdf.
108. *Id.*
109. *Id.*

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F. Local Ordinance IC at the Midvale Slag NPL Site

In 2006, the city of Midvale, Utah, passed an ordinance controlling both groundwater uses and land activities at the Midvale Slag Superfund Site in Utah.[110] Chapter 8.10 of the Midvale Municipal Code—titled "Institutional Controls Ordinance for Bingham Junction, Jordan Bluffs, and Designated Rights-of-Way"—provides requirements and procedures for the public ICs applicable to the redevelopment and reuse of Bingham Junction and Jordan Bluffs properties. Both properties were fully remediated under CERCLA.[111] The ordinance provides the following statement of purpose:

> Generally speaking, the purpose of the ICs adopted in this chapter is to prevent unacceptable human exposure to contaminants that remain on site by ensuring the protection, maintenance, and improvement of physical barriers that have been or will be placed on the various properties. This chapter also addresses contaminated groundwater issues in certain areas.[112]

Additionally, EPA and the Utah Department of Environmental Quality worked with the city of Midvale and the other stakeholders to establish ICs more specifically tailored to the intended reuse, but which continue to ensure that the site will remain protective of human health and the environment.[113] Importantly, the city of Midvale created a full-time position to oversee the implementation and monitoring of the ICs. This includes serving as a liaison to the developers, owners, tenants, and public to help communicate the IC requirements and to resolve any related issues that might arise. This position has been instrumental in addressing concerns that might otherwise have been a serious disincentive to redevelopment.

G. Eureka Mills Superfund Site

The city of Eureka, Utah, passed a land use ordinance in October 2010 to ensure that excavation activities are safely conducted in the community.[114] This ordinance aims to protect the community from the Eureka Mills Superfund Site, which is contaminated with mining wastes containing high concentrations of lead and other materials.[115] The ordinance creates procedures and performance standards for "all persons undertaking a Restricted Activity within the Site or within the City corporate limits."[116]

The ordinance provides bifurcated performance standards for properties previously cleaned up and properties not previously cleaned up. For properties that were part of EPA's cleanup, excavated material must be transported to the open cell for disposal as it is excavated. Excavated materials include materials generated from exempted activities and restricted activities.[117]

For properties that were not part of EPA's cleanup, excavated materials (1) can be transported to the open cell for disposal as the permit area is excavated; or (2) do not need to be transported to the open cell if it is determined, through representative sampling and analysis pursuant to the requirements in Appendix A of the ordinance, that the excavated materials are not contaminated soils; or (3) can be used as fill within the permit area below a protection cap or hard surface cover; or (4) can be disposed of elsewhere in accordance with federal and state hazardous waste regulations.

In addition, EPA has required the mine owners to file environmental covenants in the chain of title at the Juab County recorder's office on the land parcels they own where the capped mine waste areas, sedimentation ponds, and other drainage control features exist. The purpose of the environmental covenants is to protect these areas from future disturbance unless the state of Utah and EPA approve any changes to the areas in writing.[118]

VI. Conclusion

While Superfund cleanups are typically dictated by the federal government, ICs provide a route for local governments to make their voices heard. By passing ordinances, amending zoning codes, and implementing permitting requirements, local governments can utilize land use law to tailor the community's response to toxins in the area. Though communities have mostly undertaken such measures out of necessity, perhaps there is a future where land use measures are used proactively to ensure the health and welfare of those living near Superfund sites. By undertaking preventative measures against contamination, communities might get ahead of toxins so as to mitigate their impact and keep their citizens as healthy as possible.

110. *See* Midvale, Utah, Mun. Code ch. 8.10 (2024), https://midvale.municipal.codes/Code/8.10#8.10; *see* U.S. EPA, Fourth Five-Year Review Report for Midvale Slag Superfund Site, Salt Lake County, Utah (2019), https://semspub.epa.gov/work/08/1918787.pdf.
111. *See* Midvale, Utah, Mun. Code ch. 8.10 (2024), https://midvale.municipal.codes/Code/8.10#8.10.
112. *See* Midvale, Utah, Mun. Code ch. 8.10.010 (2024), https://midvale.municipal.codes/Code/8.10.010.
113. U.S. EPA, Case Study: Midvale, Utah, Effective Use of Institutional Controls for a Large Redevelopment Project, https://semspub.epa.gov/work/01/506564.pdf.
114. *See* Eureka City, Utah, Land Use Code ch. 13 (2010), https://eurekautah.org/documents/52/Final_Eureka_Ordinance_IC_19JUl10_final_09SEP10.pdf.
115. *Id.*
116. *Id.* §1(3). The ordinance defines "restricted activity" as
> any excavation or earth moving activity within the Site or within the City corporate limits that is not an Exempted Activity and that results in a disturbance of soil, or which may disturb the soil, below the 18-inch clean soil cover or which reduces the clean soil cover to less than 18 inches in depth.

Id. §1(2)(R).
117. The "open cell" means a repository (or landfill) at the site designated by EPA specifically and solely for the disposal of contaminated soil generated within the site or the city limits.
118. *See generally* U.S. EPA, *Superfund Site: Eureka Mills, Eureka, UT*, https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.stayup&id=0801644 (last visited May 9, 2024).