CERCLA, INSTITUTIONAL CONTROLS, AND THE LEGACY OF URBAN INDUSTRIAL USE

BY

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Population growth over the last few decades in cities around the country has created high demand for vacant urban land. But much of this now desirable property remains contaminated from prior uses. An increasingly popular option for managing the contamination left at urban sites is reliance on institutional controls to limit use of the property in line with the degree of cleanup accomplished through the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or other remediation programs. Through such limitations, institutional controls allow for both less than complete remediation and faster return of land to productive use. At the same time, however, recent amendments to CERCLA have limited the potential for review of liability with regard to institutional controls. And there appears to be widespread agreement that at least some institutional controls will fail to provide their intended protections. Based on the apparent lack of remedy available if these controls fail to operate as anticipated, this Article concludes that there is a need for judicial interpretation and/or congressional amendment of CERCLA's liability and timing of review provisions to better address institutional controls. In the meantime, planners would be wise to use caution in integrating institutional controls into designs for urban renewal; otherwise, new and beneficial patterns of urban growth may be derailed by future failures of those controls.

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I. INTRODUCTION

As the nineteenth century dawned, a mere 15% of the world's population lived in urban areas.[1] The United States reflected that trend; although "American cities grew steadily throughout the first seventy-five years of nationhood," economic and transportation realities ensured that they "remained relatively small in geographic area and population."[2] But by the second half of that century, "[u]rban population growth [in the United States] accelerated" and "continued steadily throughout the next hundred years."[3] People began to flock to cities, where industry, commerce, and residences coexisted in dense clusters of mixed uses. In 1920, the U.S. Census revealed that, "for the first time, more Americans lived in urban than rural settings."[4] The years following World War II, however, saw a monumental shift from the cities into the suburbs. Although the drift of people beyond the urban core was far from a new phenomenon,[5] a variety of policy choices and social shifts in the post-war era combined to cause "tens

1 ECO-GOWANUS: URBAN REMEDIATION BY DESIGN 17 (Richard Plunz & Patricia Culligan eds., 2007).

2 ROGER AUCH, JANIS TAYLOR & WILLIAM ACEVEDO, U.S. GEOLOGICAL SURVEY, CIRCULAR 1252, URBAN GROWTH IN AMERICAN CITIES: GLIMPSES OF U.S. URBANIZATION 2 (2004), *available at* http://pubs.usgs.gov/circ/2004/circ1252/#Growth.

3 *Id.*

4 *Id.* at 3.

5 *See, e.g.*, EDWARD GLAESER, TRIUMPH OF THE CITY: HOW OUR GREATEST INVENTION MAKES US RICHER, SMARTER, GREENER, HEALTHIER, AND HAPPIER 170 (2011) (describing the popularity of the "once almost rural outpost" of Washington Square Park as an original suburb of New York City's financial district).

of millions of people" to leave for the suburbs.[6] Left in the wake of this exodus from cities, of course, were the remains of those cities' prior uses.

In the decades following the post-war flight from the cities, scientific and popular acknowledgment of the environmental damages caused by frequently unregulated industry practices became mainstream. High-profile environmental disasters around the country showed the implications of land's industrial legacy for future users.[7] The growing awareness of human impacts on the environment led to the creation of a number of state and federal programs designed to prevent and remediate harm to land and water. Chief among these was the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA),[8] which, along with state programs, provided a means for cleanup of hazardous wastes at former industrial sites.[9] Because CERCLA's strict liability scheme acted as a deterrent to development, however, it became the subject of frequent criticism and amendment.[10]

The past several decades have seen Americans return to cities across the country. The renewed popularity of urban locations has created demand for previously-abandoned industrial sites. At the same time, criticism of the slowness of the CERCLA process to bring sites back into use has led to a shift in the ways in which contaminated sites are remediated. Instead of a full cleanup of hazardous materials, many remediation plans now call only for a partial cleanup combined with "institutional controls"—restrictions designed to limit land to uses consistent with the level of unremediated contamination at the site.[11] By restricting use, institutional controls are intended to ensure safety without necessitating a full cleanup.[12] These controls, which are

6 *Id.* at 264.

7 *See, e.g.*, *infra* Part III.B (providing background of the Love Canal disaster).

8 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601–9675 (2006).

9 42 U.S.C. § 9621 (specifying cleanup standards).

10 Although CERCLA itself is silent as to a standard of liability, cases interpreting the statute through legislative history established early on that CERCLA was intended to impose a strict liability regime. The weight of this precedent is so strong that this is now considered hornbook law. *See generally* Stephen M. Feldman, Comment, *CERCLA Liability, Where It Is and Where It Should Not Be Going: The Possibility of Liability Release for Environmentally Beneficial Land Transfers*, 23 ENVTL. L. 295, 302 n.35 (1993) (noting that "CERCLA § 101(32), 42 U.S.C. § 9601(32), states that 'liability' for CERCLA purposes shall comport to that standard assigned under section 311 of the Clean Water Act, 33 U.S.C. § 1321 (1988). Courts have held that the latter imposes a standard of strict liability."); Lynda J. Oswald, *Strict Liability of Individuals Under CERCLA: A Normative Analysis*, 20 B.C. ENVTL. AFF. L. REV. 579, 589 (1993) (discussing CERCLA's strict liability standard in general, noting that "the courts have construed CERCLA as imposing strict liability upon responsible parties," and providing a list of early cases laying the precedential basis for this interpretation of CERCLA). For discussion of development-centered criticism leveled at CERCLA and statutory attempts to alleviate the issue, see *infra* Part II.B.

11 *See* Alex Geisinger, *Rethinking Risk-Based Environmental Cleanup*, 76 IND. L.J. 367, 371 (2001) (defining institutional controls and explaining their increasing use in CERCLA cleanups).

12 *See* U.S. ENVTL. PROT. AGENCY, EPA-540-R-09-001, INSTITUTIONAL CONTROLS: A GUIDE TO PLANNING, IMPLEMENTING, MAINTAINING, AND ENFORCING INSTITUTIONAL CONTROLS AT CONTAMINATED SITES 2–3 (2010), *available at* http://www.epa.gov/superfund/policy/ic/pdfs/PIME-IC-Guidance-Interim.pdf.

cheaper and provide a quicker means of reopening land to productive use than a full clean-up, have become a popular remediation tool.[13]

Problematically, however, research regarding institutional controls suggests that they are prone to failure.[14] Many controls may fail because of improper compliance on the part of a landowner or user.[15] When that happens, any resulting harm is undesirable, but remedies against the responsible party are likely available to those affected by the noncompliance. An institutional control may also fail, however, to protect human safety even when met with perfect compliance, as not all institutional controls will operate exactly as intended. Those injured by institutional controls that fail under those circumstances have no clear means by which to be made whole for their loss. Under current law, challenging a selected institutional control may be possible only once implementation of that institutional control is "complete."[16] Federal remediation policies, hoping to remove disincentives to development, have incorporated liability waivers for those who comply with mandated levels of clean-up.[17] And prevailing on state tort actions in this area is likely very difficult. Consequently, the same policies designed to facilitate cleanup and entice redevelopment of urban areas appear to have shifted the burden of failed institutional controls onto those who come in to redevelop the sites, leaving them without recourse in the event of injury.

Cities nationwide are currently experiencing a wave of regrowth. This growth, although welcome for its net environmental benefits, exerts a great deal of pressure on vacant land within a city. And while a sense of history may draw people to the urban environment, many of the buildings that now impart historic charm were formerly home to uses that caused serious environmental harms. Given the benefits of urban living, the potential that institutional controls have for helping to renew urban areas in an efficient manner cannot be ignored. There is a fundamental tension, however, between the interest in promoting quick remediation for purposes of ushering in urban renewal and the interest in ensuring the health of our cities for years to come. To the extent that people are living and working in less than fully remediated sites, the prospect of failure must be considered, and a remedy must be provided for any harm. Without those kinds of precautions, we lay the groundwork for a renewed flight from the cities if

13 Susan C. Borinsky, *The Use of Institutional Controls in Superfund and Similar State Laws,* 7 FORDHAM ENVTL. L. REV. 1, 2 (1995); Jim Spaanstra et al., *Institutional Controls: Brownfields Superweapon or Ultimate Trojan Horse?*, 15 NAT. RESOURCES & ENV'T. 104, 104 (2000).

14 *See, e.g.*, Seth Schofield, *In Search of the Institution in Institutional Controls: The Failure of the Small Business Liability Relief and Brownfields Revitalization Act of 2002 and the Need for Federal Legislation*, 12 N.Y.U. ENVTL. L.J. 946, 949 (2005).

15 ENVTL. LAW INST., AN ANALYSIS OF STATE SUPERFUND PROGRAMS 47–48 (2002), *available at* http://www.elistore.org/data/products/d12-10a.pdf.

16 Lucia Ann Silecchia, *Judicial Review of CERCLA Cleanup Procedures: Striking a Balance to Prevent Irreparable Harm*, 20 HARV. ENVTL. L. REV. 339, 353 n. 59. (1996).

17 *See, e.g.*, U.S. Envtl. Prot. Agency, *State and Local Government Activities and Liability Protections*, http://www.epa.gov/oecaerth/cleanup/revitalization/local-acquis.html (last visited Nov. 18, 2012).

pollution from the past disrupts the new urban lives that people have made for themselves.

A. City, Suburb, City

The growth of the U.S. city in the nineteenth century occurred as part of a larger wave of political and economic change. As transportation improved, access to local and regional natural resources became readily available and easily exploited, paving the way for cities to become "centers of industry."[18] At the same time, social unrest in Europe spurred an influx of immigrants to the United States.[19] Drawn by "economic opportunity, cultural attractions, and the relatively greater degree of personal freedom available in the anonymous city compared with small town and rural areas," people began flocking to cities.[20] The pace of urbanization in the United States accelerated following the Civil War. The development of better steel production led to construction of a rail network, which in turn spurred both the establishment of new cities and the growth of others; by 1890, industrialization had created a truly national economy.[21] Immigrants, still arriving to the United States in large numbers, tended to settle in cities. Developments in agriculture and variable environmental conditions also led many to abandon the farming profession and seek employment in urban environments.[22] As a result, "[t]he old 'downtown' city in America reached its zenith by the end of the First World War."[23]

Between 1929 and 1945, however, the dual impacts of the Great Depression and the Second World War resulted in a transformation of American cities.[24] That era was marked by a broad trend toward personal savings, allowing for a great expansion of the national economy once austerity measures ended.[25] Industries expanded into new arenas with the war effort, providing new business opportunities outside of traditional urban centers.[26] Geographic expansion was also made possible by the rapid increase in automobile ownership in the 1920s, which widened the sphere in which people could live and work.[27] And the end of the war was accompanied by federal stimulus programs that incentivized the move to suburban developments outside the urban core.[28] That migration was encouraged by

18 AUCH, *supra* note 2, at 2.

19 *Id.*

20 Richard Briffault, *Smart Growth and American Land Use Law*, 21 ST. LOUIS U. PUB. L. REV. 253, 255 (2006).

21 AUCH, *supra* note 2, at 2–3.

22 *Id.*

23 *Id.*

24 *Id.*

25 *Id.*

26 AUCH, *supra* note 2, at 4.

27 *Id.* at 2–3.

28 *Id.*

federally subsidized housing, tax deductions for home ownership, transportation and infrastructure subsidies, and other federal policies.[29]

Those federal programs incentivized middle-class families to purchase homes away from the city center and to maintain their suburban lifestyle by commuting. For many, the suburbs represented "a refuge . . . removed from the congestion, noise, pollution, multifamily residences, and high land prices typically found in the heart of the city."[30] And those who could afford to go, left. As "[t]he expansion of the suburbs drew the rich and middle-class out of the city," however, "the combination of slowed immigration and economic mobility resulted in increased vacancy rates in working-class districts," and "the number of residents in the urban core declined."[31] During that decline, "[t]he shops stayed in the city, but only for a while."[32] Similarly, while "jobs stayed downtown [for a time] . . . by the 1970s, many corporations were moving their offices" to the suburbs.[33] The flight of wealthy and middle-class residents created a "vicious cycle of decline for older and poorer urban neighborhoods, producing an increase in unemployment and crime, as well as lower property values."[34] The erosion of the tax base led to a decrease in services; this decrease further encouraged "more residents to leave, thus perpetuating the cycle of decline."[35] By the

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29 For instance, "[b]etween 1933 and 1935, the government-run Home Owner Loan Corporation . . . supplied over $3 billion for more than a million mortgages or loans, a large proportion of which was for owner-occupied housing." Daniel J. Hutch, *The Rationale for Including Disadvantaged Communities in the Smart Growth Metropolitan Development Framework,* 20 YALE L. & POL'Y REV. 353, 356–57 (2002). Under those loan programs, mortgages typically cost less per month than paying rent, and the programs' focus on new, single-family suburban construction discouraged renovation of old homes or new construction of "row houses, mixed-use buildings, and other urban housing types." ANDRES DUANY ET AL., SUBURBAN NATION: THE RISE OF SPRAWL AND THE DECLINE OF THE AMERICAN DREAM 8 (2000). And the "biggest public home-ownership subsidy of all ended up being the tax deductibility of mortgage interest," as "[s]ubsidizing the purchase of big houses ended up encouraging people to leave the cities." GLAESER, *supra* note 5, at 176. Those housing programs were accompanied by a "41,000-mile interstate highway program, coupled with federal and local subsidies for road improvement," which "helped make automotive commuting affordable and convenient for the average citizen." DUANY ET AL., *supra*, at 8. The move out of the cities was politically motivated as well. "In the years [after *Brown v. Board of Education*, 347 U.S. 483 (1954)], wealthy and middle-class white residents, as well as many businesses, left urban areas to relocate to surrounding suburbs" to escape the mandates of integration. Hutch, *supra*, at 353. And trendy planning theories worked to ensure that the suburban environments into which people moved were of very low density, making many car trips between locations the new norm. DUANY ET AL., *supra*, at 9–10 (explaining how planning theories like the City Beautiful movement were interpreted to require total segregation of uses, and noting that "[w]hile government programs for housing and highway promoted sprawl, the planning profession, worshipping at the altar of zoning, worked to make it the law.").

30 AUCH, *supra* note 2, at 4.

31 Wendell E. Pritchett, *The "Public Menace" of Blight: Urban Renewal and the Private Uses of Eminent Domain*, 21 YALE L. & POL'Y REV. 1, 14 (2003).

32 DUANY ET AL., *supra* note 29, at 8.

33 *Id.* at 9.

34 Hutch, *supra* note 29, at 353.

35 *Id.* at 354.

1970s, the population of the suburbs surpassed that of the central cities.[36] As cities were perceived to have lost their competitive advantage, manufacturers departed, leaving "a changed urban landscape, both physically and functionally."[37] And because development was easier in the suburbs than in urban areas due to fewer building restrictions, developers generally chose to "[avoid] the problems that came with inner-city development."[38] Thus, there became an increasing number of reasons to leave the city for quality of life, jobs, improved housing, and novelty.

Perhaps the overwhelming popularity of the suburb should have come as no surprise. Indeed, "Americans have always harbored a bit of mistrust toward cities . . . [g]oing all the way back to Thomas Jefferson's exaltation of yeoman farmers as the backbone of democratic culture, country life has been seen as the American ideal."[39] By the 1960s and 1970s, "American cities were perceived to be dying," a viewpoint "fueled by deteriorating downtowns, ghetto uprisings, loss of urban fiscal base, and other problems."[40] At the same time, cracks began to appear in what had promised to be the suburban picture of contentment: "In the minds of many, the suburbs had become havens of conformity, the site of nearly identical, ranch-style subdivisions and strip malls."[41] This led to construction of second rings of suburban development, as residents sought to recapture what had first drawn them to the suburbs. "These 'exurban' areas often had no recognized center . . . but instead were tied loosely to the region's primary metropolitan center."[42] As transportation improved and employers were no longer concentrated in urban areas, increased mobility led to growth in greater geographic ranges. Whereas most of the country's urban population was concentrated in the Northeast prior to the transportation boom, in its aftermath, people began moving to less populated areas such as the "Sunbelt" of the South and West.[43] In many of these places, local governments had "laissez-faire attitudes . . . to urban planning," which allowed a variety of businesses, including manufacturing, to relocate there.[44] These combined processes contributed to decentralization of the suburbs and exurbs. The results of these population shifts were negative in many ways. Critics have noted that "[s]prawl steals from us time, choice, and closeness, not just space"[45] and that "[t]o some degree, almost everyone is

36 AUCH, *supra* note 2, at 4.

37 *Id.*

38 Pritchett, *supra* note 31, at 14.

39 Jay Walljasper, *How to Fall in Love with Your Hometown*, *in* TOWARD THE LIVABLE CITY 231, 242 (Emilie Buchwald ed., 2003).

40 Phillip L. Clay, *Choosing Urban Futures: The Transformation of American Cities*, 1 STAN. L. & POL'Y REV. 28, 28 (1989).

41 AUCH, *supra* note 2, at 4.

42 *Id.* at 5.

43 *Id.*

44 *Id.* at 6.

45 Tony Hiss, *A Burden, A Blessing*, *in* TOWARD THE LIVABLE CITY, *supra* note 39, at 212, 213.

[victimized]"[46] by an arrangement where automobiles are the only means of transportation.

Along with the general population, environmental advocates have belatedly taken up the mantle of urbanism. Although environmentalists may not have been historically predisposed toward the urban setting,[47] it has been gradually acknowledged that the modern suburban lifestyle is "one of the most spectacular environmental disasters in history."[48] "[S]uburban living really means countless hours in the car, cruising down endless miles of pavement, passing ceaseless stretches of new developments, all of which depends on limitless supplies of land, fossil fuel, lumber, and other environmentally precious resources."[49] Additionally, "[p]oorly-planned sprawl development affects . . . many aspects of environmental quality" by polluting waterways, increasing atmospheric emissions, and reducing the abundance and diversity of wildlife, among other impacts.[50] Even based on statistics from a decade ago, "[t]he estimated annual costs of . . . motor vehicle-based pollution [were] huge, ranging from under $30 billion to over $500 billion in increased health care costs, $2.5 to $4.6 billion in crop damage, and $6.0 to $43.54 billion in damage to visibility."[51] That is to say, there are ample ecologically motivated reasons to favor urban population infill. "In terms of the environment, cities clearly offer the most earth-friendly lifestyle."[52]

Propelled in part by such sentiments, the urban tide has once again shifted. For the past several decades, cities across the country have been experiencing renewal of their urban cores. Once again, abundant housing, convenience, and the desire to experience the diversity that cities offer has drawn people in to the urban core. This trend has been both supported and fueled by proponents of "smart growth," a planning school of thought that advocates, in large part, the opposite of those principles that governed suburban development: "(1) *decongestion*, that is, reducing population density and dispersing residents over wider areas; and (2) the *separation* of different land uses from each other."[53] An analysis of U.S. Census residential

46 DUANY ET AL., *supra* note 29, at 115.

47 Phillip Lopate, *The Empty Harbor and the Dilemma of Waterfront Development*, *in* TOWARD THE LIVABLE CITY, *supra* note 39, at 97, 106.

48 Walljasper, *supra* note 39, at 242.

49 *Id.*

50 Hutch, *supra* note 29, at 360.

51 *Id.* at 361.

52 Walljasper, *supra* note 39, at 243.

53 Briffault, *supra* note 20, at 253. In stark contrast to those goals, the smart growth movement encompasses 10 basic principles: 1) mixed land uses; 2) compact building design; 3) variety of housing opportunities and choices; 4) walkable neighborhoods; 5) distinctive, attractive communities with a strong sense of place; 6) preservation of open space, farmland, natural beauty, and critical environmental areas; 7) development in existing communities; 8) wide variety of transportation choices; 9) development decisions that are predictable, fair, and cost effective; and 10) community collaboration in development decisions. U.S. Envtl. Prot. Agency, *About Smart Growth*, http://www.epa.gov/smartgrowth/about_sg.htm (last visited Nov. 18, 2012). By focusing on those goals, city planners seek to make communities more livable, less environmentally taxing, and increasingly transparent and accountable.

building permit data for the fifty largest metropolitan regions for 1990 to 2008 revealed a "fundamental shift in the real estate market" as "urban core communities dramatically increased their share of new residential building permits."[54] The data revealed that acceleration of residential construction in urban neighborhoods had been particularly dramatic in the last five years of the survey.[55]

Perhaps inevitably, the increased popularity of urban living has resulted in a steady trend of gentrification as large numbers of people flood back into cities. While gentrification and its many attendant controversies are beyond the scope of this discussion,[56] the increasing demand for property and corresponding rise in property values in many urban areas are crucial factors in the new face of city planning. Gentrification is just one impact of the pressures put on land and real estate by the rapidly increasing numbers of people in urban areas. The renewed influx of people into cities increases demand for urban space, and as property values rise, cities have incentives to use all available land to accommodate their many new residents.

B. The Legacy of Prior Uses

In most cities, at least some of the available urban land is likely to have had a former life as an industrial or manufacturing site. Disposal methods for those former uses were generally of the "out of sight, out of mind" variety, and waste was often "crudely disposed of . . . with little regard for its impact on the environment."[57] Although burial of waste had been common practice since the Industrial Revolution, "by the middle of the twentieth century, the content of industrial waste had become far more dangerous, the chemicals were much more complex, and their effects were more persistent; the earth could no longer provide a sufficient barrier to protect human health from the effects of hazardous waste."[58] Although no solid numbers on the extent of contamination exist, estimates have been as

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54 U.S. ENVTL. PROT. AGENCY, RESIDENTIAL CONSTRUCTION TRENDS IN AMERICA'S METROPOLITAN REGIONS 1 (2010), *available at* http://www.epa.gov/smartgrowth/pdf/metro_res_const_trends_10.pdf. Specifically, "[i]n fifteen regions, the central city more than doubled its share of permits." *Id.* From the early 1990s to 2008, New York City increased its share of permits from 15% to 28%; Chicago increased from 7% to 27%; Portland, Oregon increased from 9% to 26%; and Atlanta, Georgia increased from 4% to 14%. *Id.*

55 *Id.* "Data from 2008 show the inward shift continuing in the wake of the real estate market downturn even though the overall number of permits is down in nearly all jurisdictions." *Id.*

56 Gentrification is the "process by which central urban neighborhoods that have undergone disinvestments and economic decline experience a reversal, reinvestment, and the in-migration of a relatively well-off, middle- and upper middle-class population." LANCE FREEMAN, THERE GOES THE 'HOOD: VIEWS OF GENTRIFICATION FROM THE GROUND UP 29 (2006) (discussing gentrification more extensively); *see also* Alan M. White, *Gentrification, Tipping and the National Housing Policy*, 11 N.Y.U. REV. L. & SOC. CHANGE, 255, 260–64 (1982) (discussing the merits of gentrification in relation to race and class integration).

57 Amy McMorrow, *CERCLA Liability Redefined: An Analysis of the Small Business Liability Relief and Brownfields Revitalization Act and its Impact on State Voluntary Cleanup Programs*, 20 GA. ST. U. L. REV. 1087, 1090 (2003).

58 *Id.*

high as 500,000 sites; "in 2003, 192 U.S. cities reported that more than 95,000 acres of land in their jurisdictions [had] been abandoned or [were] under-utilized due to contamination."[59]

"[P]roperties with active potential for redevelopment or reuse that lie fallow due to actual or perceived contamination" are known as brownfields.[60] As the demand for urban land increases, there has been a growing push to remediate brownfields for reuse. Remediation of brownfields can aid urban renewal by filling in pockets of contaminated land. Moreover, because construction at brownfield sites requires much less new infrastructure than at greenfields—land with no previous commercial or industrial use—the environmental benefits of brownfield redevelopment are generally positive.[61] For example, "in New York City alone, brownfields decontamination and reuse is being offered as a solution to reclaim as many as 1,700 acres of land for schools, housing and recreation."[62] "Brownfields are a high priority in Mayor Bloomberg's long-term plan because cleaning contaminated land is one of the most efficient ways to create the space needed for the city's anticipated growth."[63]

Like other urban areas, the five boroughs of New York City, long home to a variety of industrial uses, contain many contaminated brownfield sites. One of those sites that has garnered much attention, and that provides an example of the type and extent of pollution at some brownfield sites, is the Gowanus Canal.[64] The Gowanus Canal "is a brackish, tidal arm of the New York-New Jersey Harbor Estuary, extending for approximately 1.8 miles through Brooklyn, New York."[65] It was constructed "by bulkheading and dredging a tidal creek and wetland," and, "after its completion in the 1860s, the Canal quickly became one of the nation's busiest industrial waterways, home to heavy industry including gas works . . . coal yards, cement makers, soap makers, tanneries, paint and ink factories, machine shops, chemical plants and oil refineries."[66] That activity resulted in a vast array of

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59 *Id.* at 1100.

60 Denise F. Hoffman & Barbara Coler, *Brownfields and the California Department of Toxic Substances Control: Key Programs and Challenges*, 31 GOLDEN GATE U. L. REV. 433, 433 (2001).

61 *See id.* at 434.

62 ECO-GOWANUS, *supra* note 1, at 57.

63 Mark McIntyre, *How PlaNYC Will Facilitate Brownfields Redevelopment*, 54 N.Y.L. SCH. L.R. 431, 432 (2009).

64 The Gowanus Canal is referred to herein as a brownfield only in the more general use of the term as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" under the definition of brownfields found in the Small Business Liability Relief and Brownfields Revitalization Act. Small Business Liability Relief and Brownfields Revitalization Act, Pub. L. No. 107-118, § 211, 115 Stat. 2356 (2002); *see infra* Part II.B. Sites listed on, or proposed for listing on, the EPA's National Priorities List (like the Gowanus Canal) are excluded from the definition of "brownfield site." Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601(39)(B)(ii) (2006).

65 Order and Settlement Agreement for Investigation, Sampling and Evaluation, Gowanus Canal Superfund Site, CERCLA-02-2010-2009, at 5 (2010), *available at* http://www.epa.gov/region2/superfund/npl/gowanus/pdf/AdminOrder-Nationa-Grid.pdf.

66 *Id.*

contamination; according to one survey, possible contaminant types include: metals, chlorinated solvents, fuels, carbon tetrachloride, arsenic, PAHs [polycyclic aromatic hydrocarbons], heavy metals, fungicides (carbon tetrachloride and ethylene dibromide), copper, lead, iron, oil, tartaric acid, petroleum hydrocarbons, tar, brine contamination, diesel, ethanol, petroleum, and bacterial pathogens.[67]

A 1989 investigation of the Canal identified "benzyne concentrations in groundwater that [were] hundreds to thousands of times higher than the [Maximum Concentration Limits] set by the EPA for drinking water."[68] Tests of the area in 2011 revealed "heavy contamination" from more than a dozen contaminants and confirmed the threat the area poses to public health, "particularly for people who eat fish from [the Canal] or have repeated contact with its water or sediment."[69] According to a local community board district manager, "[t]here's contamination that's been found to have migrated under the Gowanus Canal all the way over to the east side of the canal . . . [t]here's contamination 120 feet deep."[70] Compounding the problem of pollution in the canal is the issue of runoff from the City's sewer systems, as an "estimated 300 million gallons of dirty water, including untreated sewage, flood into the Gowanus each year."[71]

The interplay of the Canal's many contaminants has long been observed, as evidenced by the Canal's nicknames: "Lavender Lake," in reference to its frequent surface color, and "Perfume Creek," due to the near-constant smell.[72] By 1998, the Canal "ha[d] been so smelly that for decades it [had] been compared to the River Styx, the mythological river of the dead."[73] In an attempt to address these issues, New York City constructed a "flushing tunnel" to bring in fresh water from New York Harbor. The tunnel, first constructed in the 1960s, was mostly nonoperational until 1998,[74] but following repairs to the tunnel in 1998 and 1999, water quality in the Canal improved to some degree.[75]

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67 ECO-GOWANUS, *supra* note 1, at 50–54.

68 *Id.* at 45.

69 Mireya Navarro, *Gowanus Canal Inquiry Underlines Severity of Pollution*, N.Y. TIMES, Feb. 3, 2011, at A25.

70 Jake Mooney, *Open Land, But With A Past*, N.Y. TIMES, Feb. 11, 2007, http://www.nytimes.com/2007/02/11/nyregion/thecity/11toxi.html (last visited Nov. 18, 2012).

71 Andrew Rice, *On the Waterfront*, N.Y. TIMES, Oct. 25, 2009 (Magazine), at 67.

72 Andrew Revkin, *Flushing Out the Foul and the Frustration; A New Vista for a Dead-End Canal*, N.Y. TIMES, Feb. 1, 1998, http://www.nytimes.com/1998/02/01/nyregion/flushing-out-the-foul-and-the-frustration-a-new-vista-for-a-dead-end-canal.html (last visited Nov. 18, 2012).

73 Anthony Ramirez, *Neighborhood Report: Gowanus; Dredging Up a Revived Waterway*, N.Y. TIMES, July 12, 1998, www.nytimes.com/1998/07/12/nyregion/neighborhood-report-gowanus-dredging-up-a-revived-waterway.html (last visited Nov. 18, 2012).

74 Revkin, *supra* note 72.

75 *See* Jake Mooney, *Fume-Free (for Now) and Looking to the Future*, N.Y. TIMES, April 8, 2007, http://www.nytimes.com/2007/04/08/nyregion/thecity/08plan.html, (last visited Nov. 18, 2012); Andy Newman, *Stench is Out, Fish Are In; Gowanus Canal Comes Back to Life After Rescue*, N.Y. TIMES, July 29, 1999, http://www.nytimes.com/1999/07/29/nyregion/stench-is-out-fish-are-in-gowanus-canal-comes-back-to-life-after-rescue.html (last visited Nov. 18, 2012).

With the slight improvements to the Canal came new visions of development.[76] Beginning in the 1990s, local brokers reported no longer having a problem renting or selling by the Canal.[77] Over the next decade, developers began to tout the Gowanus area "as the next Brooklyn neighborhood for those who seek a gritty edge to their urban experience," and, anticipating the area's eventual rezoning to residential space, proceeded to buy buildings and lots along the Canal.[78] After the improvement in water quality, "the Bloomberg administration, sensing a chance for revitalization, rushed to rezone 25 blocks of the Gowanus area for nonindustrial uses."[79] When the U.S. Environmental Protection Agency (EPA)'s attention turned to cleaning up the Canal, the development interest in the site resulted in a "contentious debate," as New York City officials argued that federal designation as a Superfund site[80] "could set off legal battles with polluters, prolong the dredging operation and spook developers leery of the stigma."[81] Nonetheless, on March 2, 2010, EPA placed the Gowanus Canal on its Superfund National Priorities List (NPL) of hazardous waste sites requiring further evaluation.[82] Accordingly, EPA "performed a remedial investigation and feasibility study . . . of the canal according to the requirements of [CERCLA]," the results of which will be used to develop a plan for remedial action for the canal.[83]

The Gowanus Canal and the toxic chemicals in and under it are located in the middle of many highly desirable residential communities.[84] Although a great deal of development has taken place in the past several years, much of the land around the Canal remains unused compared to surrounding areas.

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76 Newman, *supra* note 75.

77 Edward Lewine, *The Gowanus Canal: An Appreciation*, N.Y. TIMES, Aug. 30, 1998, http://www.nytimes.com/1998/08/30/nyregion/the-gowanus-canal-an-appreciation.html?page wanted=all&src=pm (last visited Nov. 18, 2012).

78 Jeff Vandam, *Some See Venice; Some See a Canal*, N.Y. TIMES, Oct. 30, 2005, section 11; *see also* Mooney, *supra* note 75.

79 Rice, *supra* note 71.

80 *See infra* notes 97–99 and accompanying text.

81 Mireya Navarro, *Gowanus Canal Gets Superfund Status*, N.Y. TIMES, March 3, 2010, at A1(L).

82 CH2M HILL, U.S. ENVTL. PROT. AGENCY, FEASIBILITY STUDY: GOWANUS CANAL, DRAFT 1-1 (2011) *available at* http://www.epa.gov/region2/superfund/npl/gowanus/pdf/2011-12-19_ Gowanus_Canal_Draft_Text.pdf.

83 *Id.* On January 3, 2012, EPA released its draft feasibility study of options for cleaning up contaminants in the Gowanus Canal. U.S. Envtl. Prot. Agency, *Options for Gowanus Canal Superfund Cleanup*, http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/3222c756bec74a098525797a00611453!opendocument (last visited Nov. 18, 2012).

84 The Canal is surrounded by the Brooklyn neighborhoods of Park Slope, Carroll Gardens, and Cobble Hill. The median sales price for homes in Park Slope for June 2012 to August 2012 was $1,178,000, a figure 108.33% higher than the median sales price for all of Brooklyn, New York. Trulia.com, *Park Slope Market Trends*, http://www.trulia.com/real_estate/Park_Slope-Brooklyn/5202/market-trends/ (last visited Nov. 18, 2012). For Carroll Gardens, the median sales price for the same time period was $1,112,500, and the figure for Cobble Hill was $1,300,000. Trulia.com, *Carroll Gardens Real Estate Overview*, http://www.trulia.com/real_estate/Carroll_Gardens-Brooklyn/5056/ (last visited Nov. 18, 2012); Trulia.com, *Cobble Hill Real Estate Overview*, http://www.trulia.com/real_estate/Cobble_Hill-Brooklyn/5071/ (last visited Nov. 18, 2012).

The juxtaposition of some of the most expensive real estate in the country with such a highly contaminated site showcases the tension that can arise between the desire to make use of valued urban sites and the need to contend with the remains of land's prior uses. The pollution of the Gowanus Canal is just one example of how great quantities of hazardous materials have come to be located in areas now prime for urban redevelopment. The fact that a survey of cities suggested that "if redeveloped, the brownfield properties in their jurisdictions could yield $790 million to $1.9 billion in tax revenues annually," and that "brownfield redevelopment could potentially create 570,000 new jobs"[85] highlights the need for careful negotiation of the tension between demand and safety. Remediation of brownfields in an efficient manner is crucial if urban renewal is to continue at its current pace. That renewal is desirable from an environmental standpoint. The question of what tools to use to accomplish that cleanup quickly while minimizing harm to the new urban population is, however, an unresolved matter.

II. CLEAN-UP TOOLS

Although current development trends have heightened demand for urban remediation, the need for rehabilitation of contaminated sites has been the subject of political debate for decades. "In the late 1970s, the American public saw a number of dangerous releases of hazardous waste materials, both intentional and unintentional, into the environment at sites across the nation."[86] Images of environmental disasters like the burning Cuyahoga River in Ohio and the public health crisis at Love Canal in New York made clear the need for action. In the wake of the ensuing public outcry, Congress created federal programs designed to facilitate responses to and liability for contaminated land.[87] The strict nature of these programs, however, ultimately created disincentives to development.[88] As a result, multiple statutory amendments have been put in place to adjust the incentive structure to better focus on responsible parties.[89] Although the discussion herein is focused predominantly on the federal cleanup program, state cleanup mechanisms adopted in response to the growing brownfields problem also play a significant role in remediating contaminated sites.

A. The Passage of CERCLA

As noted, in the 1970s, "Americans were alerted to the real dangers of toxic waste after the release of pollutants from numerous sites around the

85 McMorrow, *supra* note 57, at 1101.

86 Spencer M. Wiegard, *The Brownfields Act: Providing Relief for the Innocent or New Hurdles to Avoid CERCLA Liability?*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 127, 130 (2003).

87 *See infra* Part II.A.

88 *See infra* Part II.B.

89 *See infra* Part II.B.

country began posing some serious environmental and health concerns."[90] In response, in 1980 Congress passed CERCLA to "fill a major gap in environmental protection"[91] and to address the "growing public concern that those responsible for future environmental catastrophes would go unpunished."[92] CERCLA is a liability-focused statute that "attempts to create a coherent answer to two related problems: the emergency abatement of releases of hazardous substances into the environment and the response, both short- and long-term, to the presence of hazardous wastes in existing disposal sites."[93] In furtherance of those goals, the Act authorizes the federal government or an individual state to bring actions to recover costs incurred in responding to releases of hazardous substances, and also provides for cost recovery suits by private parties in certain circumstances.[94]

CERCLA contains several mechanisms designed to ensure cleanup of hazardous sites.[95] First, under section 104, the EPA may complete the cleanup itself.[96] For purposes of such cleanups, CERCLA created a trust fund, called the Superfund, from which the EPA may receive money to find and clean up contaminated brownfields.[97] Second, "the federal government, state governments, and private parties may sue those responsible for the generation, transportation, or disposal of hazardous substances."[98] Section 107 defines the group of potentially responsible parties (PRPs) from whom cleanup costs may be recovered. Finally, the federal government may issue administrative orders to compel parties to engage in cleanup on their own.[99]

CERCLA is centered around a scheme of joint and several liability.[100] As noted, under CERCLA section 107(a), PRPs are liable for the response costs incurred by the plaintiff.[101] Response costs are defined "as the costs of either 'removal' actions or 'remedial' actions"—removal actions address short-term abatement of toxic waste hazards, while remedial actions are intended to restore long-term environmental quality.[102] Four categories of PRPs may be

90 Damon D. Tanck, *Getting Snagged in the Environmental Liability Web: The Trouble with CERCLA and Why the Brownfields Act Provides Only Modest Relief*, 35 TEX. TECH. L. REV. 1325, 1326 (2004) (citing OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, U.S. ENVTL. PROT. AGENCY, EPA 540-R-00-007, SUPERFUND: 20 YEARS OF PROTECTING HUMAN HEALTH AND THE ENVIRONMENT 2, 5 (2000), *available at* http://permanent.access.gpo.gov/websites/epagov/www.epa.gov/superfund/action/20years/index.htm (scroll to bottom of the page and click on "Cover, Preface, Chapters 1–3").

91 Tanck, *supra* note 90.

92 Wiegard, *supra* note 86, at 137.

93 Artesian Water Co. v. Govt. of New Castle Cnty., 659 F. Supp. 1269, 1276 (D. Del. 1987).

94 Weigard, *supra* note 86, at 137 (internal quotations omitted).

95 Jeffrey M. Gaba & Mary E. Kelly, *The Citizen Suit Provision of CERCLA: A Sheep in Wolf's Clothing?*, 43 SW. L.J. 929, 932 (1989).

96 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9604(a)(1) (2006).

97 *Id.* § 9611(a)(1).

98 *Artesian Water Co.*, 659 F. Supp. at 1277 (citing 42 U.S.C. § 9607(a)).

99 42 U.S.C. § 9606(a) (2006); Gaba & Kelly, *supra* note 95, at 933.

100 Heather D. Vanderberg, *The Brownfields Revitalization Act of 2001: New Hope for Urban Development*, 23 CONSTR. LAW 39, 39 (2003).

101 *Artesian Water Co.*, 659 F. Supp. at 1277–78.

102 *Id.* (citing 42 U.S.C. § 9601(25)).

held liable for the release of a hazardous substance: 1) the owner and operator of a facility; 2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of; 3) any person who arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person; and 4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities or sites selected by such person.[103]

Under the original CERCLA scheme, to "avoid liability a landowner had to show that contamination was cause[d] solely by a third party with whom he was not in a contractual relationship, and that the owner exercised due care in preventing or mitigating the contamination."[104] Thus, "[e]nactment of CERCLA . . . added an entirely new dimension of risk to even mundane real estate transactions" as it became clear that "owners and developers of real property could be held liable for millions of dollars in cleanup costs even where they did not cause or contribute to the contamination."[105] "After CERCLA became law, liability for environmental contamination was no longer just someone else's problem. It became everyone's problem . . . ."[106]

B. Amendments to CERCLA and Limits on Liability

In its sweeping liability scheme, the original CERCLA bill failed to differentiate between "innocent" and "guilty" owners of sites containing hazardous substances.[107] As a result, over the years "small businesses and land developers . . . bec[a]me increasingly reluctant . . . to purchase any property possessing the slightest chance of contamination for fear of being held liable for any future cleanup costs."[108] Combined with the aforementioned waves of social change that led to an exodus from the cities,[109] fear of CERCLA liability often resulted in "the abandonment of contaminated sites in favor of unpolluted sites where there was no risk that the developer would incur liability for environmental cleanup from previous operations."[110] In that way, CERCLA liability concerns contributed to sprawl and the creation of under-utilized urban property.

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103 Weigard, *supra* note 86, at 138–39 (citing 42 U.S.C. § 9607(a)).

104 William H. Dolan, *Maintaining Innocence: All Appropriate Inquiry Under the Small Business Liability Relief and Brownfields Revitalization Act*, 8 J. SMALL & EMERGING BUS. L. 117, 120 (2004). Exceptions to liability also exist for acts of god and acts of war. 42 U.S.C. § 9607(b) (2006).

105 John F. Seymour, *Transfer of Federal Lands: Compliance with Section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act*, 27 COLUM. J. ENVTL. L. 173, 178 (2002).

106 RICHARD J. LAZARUS, THE MAKING OF ENVIRONMENTAL LAW 109 (2004).

107 Weigard, *supra* note 86, at 141.

108 Tanck, *supra* note 90, at 1328.

109 *See supra* Part I.A.

110 Kathryn M. Buckner, *Protective Tool or Legal Loophole? Examining the Legal Status of Environmental Covenants in South Carolina*, 19 SE. ENVTL. L.J. 231, 237 (2011).

As these impacts of CERCLA became increasingly apparent, Congress and EPA tried to reform and shape the CERCLA legislation to become "faster, fairer, and more efficient."[111] Congress first amended CERCLA through passage of the Superfund Amendments and Reauthorization Act of 1986 (SARA).[112] Instead of making changes to CERCLA's liability provisions, SARA amended the definition of "contractual relationship" in CERCLA's third-party defense and created a "third-party defense known as the 'innocent landowner' (or 'innocent purchaser') defense."[113] "This defense creates an exemption from CERCLA liability for landowners who purchase property after it becomes contaminated, notwithstanding the fact that a contractual relationship exists between the landowner and the responsible party."[114] Under the innocent landowner defense, PRPs can "escape the 'contractual relationship exception' to the 'third-party' defense by demonstrating: (1) the purchaser did not know or have reason to know the site was contaminated at the time of purchase; (2) the purchaser made 'all appropriate inquiries' into the site prior to purchase; and (3) the purchaser exercised due care with respect to contamination when it was discovered."[115]

The amendments in SARA attempted to lessen the barriers to development put in place by CERCLA. In practice, however, the "all appropriate inquiry" requirement in the innocent landowner defense turned out to be a "double-edged sword."[116] That is, "if the owner performed an inquiry and discovered the contamination, it clearly was liable for that problem." But "if the owner failed to discover the contamination, it ran the risk that this inquiry might not be considered sufficient to establish the defense. Either way, the owner could lose its protections."[117]

Thus, SARA did not remedy all of the concerns surrounding CERCLA, and, over time, the liability scheme continued to result in a "severe reluctance" to clean up brownfields "despite [b]rownfields' attractive attributes including an existing industrial infrastructure, access to transportation, and access to a labor force."[118] Indeed, redevelopment of contaminated properties under CERCLA and its state analogues could carry such high risk that it was frequently "cheaper for a landowner to take his property off the market than to either 1) remediate it or 2) call attention to the contamination by selling it."[119] Again, these patterns led to entrenched pockets of urban disuse. In an attempt to break that trend and to encourage further redevelopment, on January 11, 2002, the Small Business Liability

111 Tanck, *supra* note 90, at 1328.

112 Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613–1781 (1986) (codified as amended in scattered sections of 42 U.S.C. §§ 9601–9675); *see also* Schofield, *supra* note 14, at 947.

113 42 U.S.C. § 9601(35) (2000); *see also* Tanck, *supra* note 90, at 1337.

114 Tanck, *supra* note 90, at 1337.

115 Weigard, *supra* note 86, at 142.

116 Vanderberg, *supra* note 100.

117 *Id.*

118 Buckner, *supra* note 110, at 232; *see also* Tanck, *supra* note 90, at 1328.

119 McMorrow, *supra* note 57, at 1087.

Relief and Brownfields Revitalization Act (Brownfields Act) was signed into law.[120] The Brownfields Act was intended to "provide certain relief for small businesses from liability under . . . CERCLA," and to amend CERCLA to "promote the cleanup and reuse of brownfields, to provide financial assistance for brownfields revitalization, [and] to enhance [s]tate response programs."[121] By exempting additional categories of parties from liability, Congress intended to enhance incentives for brownfield investment.[122]

First, the Brownfields Act offered relief to small businesses in the form of de micromis and municipal solid waste exceptions.[123] "Prior to the passage of the Brownfields Act, a PRP could be liable under CERCLA even if the amount of on-site pollution the PRP contributed was minimal."[124] To correct what was perceived as an unfair imbalance, the Brownfields Act created a "de micromis" exception to Superfund liability for PRPs who contributed less than the statutory amount of liquid or solid waste materials.[125] The Brownfields Act also created an exemption for municipal solid waste that prevents "most private individuals and many small businesses from unwittingly being held liable under CERCLA for carelessly throwing out contaminants with the weekly trash collection."[126]

Another liability exemption created by the Brownfields Act was for contiguous property owners. That exemption "relieves from liability property owners whose land is or may become contaminated by the migration of pollutants from neighboring land."[127] To qualify for the contiguous property owner exemption, a land owner must show that he: 1) did not cause or contribute to the release or threatened release; 2) is not potentially liable or affiliated with any other person potentially liable; 3) exercises appropriate care in respect to the release; 4) provides full

120 Small Business Liability Relief and Brownfields Revitalization Act, Pub. L. No. 107-118, 115 Stat. 2356 (2002) (codified as amended in scattered sections of 42 U.S.C. §§ 9601–9628 (Supp. I 2006)); *see also* Tanck, *supra* note 90, at 1328–29.

121 Small Business Liability Relief and Brownfields Revitalization Act, pmbl., 115 Stat. at 2356. In furtherance of those goals, the Brownfields Act contains three protections aimed at small businesses: " 1) a *de micromis* exemption for generators of small amounts of hazardous waste, 2) a municipal solid waste exemption for producers of household-type trash, and 3) an expedited settlement provision allowing the government to negotiate a reduced settlement amount with parties that demonstrate an inability or limited ability to pay CERCLA response costs." Tanck, *supra* note 90, at 1348 (emphasis in original).

122 Buckner, *supra* note 110, at 232–33.

123 *See* Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9607 (2006).

124 Weigard, *supra* note 86, at 144.

125 The statutory amount is less than 110 gallons of liquid or 200 pounds of solid waste materials if the pollution occurred before April 1, 2001. Weigard, *supra* note 86, at 144–45 (citing § 102, 115 Stat. at 2356–57 (2002)) (stating that the exception is not available where the contributed materials contributed significantly to the cost of the response action or natural resource restoration, where the person failed to comply with an information request or administrative subpoena, where the person has impeded or is impeding performance of a response action or natural resource restoration, or where a person has been convicted of a criminal violation for the conduct to which the exemption would apply).

126 *Id.* at 145.

127 *Id.* at 146.

cooperation, assistance, and access to persons authorized to undertake the response action and natural resource restoration; 5) complies with all land use controls and does not impede the performance of any institutional controls; 6) complies with all information requests; 7) provides all the legally required notices regarding releases of hazardous substances; and 8) conducted all appropriate inquiry at time of purchase and did not know or have reason to know of contamination.[128]

The Brownfields Act also created an exemption for "bona fide prospective purchasers" who acquire ownership of a facility after the date of the enactment and who establish that all disposal took place before the purchase and that the purchaser: 1) made all appropriate inquiry; 2) exercises appropriate care with respect to any release; 3) provides full cooperation, assistance, and access to persons authorized to undertake response actions or natural resource restoration; 4) complies with land use restrictions and does not impede performance of institutional controls; 5) complies with all information requests; provides all legally required notices regarding releases of hazardous substances; and 6) is not potentially liable or affiliated with any other person potentially liable.[129]

The bona fide purchaser exemption codifies "EPA's desire to provide liability relief to conscientious landowners who knew at the time of sale that their new property was or could be considered a Superfund site, without having to go through the relatively cumbersome practice of negotiating and granting PPAs [Prospective Purchaser Agreements]."[130] Importantly, the Brownfields Act set in motion a process to define "all appropriate inquiries" for purposes of the innocent landowner defense under SARA and the new exemptions created by the Brownfields Act.[131] It also bolstered state response programs by authorizing federal grants for the development of those programs and by protecting "owners and developers already participating in state-sanctioned cleanup programs from the threat of federal enforcement actions."[132]

Many remain critical of the CERCLA liability scheme and what is perceived as its propensity for over-inclusiveness and creating barriers to

128 U.S. Envtl. Prot. Agency, *Summary of the Small Business Liability Relief and Brownfields Revitalization Act*, http://www.epa.gov/brownfields/laws/2869sum.htm (last visited Nov. 18, 2012).

129 *Id.*

130 Weigard, *supra* note 86, at 150. PPAs are settlements that parties may enter into with EPA that act as covenants not to sue. *Id.* at 148 (citing RONALD H. ROSENBERG, COMMUNITY RESOURCE GUIDE FOR BROWNFIELDS REDEVELOPMENT 53 (2d ed. 2002)).

131 Under SARA, the "all appropriate inquiry" standard had been defined on the basis of "good commercial or customary practice." Dolan, *supra* note 104, at 120. EPA's interpretation of that definition was strict, however, and "[p]urchasers were not certain how to ensure they had conducted [all appropriate inquiries]." *Id.* The Brownfields Act required EPA to establish new standards and practices for the "all appropriate inquiries" requirement"; EPA published a final rule setting federal standards on this issue on November 1, 2005. U.S. Envtl. Prot. Agency, *All Appropriate Inquiries*, http://www.epa.gov/brownfields/aai/ (last visited Nov. 18, 2012); *see also* 40 C.F.R. § 312.20 (2011) (noting the steps necessary to fulfill the "all appropriate inquiries" requirement).

132 Vanderberg, *supra* note 100, at 39–40; *see also* U.S. Envtl. Prot. Agency, *supra* note 128 (authorizing $50 million in grants for development of state response programs).

development. Notwithstanding those critiques, however, the CERCLA amendments have had a profound impact on cleanups nationwide. As a result of those amendments, there are now a variety of means by which parties not responsible for contamination at a site may avoid liability. In that way, the changes to the law have lowered the barriers to purchasing and developing property on brownfields sites, and represent a critical component of plans to encourage renewal of urban areas.

C. Review of Remedies Selected Under CERCLA

The CERCLA amendments outlined above have allowed increasing numbers of parties to avoid liability for cleanup costs, and have been generally designed to promote the development of brownfield sites. The amendments have not, however, involved a corresponding increase in the ability to challenge EPA actions taken under the statute. The original CERCLA statute[133] did not contain a citizen suit provision, and was silent as to whether parties could seek judicial review of ongoing cleanup actions.[134] That lack of clarity led to numerous legal challenges to ongoing cleanups, resulting in delay of cleanup actions.[135] In response, courts developed "their own 'clean up first, litigate later' doctrine[,] consistently holding that Congress intended to preclude all judicial review before remediation is complete."[136]

One of the CERCLA shortcomings that SARA attempted to address was the question of review. SARA added to CERCLA section 310(a), which permits suits by private citizens against any person, including the United States and any other governmental instrumentality or agency, alleged to be in violation of any standard, regulation, condition, requirement, or order under CERCLA, or against the President or any other officer of the United States for a failure to perform any non-discretionary act or duty.[137] Although this provision does not contain a mechanism by which to force government action in the first instance, it does promise the opportunity for review of the adequacy of a government cleanup order.[138]

SARA, however, also added section 113(h), which restricts the timing for a challenge to a cleanup under CERCLA.[139] Section 113(h) "denies courts

133 Comprehensive Environmental Response, Compensation and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2356, at 2767 (codified at 26 U.S.C. §§ 4611–4682, 42 U.S.C. §§ 6911a, 9601–9657).

134 *See* Megan A. Jennings, *Frey v. U.S. Environmental Protection Agency: A Small Step Toward Preventing Irreparable Harm in CERCLA Actions*, 33 ECOLOGY L.Q. 675, 679 (2006).

135 *See id.*

136 *Id.* at 678 (citing Lone Pine Steering Comm. v. U.S. Envtl. Prot. Agency, 777 F.2d 882, 887 (3d Cir. 1985)); Silecchia, *supra* note 16, at 352.

137 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9659(a)(1) (2006).

138 Gaba & Kelly, *supra* note 95, at 936–41.

139 Jennings, *supra* note 134, at 679. Section 113(h) states that "[n]o Federal court shall have jurisdiction . . . to review any challenges to removal or remedial action selected under section

jurisdiction to hear pre-completion challenges to any EPA decision regarding a cleanup the agency intends to undertake or to any order the EPA may issue regarding a cleanup to be undertaken by PRPs, with certain exceptions."[140] Those exceptions include: 1) actions brought under CERCLA section 107 to recover the costs of the cleanup in part or in whole; 2) suits to enforce a section 106 abatement order requiring a PRP to contain a release of a hazardous substance; 3) suits seeking reimbursement for cleanup under section 106(b)(2); 4) citizen suits under section 310 alleging that a removal or remedial action taken under section 104, or secured under section 106, violated a CERCLA provision; and 5) suits brought by EPA under section 106 seeking a court order requiring a PRP to conduct a remedial action.

The fourth exception, regarding citizens' suits alleging violation of a CERCLA provision—section 113(h)(4)—has been the focus of much consideration and controversy.[141] Although the exception "may appear to simply reaffirm the availability of citizen suits, in practice it places time limitations on jurisdiction."[142] In interpreting section 113(h)(4), most courts have relied on statements in SARA's legislative history and the use of the past tense in the words "taken" and "secured" to find that Congress intended that the selected cleanup must be complete before a challenge may be heard.[143] Controversies regarding interpretation of this provision generally fall into three categories: "first, when . . . an action [has] been 'selected,' deferring judicial review; second, when the action has been completed, lifting the ban on review; and third, regardless of whether an action has been completed, should there be an exception for citizens who allege that a response action will cause irreparable harm . . . ."[144]

In *Neighborhood Toxic Cleanup Emergency v. Reilly*,[145] a challenge was brought to a cleanup planned by EPA. The plaintiff "sought to enjoin the cleanup and to require EPA to reevaluate its selected remedy, claiming that if work went on as planned, it could pose a health hazard to citizens living near the site."[146] The plaintiff further argued that, although a potentially

9604 of this title, or to review any order issued under section 9696(a) of this title, in any action except" one of the exceptions described below. 42 U.S.C. § 9613(h).

140 Elizabeth Williams, Annotation, *What Claims Fall Within Limitation Imposed by § 113(h) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(42 U.S.C.A. § 9613(h)) on Judicial Review of Cases Arising Under CERCLA*, 116 A.L.R. FED. 69, 79 (1993). "In *Lone Pine Steering Committee v. United States Environmental Protection Agency*, [777 F.2d 882 (3rd Cir. 1985)], the Third Circuit held that it would be contrary to the intent of Congress to allow a PRP to challenge an EPA removal or remediation before it is complete. The next year, Section 113(h) was enacted as part of SARA, and was in all probability intended to codify the *Lone Pine* decision." Williams, *supra*, at 79 (citing S. Rep. No. 11, 99th Cong., 1st Sess. 58 (1985)).

141 *See* Williams, *supra* note 140, at 99–104 (discussing the various federal court decisions that address section 113(h)(4)).

142 Jennings, *supra* note 134, at 680.

143 Williams, *supra* note 140, at 81; *see also* Brian Patrick Murphy, *CERCLA's Timing of Review Provision: A Statutory Solution to the Problem of Irreparable Harm to Health and the Environment*, 11 FORDHAM ENVTL. L.J. 587, 607 (2000).

144 Jennings, *supra* note 134, at 680.

145 716 F. Supp. 828 (D.N.J. 1989).

146 Williams, *supra* note 140, at 82.

responsible party who brought a post-completion challenge to a CERCLA remedial action could be made whole by money damages, irreparable damage to public health caused by a remedial action could not. Thus, the plaintiff claimed, its due process rights would be violated if pre-completion review were not allowed.[147] The *Reilly* court rejected the plaintiff's arguments, finding that SARA's legislative history made clear that Congress intended review of a remedy to be available only after completion of a distinct phase of cleanup.[148] Further, the court did not find that limitation to violate the plaintiff's due process rights, as the plaintiff had an opportunity to be heard in front of the EPA when the decision on the remedy was being made.[149] Finally, the court noted that, assuming that the plaintiff was entitled to pre-completion review in a form other than in front of the EPA, there existed multiple opportunities for judicial review prior to completion of a remedy. As examples, the court listed the availability of state nuisance actions,[150] a lawsuit to review a specific measure taken on the basis that it violates CERCLA or SARA,[151] and a "post-remedy citizen[']s suit alleging that the remedy was in violation of some requirement of CERCLA/SARA."[152]

Other courts have agreed with *Reilly*. With few exceptions, courts have accepted that pre-completion review is not available under CERCLA. This limitation satisfies both the objective of CERCLA for efficient cleanups, and the interests of PRPs, who are generally "concerned not with the environmental adequacy of a cleanup, but with the cost of cleanup that they will be required to bear. Post-cleanup review . . . while not ideal from the PRPs' perspective, does provide a mechanism that responds to these concerns."[153] But while post-completion review "serves to satisfy both the objectives of CERCLA and the PRPs, the same is not true of limiting pre-implementation review by citizens concerned with the environmental adequacy of the cleanup plans."[154]

147 *Id.*

148 *Reilly*, 716 F. Supp. at 833–34. The *Reilly* court took note of *Cabot Corp. v. U.S. Envtl. Prot. Agency*, 677 F. Supp. 823 (E.D. Pa. 1988), which found that section 9613(h) "arguably permits challenges to EPA's plans even before they have been implemented." *Cabot Corp.*, 677 F.Supp. at 828. The *Cabot* court "concluded in dicta that pre-remedy citizens suits could be brought under section 9613(h) if the plaintiffs sought to address health and environmental hazards, but that they could not be brought if they alleged in essence monetary harm." *Reilly*, 716 F. Supp. at 832–33 (citing *Cabot Corp.*, 677 F. Supp. at 828–29). *Reilly* rejected the reasoning of *Cabot Corp.*, however, finding it unsupported by CERCLA's legislative history. *Id.* at 833.

149 *Reilly*, 716 F. Supp. at 836–37.

150 *Id.* "[T]he Joint Conference Committee Report stated that section 9613(h) 'is not intended to affect in any way the rights of persons to bring nuisance actions under State law with respect to releases or threatened releases of hazardous substances, pollutants, or contaminants.'" *Id.* (quoting Joint Explanatory Statement of the Comm. of Conference, H.R. REP. NO. 99-962, at 3317 (1986)).

151 *Id.* at 837 ("[S]ection 9613(h) does not foreclose plaintiff from bringing a lawsuit to review a specific measure actually taken . . . on the basis that the measure is in violation of some CERCLA/SARA requirement.").

152 *Id.*

153 Gaba & Kelly, *supra* note 95, at 946.

154 *Id.*

Recognition of the limited utility of post-completion review to non-PRPs—particularly in cases of irreparable harm to human health and the environment—has troubled several courts and commentators. As noted, the court's position in *Cabot Corporation. v. U.S. Environmental Protection Agency*[155] (rejected in *Reilly*), was that pre-completion review may be available in instances of irreparable harm. And in *United States v. Princeton Gamma-Tech, Inc.*,[156] the United States Court of Appeals for the Third Circuit held that "an injunction could be issued under the citizen suit exception when there is a possibility of irreparable harm to health or the environment prior to the completion of the cleanup."[157] In *Clinton County Commissioners v. U.S. Environmental Protection Agency*,[158] however, the Third Circuit, sitting en banc, conducted an independent review of CERCLA and overturned the holding of *Gamma-Tech*. The *Clinton County* court adopted the view that the text of CERCLA "demonstrates beyond peradventure . . . that Congress intended to preclude any judicial involvement in EPA removal and remedial actions until after such actions are complete."[159]

The next major decision on the timing of review issue was *Frey v. U.S. Environmental Protection Agency* (*Frey I*).[160] *Frey I* involved sites that were the subject of a cleanup action under CERCLA. In 1985, EPA and the defendant in that cleanup action entered into a consent decree setting out particular cleanup requirements; specifically, the defendant was required to fully excavate and incinerate toxins at the relevant sites. Three years later, Frey, a third party, attempted to challenge the incineration required under the consent decree on the basis that it would exacerbate existing health and environmental risks from PCBs.[161] The district court dismissed the claim for lack of subject matter jurisdiction, and the circuit court affirmed.[162] The cleanup proceeded, and, in April 2000, the plaintiffs brought a claim pursuant to CERCLA's citizen suit provision and several other federal and state laws.[163] The plaintiffs "asserted that the ongoing and planned excavation measures at three NPL sites would not only fail to stop releases of PCBs in the long term but would also cause additional releases to the air, groundwater, and surface water."[164] Their motion for injunctive relief was denied, and the complaint was dismissed in its entirety for lack of subject

155 677 F. Supp. 823 (E.D. Pa. 1988).

156 31 F.3d 138 (3d Cir. 1994), *overruled by Clinton Ctny. Comm'rs.*, 116 F.3d 1018 (3d Cir. 1997) (en banc).

157 Murphy, *supra* note 143, at 609–16 (citing *Gamma-Tech* 31 F.3d at 148 and describing the case's holding in detail).

158 116 F.3d 1018 (3d Cir. 1997).

159 *Id.* at 1023.

160 270 F.3d 1129 (7th Cir. 2001).

161 *Id.* at 1131; *see also* Jennings, *supra* note 130, at 687.

162 *Frey I*, 270 F.3d at 1131.

163 *Id.* at 1131.

164 Jennings, *supra* note 134, at 689.

matter jurisdiction because the actions at issue were not "'complete' and therefore did not satisfy section 113(h)."[165]

On appeal, the circuit court found that the district court had not properly considered the meaning of the term "complete" for purposes of CERCLA.[166] The Seventh Circuit rejected the idea that "complete" meant completion of a distinct phase of a cleanup, and decided that the best interpretation was that "complete" means that all cleanup activities were finished, although authorities would continue to monitor their effectiveness.[167] Because it found that the district court had not made the proper findings by which to determine completeness, it reversed and remanded the earlier decision. Since *Frey I*, the majority rule has remained that pre-completion review is unavailable under CERCLA's citizen suit provision, even in cases of alleged irreparable harm. Thus, a party may challenge an EPA decision or order regarding a cleanup once the physical cleanup is complete, but may not do so before that point.

D. State Remediation Programs

CERCLA authorizes federal Superfund money to reimburse EPA for cleanups only for sites on the National Priorities List (NPL), a list of the nation's most severely contaminated hazardous waste sites.[168] Less contaminated sites are left to the states to remediate under their own respective hazardous waste remediation laws.[169] "As compared to the roughly 1,200 sites on the NPL, the nation's over 500,000 brownfield sites, which are not eligible for Superfund funding, impose an enormous responsibility on state and local governments."[170] But even sites not hazardous enough for Superfund attention are often "dirty enough to be stigmatized by potential environmental liabilities."[171] Further, although Superfund money may not be available, CERCLA liability applies to all contaminated properties, and the resulting "specter of 'strict, joint and several liability' under CERCLA" made developers and their banks "unwilling to invest in these potentially contaminated sites."[172] As noted, that

165 *Frey I*, 270 F.3d at 1133 ("In dismissing the plaintiffs' suit, the district court found that removal and remediation activities at Lemon Lane Landfill were planned but not yet complete."); Jennings, *supra* note 134, at 689.

166 *Id.* at 689–90 (explaining that the Seventh Circuit considered three possible interpretations of the term "complete": first, it could mean that all planned cleanup activities and all subsequent monitoring had been carried out; second, it could mean that cleanup activities were finished, but authorities would continue to monitor their effectiveness; and third, it could mean that particular stages of a remediation plan were complete).

167 *Id.* at 690; *see Frey I*, 270 F.3d at 1134.

168 *See* Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9611(c)(8), (o) (2006); McMorrow, *supra* note 57, at 1092.

169 McMorrow, *supra* note 57, at 1093.

170 *Id.* at 1117.

171 Amy L. Edwards, *Institutional Controls: The Converging Worlds of Real Estate and Environmental Law and the Role of the Uniform Environmental Covenant Act*, 35 CONN. L. REV. 1255, 1258 (2003).

172 *Id.*

lack of development "had the unintended consequence of driving businesses and jobs away from the nation's urban core."[173]

In response, most states developed their own voluntary cleanup programs. Thus, in addition to CERCLA, "[v]irtually every state . . . has some form of voluntary program that contains special provisions relating to brownfields."[174] But there remains little coordination between federal and state approaches, and because CERCLA's liability scheme applies to all properties, "EPA's failure to collaborate with state programs on liability relief has weakened some state attempts to encourage brownfield redevelopment."[175] The provision of the Brownfields Act that ensures federal deference to state enforcement actions has been praised as a means to alleviate some confusion regarding the interaction of state and federal liability. Even so, concerns have been raised about the relatively looser cleanup standards employed by the states as compared to the federal government, and whether those cleanups will prove sufficient to protect human health and the environment.[176]

III. OPTIONS FOR CLEAN-UP

The federal and state programs described above provide mechanisms to remediate contaminated sites. Choices must still be made, however, about implementation of the cleanup. Section 121 of CERCLA contains cleanup criteria that EPA must consider when selecting a remedial action, and includes a presumption in favor of permanent on-site treatment of contaminants.[177] Cleanups must meet any standards from other federal or state statutes that are "legally applicable" or "relevant and appropriate" (collectively, "ARARs").[178] CERCLA also incorporates more specific criteria to consider in selecting a remedy, although EPA retains considerable discretion. Some of the statutory considerations include: 1) the long-term uncertainties of land disposal; 2) the goals and requirements of the federal solid and hazardous waste laws; 3) the persistence, toxicity, mobility, and propensity of hazardous substances to bioaccumulate; and 4) the potential for failure of the remedial action and the resulting costs for future remedial action.[179] After considering these factors and others, "[EPA] must choose a remedy that protects human health and the environment, that is cost effective and that uses permanent solutions and alternative treatment

173 *Id.*

174 Vanderberg, *supra* note 100.

175 McMorrow, *supra* note 57, at 1113.

176 *Id.* at 1120–21.

177 Lawrence P. Schnapf, *How to Use Institutional Controls for Contaminated Sites*, 17 No. 1 PRAC. REAL EST. L., Jan. 2002, at 25, 27–28; ENVTL. LAW INST., PROTECTING PUBLIC HEALTH AT SUPERFUND SITES: CAN INSTITUTIONAL CONTROLS MEET THE CHALLENGE? 5 (1999) (noting that these specific cleanup criteria were established by SARA).

178 *See* Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9621(d) (2006) (discussing the required degree of cleanup at contaminated sites); ENVTL. LAW INST., *supra* note 177.

179 *Id.* (citing 42 U.S.C. § 9621(b)(1)(A)–(G) (2006)).

technologies or resource recovery technologies to the maximum extent practicable."[180]

Traditional approaches to cleanups dealt with waste by either treating contaminants on-site or removing them to a treatment or disposal facility.[181] "A site was considered 'clean' when hazardous substances were removed to a level that posed no known risk to human health or the environment."[182] Cleanups to that degree "satisfied the expectation that once cleaned[,] a site could be made available for unrestricted future land use whether that be residential, industrial, or recreational."[183] One of the concerns commonly expressed about the CERCLA program, however, was that the cost of cleanup outweighed the economic benefits of remediation.[184] Critics of CERCLA argued that goals of total cleanup were wasteful and "resulted in significant expenditures of resources without much added protection of human health and the environment."[185] For instance, requiring sites zoned only for industrial purposes to be cleaned to levels consistent with residential use sparked complaints of waste. Given the "net environmental loss" that occurs when development moves outside of urban areas instead of to remediated older sites, cleanup levels that slowed the remediation process came under closer scrutiny.[186]

With "[f]ederal and state environmental agencies . . . under increasing pressure to expedite the cleanup of contaminated sites so contaminated properties can be returned to productive use[, a] popular method of accelerating site cleanups is to place the site under institutional control."[187] Institutional controls are legal or physical restrictions on the use of, or access to, a site or facility designed to ensure that the actual use to which a site is put after remediation is compatible with the level of cleanup completed.[188] The controls are "premised on the notion that by limiting exposure to hazardous substances through land use restrictions, the same amount of protection of human health and the environment can be achieved without undertaking costly and time-consuming cleanups."[189] Because cleanups that rely on institutional controls to limit exposure require less treatment, they are both cheaper and faster than more comprehensive

180 ENVTL. LAW INST., *supra* note 177, at 5–6.

181 Schnapf, *supra* note 177, at 25.

182 Patricia J. Winmill & Hal J. Pos, *Use & Enforceability of Institutional Controls in Risk-Based Environmental Cleanups—They're Cheap and Good Looking, But Will They Last?*, 49 ROCKY MTN. MIN. L. INST. 23-1, 23-5 (2003).

183 *Id.*

184 Schofield, *supra* note 14, at 965.

185 Winmill & Pos, *supra* note 182.

186 Jim Spaanstra et al., *Institutional Controls: Brownfields Superweapon or Ultimate Trojan Horse?*, 15 NAT. RESOURCES & ENV'T 104, 104 (2000).

187 Schnapf, *supra* note 177, at 25.

188 Edwards, *supra* note 171, at 1260; ENVTL. LAW INST., *supra* note 177, at 1. EPA defines institutional controls as "non-engineered measures such as legal or administrative controls that help to minimize the potential for public exposure to contamination or to enhance or protect the integrity of a remedy." Winmill & Pos, *supra* note 182, at 23-4.

189 Winmill & Pos, *supra* note 182.

remediation.[190] In an illustrative case, an expert found the cost of total cleanup of a site to be $3.7 million; the cost of containment and use of institutional controls was $137,800.[191] Motivated by those factors, "risk-based clean-ups" have become widespread.[192] On the surface, such strategic cleanups can offer a success story in terms of urban remediation, as they provide a much quicker path to reuse.

Institutional controls used at brownfield sites generally take one of five forms: proprietary controls, state and local government controls, statutory enforcement tools, informational devices, or engineering controls.[193] Proprietary controls refer to traditional property law concepts such as restrictive covenants, equitable servitudes, and easements, and their creation depends on the law of the state in which the property is located. These controls may be used to restrict access or prevent certain uses. State and local government controls, such as zoning and variances, building permits, and water use advisories may also be used to restrict land uses to those compatible with the level of contamination.[194] Statutory enforcement tools include orders used by federal and state regulatory programs, consent decrees, and permits regarding use of the property for specific activities. Informational devices like deed notices may be used to ensure knowledge of the environmental conditions and limitations on a property. Finally, engineering and access controls such as paving over or capping contamination, fencing in a portion of a site, or putting in a groundwater treatment system provide barriers to contamination.[195]

EPA interprets CERCLA sections 121(c), 121(d)(2)(A), and 121(d)(2)(B)(ii)(III) to allow for the imposition of institutional controls where residual contamination will remain after remediation, and regulations issued by EPA as part of the National Contingency Plan (NCP) explain how it expects to use such controls.[196] Pursuant to those regulations, institutional

190 *See* Schnapf, *supra* note 177, at 25.

191 *Iron Partners, LLC v. Mar. Admin.*, No. 3:08-CV-05217, 2011 WL 4502139, at *3 (W.D. Wash. Sept. 28, 2011) (applying Washington state law to the question of cleanup standards).

192 Kurt A. Strasser, *The Uniform Environmental Covenants Act: Why, How, and Whether*, 34 B.C. ENVTL. AFF. L. REV. 533, 534 (2007). One example of this kind of cleanup that occurred near the Gowanus Canal involved remediation of an area that was once host to a manufactured gas plant; residual contaminants left onsite included petroleum byproducts such as benzene, toluene, ethylbenzene, and xylene, as well as polycyclic aromatic hydrocarbon. ECO-GOWANUS, *supra* note 1, at 59. The remediation plan involved excavation of shallow contaminated soil for off-site treatment and disposal, installation of free-product collection wells for removal of deeper mobile contaminants, replacement of the excavated soil with clean fill, and, finally, capping the site with a barrier "designed to control the release of vapors and prevent rainfall infiltration into the underlying soils." *Id.* Once this plan was implemented, a Lowe's home improvement store opened on the site. *Id.* "[B]ecause contamination remains 'locked-in' at the site, institutional control measures, meaning continual site monitoring and land-deed restrictions, are necessary for the remediation strategy to remain a 'success.'" *Id.*

193 Edwards, *supra* note 171, at 1260–61.

194 *Id.* at 1261.

195 *Id.* at 1262. Notably, EPA does not include engineering and access controls in its definition of "institutional controls," although they are frequently discussed simultaneously. *See, e.g.*, ENVTL. LAW INST, *supra* note 177, at 11 n.45.

196 *See* Schofield, *supra* note 14, at 972; ENVTL. LAW INST., *supra* note 177, at 6.

controls may be used during the Remedial Investigation/Feasibility Study (RI/FS) process,[197] during implementation of a remedial action and, where necessary, as part of a completed remedy.[198] EPA is required to consult with affected states before determining the appropriate remedial action.[199] Further, remedial actions may not be performed unless the state in which the release occurs first enters into a contract or cooperative agreement with EPA, which provides assurances that, among other obligations, the state will assure all future maintenance of the removal and remedial actions and pay for 10% of the costs of the remedial action.[200] The NCP also addresses the state role with respect to institutional controls. "The NCP provides that when appropriate as part of operation and maintenance assurance, the state must assure that any institutional controls implemented as part of the remedial action at a site are in place, reliable, and will remain in place after the initiation of operation and maintenance."[201] Selection of remedies also involves public participation by requiring opportunity to comment on proposed remedies and consideration of those public comments in the remedy selection process.[202] To the extent that major changes are later made to a published Record of Decision (ROD), public notification requirements apply.[203]

The wide range of available institutional controls provides regulators with many options in implementing cleanups, and use of these controls is appealing for the way they can move the remediation process along more swiftly and cheaply. Problematically, however, CERCLA does not "contain provisions creating a program or an institution for the restriction of land uses by EPA or state environmental agencies."[204] That is, while institutional controls may be included in a RI/FS and ROD, the federal government does not have the power to exercise control over many of those institutional controls once implemented. Further, EPA regulations do not govern selection of particular controls or designate a party responsible for implementing or monitoring compliance with them.[205] Based in large part on the resulting lack of clarity in this field, the rise of institutional controls has been accompanied by concerns related to their long-term viability. Doubts as to both the enforceability and long-term effectiveness of institutional

197 40 C.F.R. § 300.430 (2011). During the RI/FS process, EPA determines the scope of the remedial action required and evaluates alternative approaches to remediating the site. After completion of the RI/FS, EPA issues the Record of Decision (ROD) that sets forth the selected remedy and explains the factors that led to the selection. ENVTL. LAW INST., *supra* note 177, at 6.

198 40 C.F.R. § 300.430 (2011); ENVTL. LAW INST., *supra* note 177, at 6.

199 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9604(c)(2) (2006); ENVTL. LAW INST., *supra* note 177, at 7.

200 42 U.S.C. § 9604(c)(3) (2006); ENVTL. LAW INST., *supra* note 177, at 7; 40 C.F.R. § 300.510 (2011).

201 ENVTL. LAW INST., *supra* note 177, at 7; 40 C.F.R. § 300.435(f), 510(c) (2011).

202 40 C.F.R. § 300.515 (2011); ENVTL. LAW INST., *supra* note 177, at 7–10 (explaining the extent of EPA obligations to ensure opportunity for public notice and comment).

203 40 C.F.R. § 300.435 (2011); ENVTL. LAW INST., *supra* note 177, at 10.

204 Schofield, *supra* note 14, at 976 (internal quotations omitted).

205 JOHN PENDERGRASS & KATHERINE N. PROBST, ESTIMATING THE COST OF INSTITUTIONAL CONTROLS 9 (2005).

controls frequently accompany any discussion of the controls themselves. Indeed, the prospect of these unsettled issues has led some commentators "to question whether institutional controls may very well be the polluters' Trojan horse inherent in the risk-based remediation programs."[206]

A. Unenforceability of Institutional Controls

One of the main concerns regarding institutional controls is long-term enforceability. Provisions in SARA and the Brownfields Amendments arguably grant EPA broad authority to require landowners to employ institutional controls to ensure the integrity of any response action.[207] Any such power is, however, very limited. Federal agencies have neither the ability to create nor to enforce institutional controls when based on state property law concepts.[208] Thus, EPA must rely on state laws and the police power of local governments to enforce any institutional controls based on easements, zoning, or other traditional property concepts.[209] More generally, "[e]nforcement mechanisms (e.g., permits, administrative and judicial orders) are generally enforceable only against the entity to which they are issued," and there is "little case law as to whether such instruments may run with the land."[210] Therefore, the longevity of institutional controls is frequently uncertain.

Concerns regarding the variable nature of enforceability led the National Conference of Commissioners on Uniform State Laws to promulgate the Uniform Environmental Covenants Act (UECA). The UECA is a state real estate law designed to "specifically establis[h] the legal validity and enforceability of recorded land use restrictions for contaminated property."[211] For states that adopt the UECA, the statute will override common law on property that may otherwise impede enforceability of institutional controls. Enforceability of institutional controls has been analyzed in detail elsewhere, and is not the focus of this Article.[212] That issue must, however, continue to be a focal point for government agencies relying on those remedies.

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206 Spaanstra et al., *supra* note 186, at 104. *See generally* Schnapf, *supra* note 169, at 27–29 (discussing informational notice and explaining the various methods of enforcement in different jurisdictions).

207 Schofield, *supra* note 14, at 1010.

208 Edwards, *supra* note 171, at 1277.

209 Schnapf, *supra* note 177, at 29.

210 Spaanstra et al., *supra* note 178, at 106.

211 Kenneth F. Gray & Jonathan T. Ryan, *The New Uniform Environmental Covenants Act*, 21 ME. B.J. 168, 168 (2006).

212 For more extensive analysis of the enforcement issue, see for example, Winmill & Pos, *supra* note 174, § 23.07 at 23-23 to 23-41; Buckner, *supra* note 110, at 244–52; Amy L. Edwards, *An Overview of Institutional Controls*, *in* IMPLEMENTING INSTITUTIONAL CONTROLS AT BROWNFIELDS AND OTHER CONTAMINATED SITES 3, 18 (Amy L. Edwards ed., 2d ed. 2012).

B. Failure of Institutional Controls

Even assuming that institutional controls provide enforceable protections for underlying contamination, there are further reasons for concern regarding their effectiveness. As a number of commentators have noted, "[f]ederal Superfund law was built on the failure of institutional controls,"[213] and discussions of institutional controls tend to go hand in hand with mention of the aforementioned Love Canal incident. At the turn of the twentieth century, a developer named William Love bought a tract of land near Niagara Falls, New York.[214] He hoped to build a model community at that site, and to power the homes via his namesake canal.[215] Cheaper forms of electricity were becoming rapidly available, however, and by 1910, Love had abandoned his plan.[216] During the 1920s, the partially dug canal began to be used as an industrial waste dump, and that use continued for several decades.[217] Finally, in 1953, Hooker Chemical Corporation (Hooker), the owner of the dump site, covered the canal with earth and sold the land to the city school board for one dollar.[218]

When Hooker arranged to sell the property to the school board, it initially "conditioned its willingness to transfer the property . . . on the [board's] acceptance of special deed provisions limiting the use of the property to a park."[219] "The deed also contained a reverter clause whereby the property would have reverted to Hooker if the [b]oard changed the property use."[220] The school board, however, rejected Hooker's provisions, and the final deed contained only a waiver of Hooker's liability and a statement that the board had "been advised . . . that the premises . . . have been filled, in whole or in part, to the present grade level . . . with waste products resulting from the manufacturing of chemicals."[221] One year after signing the deed, the board decided to put a school on the site. One hundred homes were also eventually sited there. In 1979, unusually heavy rain caused many of the toxic chemicals in the soil to leach into the surface. The Love Canal community faced severe impacts from the chemicals, including birth defects, burns from contact with the soil, visible stagnant pools of chemicals, and others. Benzyne, a known carcinogen, was among the chemicals found seeping into the homes of Love Canal residents, and those residents were shown to have high white-blood cell counts, an indicator of leukemia. The community was eventually evacuated.[222]

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213 Mary R. English & Robert B. Inerfeld, *Institutional Controls for Contaminated Sites: Help or Hazard?* 10 RISK 121, 121 (1999).

214 Eckhardt C. Beck, *The Love Canal Tragedy*, E.P.A. J., Jan. 1979, at 17; U.S. v. Hooker Chemicals & Plastics Corp. (*Hooker Plastics*), 850 F. Supp. 993, 1005 (W.D.N.Y. 1994).

215 Beck, *supra* note 214.

216 *Id.*

217 *Id.*; *Hooker Plastics*, 850 F. Supp. at 1005.

218 Schofield, *supra* note 14, at 961.

219 *Id.* at 962.

220 *Id.*

221 *Id.*(quoting *Hooker Plastics*, 850 F. Supp. at 1026–27).

222 Beck, *supra* note 214, at 17–18.

Hooker's efforts to include a reverter clause in the deed could be characterized as an attempted institutional control. Although the failure to implement an institutional control is different than the failure of an institutional control once implemented, the basic facts of Love Canal remain relevant to the latter scenario—the school board had full knowledge of the contents of the site, but the desirability of open land for a school evidently overcame Hooker's warnings. Love Canal shows that "there is reason to be skeptical of our collective societal ability to sustain"[223] the vigilance required to ensure that institutional controls remain effective.[224] Failure to abide by institutional controls is particularly likely "where a site appears to have good development potential,"[225] and the incentives to develop regardless of restrictions are consequently very strong.

This possibility of failure "may be yet another indication that [institutional controls] adopt[ ] a developer-centered approach that is not sufficiently protective of the environment."[226] And the consequence may be "serious uncalculated economic costs and potential long-term threats to human health and the environment," including exposure to hazardous substances and incurrence of additional cleanup costs, legal costs, opportunity cost, environmental racism, increased risk of liability, and potential costs to the environment.[227] "[C]ontaminants introduced or allowed to remain in the environment may indirectly affect human health: they may deplete the resources on which humans depend, or they may migrate or otherwise behave in ways not predicted, eventually exposing humans to risk."[228]

According to the EPA Director of the Office of Federal Facility Restoration and Reuse, "EPA will be 'lucky' if there is a 50% failure rate of institutional controls over the next fifty years."[229] Given that level of uncertainty and the serious consequences of failure, plans to use institutional controls in the urban remediation process must be considered

223 NAT'L RESEARCH COUNCIL, LONG-TERM INSTITUTIONAL MANAGEMENT OF U.S. DEPARTMENT OF ENERGY LEGACY WASTE SITES 93 (2000).

224 Indeed, the National Research Council has found that "failures [with institutional controls] are likely to occur, possibly in the near term, and that humans and environmental resources will be put at risk as a result." *Id.* at 97. A report by the Environmental Law Institute goes even further, concluding that "institutional controls *cannot prevent harm*," as "most institutional controls fail at some point or in some situations." John Pendergrass, *Institutional Controls in the States: What Is and Can Be Done to Protect Public Health at Brownfields*, 35 CONN. L. REV. 1303, 1305 (2003) (citing ENVTL. L. INST., INSTITUTIONAL CONTROLS IN USE 34 (1995)).

225 Winmill & Pos, *supra* note 182, at 23-16 .

226 Joel B. Eisen, *Brownfields at 20: A Critical Reevaluation*, 34 FORDHAM URB. L.J. 721, 736–37 (2007).

227 *See* Schofield, *supra* note 14, at 951.

228 Catherine A. O'Neill, *No Mud Pies: Risk Avoidance as Risk Regulation*, 31 VT. L. REV. 273, 328 (2007).

229 Spaanstra, *supra* note 186, at 107; *cf.* NAT'L RESEARCH COUNCIL, *supra* note 210 at 97 (positing that institutional control failures "are likely to occur," but nonetheless, it may be possible to incorporate certain measures "that have shown greater reliability to date"); ECO-GOWANUS, *supra* note 1, at 59 ("Numerous reports by the American National Academies of Science, Engineering and Medicine, highlight the potential fallibility of institutional controls. . . .").

carefully. Those implementing the controls would be wise to plan for failure; otherwise, "future generations [will be] left to deal with a pollution problem made worse by time and inattention."[230] And any such planning must account for failure in multiple forms.

1. Failure Based on Improper Implementation

According to the National Research Council, two of the biggest concerns regarding long-term institutional controls are "mission change" and "atrophy of vigilance."[231] Mission change occurs with shifts in plans for a site or larger policy changes. For instance, where a site remediated for purposes of industrial use becomes desirable for residential use, there may be a sense of mission change as the former commitment to limited use of the site is supplanted by a growing demand. Because of that possibility, assessing the efficacy of institutional controls requires at least some ability to predict anticipated land use. EPA assumes that it can assess future uses by looking at certain factors;[232] according to some critics, however, anticipation of such future uses is "virtually impossible" due to the number of unknown, remote factors involved.[233] Because shifts in desired uses are not entirely predictable, mission change remains a possibility for most institutional controls.

"Atrophy of vigilance" by both regulators and private individuals regarding the location and limitations at particular sites is also cause for concern. Atrophy of vigilance refers to the tendency to forget about contents at a site or turn attention elsewhere, or perhaps to have never developed that attention to a site in the first place.[234] For instance, in a case study by the Environmental Law Institute of a remediated site in Midvale, Utah, institutional controls were put in place for a large area of land contaminated by tailings from a former ore milling and smelting facility.[235] EPA worked with the City of Midvale to create a much-contested program of institutional controls that initially included restrictions on both residential and commercial property. "While the [residential restrictions] were in place, virtually no residents came forth to determine the requirements they had to follow," and there was a general lack of knowledge about the existence of institutional controls.[236] Instances of failed institutional controls at Midvale residences were discovered only inadvertently by city officials who happened to drive past unauthorized exposure of unremediated soils and construction activity.[237] The failed institutional controls studied in Midvale were in place for only a short time; as institutional controls age, the likelihood of inattention to, or lack of knowledge regarding, contaminated

230 O'Neill, *supra* note 228.
231 NAT'L RESEARCH COUNCIL, *supra* note 223, at 85.
232 Schofield, *supra* note 14, at 969.
233 *Id.*
234 NAT'L RESEARCH COUNCIL, *supra* note 223, at 85.
235 ENVTL. LAW INST., *supra* note 177, at 37, 45–48.
236 *Id.* at 58.
237 *Id.*

sites increases. Whether due to a lack or an atrophy of vigilance, inattention to institutional controls is a threat to the success of such controls. The combination of desirability of development and the tendency to forget or to discount impacts of contamination with the passage of time can render moot any protections established at a site.

2. Failure Based on Inadequate Institutional Controls

Much of the attention related to failure of institutional controls has focused on the unlikelihood that actors responsible for those controls will maintain them for their needed duration. That focus is understandable; the possibility for human error looms large in this area, and the consequences of failure are severe. Possibly even more concerning, however, is the prospect that, even with perfect implementation, the institutional controls themselves will fail. One of the challenges regarding institutional controls is lack of knowledge of precisely how well the selected controls will work. Risk-based management is difficult in part because decision makers lack all necessary information about the site. And "it is now widely recognized that the subsurface is a complex, multi-scale, spatially variable natural environment that cannot be fully characterized."[238] Thus:

> Even the most thorough of environmental investigations often will fail to detect, or may mischaracterize, significant adverse environmental conditions. Similarly, even the best designed and constructed remedy may fail, either because it does not perform as expected, or because engineering or institutional controls prove to be ineffective. Advances in scientific knowledge also may show that health-based cleanup levels previously selected are no longer sufficiently protective.[239]

The most well-intentioned and conscientious regulators and landowners may not be able to avoid damages that come from failures of the selected institutional control itself, rather than failures in its implementation. "[A]s more time elapses the likelihood of failure of [institutional controls] will increase as well as the likelihood of changes in scientific knowledge and cleanup standards that would cause sites to be reopened."[240] Further, expected changes in weather patterns as a result of climate change, such as flooding and rising sea levels, make accurate predictions of what controls will be effective even more difficult.

In 1998, a U.S. Government Accountability Office report found that 96% of sites then potentially eligible for inclusion on the federal NPL were located within a half-mile of residences or places of regular employment, and a study by the EPA found that 80% of existing sites subject to CERCLA cleanups were adjacent to or near residential neighborhoods.[241] As the

238 NAT'L RESEARCH COUNCIL, *supra* note 223, at 80.

239 Seymour, *supra* note 105, at 204–05.

240 Pendergrass, *supra* note 224, at 1312.

241 Larry Schnapf, *Protecting Health and Safety with Institutional Controls*, 14 NAT. RESOURCES & ENV'T 251, 251 (1999).

renewed population influx to cities continues, the number of people living in close proximity to contaminated sites is likely to become even higher, and the failure of an institutional control to perform as expected may have serious consequences. "The large numbers of people living or working within proximity of these sites illustrate the importance of ensuring that institutional controls effectively protect these individuals from the risks posed by the presence of hazardous substances."[242]

IV. LIVING WITH INSTITUTIONAL CONTROLS, POST-FAILURE

Failures of institutional controls for any reason can cause extensive harm to both person and property, exacerbating environmental damage and requiring high levels of compensation if those affected are to be made whole. The reason for failure of the controls may, however, impact the availability of any remedy to affected parties. Where failure of an institutional control is based on improper implementation or lack of compliance, the parties responsible for the lapse in maintenance will likely be liable for any harm resulting from the failed control. Indeed, "[w]hen institutional controls fail, the consequences for the responsible party are potentially severe. In addition to stipulated penalties imposed pursuant to the enforcement agreement, the responsible party for the site also faces the possibility of toxic tort claims and could be required to conduct further cleanup activities."[243] That prospect of liability offers the promise of a remedy; it also, however, assumes a party is responsible for the failure.

As described above, the possibility also exists that institutional controls will fail due to choice of an ultimately ineffective method or the constantly changing nature of the environment. In those situations, the landowner or other individual charged with implementation of the institutional control cannot credibly be said to be responsible for the failure of a course of action directed by EPA or applicable state government agency.[244] Indeed, amendments to CERCLA in the past several decades have been premised in part on the idea that "[f]or the brownfields movement to succeed, responsible parties need to have firm assurances that they will not be held ultimately responsible for breaches or failures of institutional controls if they have placed legitimate restrictions in place and communicated the existence of those controls to future land owners and users."[245] For that reason, SARA and the Brownfields Amendments worked to carve out limitations on CERCLA liability for categories of persons who can show, among other things, that they have complied with and have not impeded any applicable institutional controls. Those limitations on liability for certain categories of persons have been an instrumental part of incentivizing urban remediation.

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242 *Id.*

243 Winmill & Pos, *supra* note 182, at 23-16.

244 There may be an exception to this assumption in the case of administrative consent orders where a cleanup was selected and implemented by a responsible party.

245 Edwards, *supra* note 171, at 1279.

One of the other impacts of those liability waivers, however, is that where institutional controls are met with full compliance, there may be no available private party to hold accountable for the consequences of the controls' failure. And the ability to challenge the agencies responsible for selection of the institutional controls may also be quite limited. Continued remediation of urban brownfields is a worthy goal. To accomplish that goal while ensuring protection of the health and safety of those who come to live and work on remediated sites, however, will require further review of and revisions to the CERCLA liability scheme and a cautious approach to use of institutional controls around the country. Otherwise, failures of institutional controls in the future may result in a new generation of blighted properties with no means of recourse and endanger the urban revitalization the brownfields program hopes to encourage.

A. Agency Review

In theory, agency review of institutional controls could provide for any necessary adjustments to institutional controls once they are in place. Assuming good communication and cooperation among all parties, in the event of failure of an institutional control, EPA is likely to work with other involved parties to amend a site's ROD as needed to improve the protections provided. For instance, in *Shoshone-Bannock Tribes of the Fort Hall Reservation v. U.S. Department of the Interior*,[246] all of the parties to a response cost action believed that the institutional controls selected and implemented to capture arsenic at the affected site would also capture phosphorus. When it was determined that the control was not working as intended, EPA and the landowner entered into talks to amend the ROD.[247]

The review process required by CERCLA may also help to adjust institutional controls as needed. Under CERCLA, EPA "is required to conduct periodic remedy reviews at least every five years at certain sites where hazardous substances, pollutants, or contaminants remain on site, and report to Congress on the results of these reviews."[248] The review process addresses the effectiveness of the institutional controls in place, and provides an "opportunity to revisit remedy assumptions and systematically address any problems on a site-specific basis."[249] The legislative history of the requirement demonstrates that it was intended to "assure that Superfund cleanups keep pace with developing technologies and that remedial actions are upgraded to take advantage of such

246 No. 4:10-CV-004-BLW, 2011 WL 1743656 (D. Idaho May 3, 2011).

247 *Id.* at *4.

248 Gregory Sullivan & James Miles, *CERCLA "Five-Year Reviews" as a Long-Term Institutional Control Assurance Tool*, *in* IMPLEMENTING INSTITUTIONAL CONTROLS AT BROWNFIELDS AND OTHER CONTAMINATED SITES, *supra* note 212, at 31. EPA may also conduct discretionary reviews on its own initiative. *Id.* at 33.

249 *Id.*

developing technologies."[250] With the goal of permanent cleanups in mind, Congress intended to "require periodic review . . . to assure that sites are not removed from the ambit of the program until such permanent solutions have been implemented."[251]

Like other aspects of the CERCLA program, however, the "timeliness, quality, and consistency" of the review process, as well as "EPA's efforts to systematically track the issues, recommendations, and outcomes" have been the subject of criticism.[252] The review process has been backlogged in the past, and EPA has struggled to make it more systematic. Moreover, reviews are "required for only a subset of the nation's most contaminated sites."[253] Thus, although the review process may result in awareness of some failing institutional controls, it is unlikely to provide complete knowledge about control failures. Additionally, some commentators have noted that "experience with EPA suggests that the only effective constraint on government decisionmaking is the availability of judicial review."[254] Where EPA or other government agencies are not aware of institutional control failure, or where the necessary kind of adjustment or cooperation does not occur, those impacted by the failure of institutional controls may have little oversight from EPA regarding the decreased home values, medical problems, need for relocation, and other impacts likely to result from a failed institutional control.

B. Liability for Inadequate Institutional Controls

Remedies for those harmed by inadequate controls could also theoretically come through litigation. As noted, amendments to CERCLA removed liability from parties not responsible for harm caused by hazardous substances, such as parties in full compliance with remediation directives imposed by EPA.[255] In the wake of those amendments, however, there has been no provision of recourse in the event of failed institutional controls.[256] Given the newness of the institutional control arena, there are very few legal precedents regarding these issues. It does not appear, however, that either CERCLA or other federal or state actions provide a means of challenging or otherwise attaining a remedy for harm caused by institutional controls that fail on their own.

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250 *Id.* at 35 (quoting COMM. ON ENV'T AND PUB. WORKS, LEGISLATIVE HISTORY OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (PUBLIC LAW 99-499), S. Prt. 101-120, at 5220 (1990)).

251 *Id.* at 36 (quoting COMM. ON ENV'T AND PUB. WORKS, *supra* note 250).

252 *Id.* at 36.

253 *Id.* at 32. Some states have also developed periodic review programs that mirror the federal requirements. *Id.* at 39.

254 Gaba & Kelly, *supra* note 95, at 952.

255 *See supra* Part II.B. (discussing the amendments to CERCLA and its limited liability provisions).

256 *See supra* notes 15–17 and accompanying text.

1. CERCLA Response Costs

Under CERCLA section 107, private parties may seek response costs from PRPs for "any . . . necessary costs of response incurred . . . consistent with the national contingency plan."[257] Thus, were a party harmed by a failed institutional control to engage in independent cleanup, he could theoretically bring a response action to recover those costs. As noted, however, one of the focal points of the amendments made to CERCLA since its enactment has been the elimination of liability for response costs from certain categories of persons. The liability waivers under the innocent landowner, contiguous property owner, and bona fide prospective purchaser defenses of CERCLA are conditioned upon, among other things, upholding applicable institutional controls.[258] Where institutional controls have not been properly complied with, those defenses would not apply, and therefore would not provide a barrier to recovery of response costs.[259] Where, however, all parties act in compliance with the requirements of the remedial plan imposed by EPA (and other aspects of the applicable defenses), they could be eligible for landowner liability protection from response costs.[260] Section 120 of CERCLA makes the provisions of that statute, including liability under section 107, applicable to the federal government.[261] The response cost mechanism does not, however, include in its categories of PRPs those responsible for selection of a remedy.[262] Thus, a response cost action against EPA would be unsuccessful as well.

257 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9607 (2006). A cost recovery action is not available to recompense personal injuries, loss of property value, or other harms. *See, e.g.*, Piccolini v. Simon's Wrecking, 686 F. Supp. 1063, 1068 (M.D. Pa. 1988); *Artesian Water Co.*, 659 F. Supp. 1269, 1285–87 (D. Del. 1987).

258 *See e.g.*, JOEL S. MOSKOWITZ, *Liability of Innocent Parties for Environmental Contamination*, *in* ENVTL. LIABILITY REAL PROP. TRANSACTIONS 149, 170 (1995) ("[T]he same defenses to CERCLA liability that are so comforting to defendants . . . for example, the 'third party' and 'due diligence' defenses, are equally applicable when private parties are the plaintiffs.").

259 "The bona fide prospective purchaser, contiguous property owner, and innocent landowner provisions all require compliance with the following ongoing obligations as a condition for maintaining a landowner liability protection: [1] the person is in compliance with any land use restrictions established or relied on in connection with the response action; and [2] the person does not impede the effectiveness or integrity of any institutional control employed in connection with a response action." U.S. Envtl. Prot. Agency, Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchasers, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability, at 6 (Mar. 6, 2003), *available at* http://www.epa.gov/compliance/resources/policies/cleanup/superfund/common-elem-guide.pdf.

260 *Id.*

261 42 U.S.C. § 9620(a) (2006).

262 Any such claims would also face hurdles such as whether a failure to prevent harm through the selection of improper institutional controls can satisfy the causation requirement of CERCLA.

2. Challenges to Selected Remedies

In addition to an inability to receive response costs based on a faulty institutional control, injured third parties are also likely to face great difficulty challenging EPA's selection of that remedy. As noted, CERCLA section 310 provides for citizen suits against any person or governmental entity alleged to be in violation of a standard or requirement under CERCLA.[263] Such suits are restricted, however, to post-completion review; as seen in the *Gamma-Tech*, *Clinton County*, and *Frey* cases outlined in Part II.C, courts have consistently held that a challenge to EPA's choice of remedy that would interfere with the implementation of that remedy may not be heard until completion of the remedial action.[264] Unaddressed in those cases and the statute is when individuals may challenge the selection or implementation of institutional controls.

Interpretation of CERCLA's timing of review provision hinges generally on the idea of "completion" of the selected remedy. But because of the ongoing nature of institutional controls, it is not clear when such a remedy is "complete" for purposes of review. Legal precedent regarding challenges to institutional controls is not widely available, as challenges to these controls appear to be still in their infancy. In at least one instance, however, a court has applied the rule barring pre-completion review to a challenge to an implemented institutional control. In *Public Service Company of Colorado v. Schrader Oil Company* (*Schrader*),[265] the court considered an action for response costs incurred in complying with a CERCLA consent order entered into with EPA by plaintiff, defendant, and the city of Fort Collins, Colorado.[266] In addition to denying liability for those costs, the defendant filed a counterclaim based on contamination remaining on the defendant's property that allegedly required cleanup under the Resource Conservation and Recovery Act (RCRA).[267]

263 42 U.S.C. § 9659 (2006).

264 *See, e.g.*, Broward Gardens Tenants Ass'n v. U.S. Envtl. Prot. Agency, 311 F.3d 1066, 1073–74 (11th Cir. 2002) (holding that where plaintiffs sought injunctive relief seeking to add a stricter level of protection to the remedial plan put in place, such requests sought to alter the nature of the cleanup plan, and were "clearly . . . a challenge to the selected remedial plan." The court therefore held that the challenge was forbidden until cleanup was complete.); *see also Clinton Ctny. Comm'rs,* 116 F.3d 1018, 1023 (3d. Cir. 1997); *Frey I*, 270 F.3d 1129, 1134 (7th Cir. 2001); Jennings, *supra* note 134 at 690.

265 CIV.A. 05-CV-0785-RP, 2007 WL 2962747 (D. Colo. 2007).

266 *Id.* at *1. "The emphasis in the November AOC is on the protection of the river from migrating chemical substances, including those that may come from a landfill underneath Fort Collins property now used as a park and community center. [Public Service Company] contends that the coal tar and associated contaminants in the former gas plant property were stabilized there until releases of petroleum products from Schrader property used for storage and distribution of petroleum products caused migration down gradient through the Fort Collins property and into the river." *Id.*

267 Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901–6992k (2006) (amending Solid Waste Disposal Act, Pub. L. No. 89-272, 79 Stat. 992 (1965)); *Pub. Serv. Co. of Colo.*, 2007 WL 2962747, at *1. RCRA is a regulatory program designed to control future waste treatment, storage, and disposal activities. DANIEL A. FARBER & ROGER W. FINDLEY, ENVIRONMENTAL LAW IN A NUTSHELL 206–07 (8th ed. 2010).

The crux of the counterclaim in *Schrader* was whether the alleged contamination under defendant's property had been addressed by the consent order. The court determined that the order had addressed the contamination through the use of institutional controls that defendant was required to implement, and that those controls manifested EPA's determination that "leaving those substances in place and undisturbed by any activities prohibited by the institutional controls is adequate protection."[268] Thus, the court found that it had no jurisdiction to review EPA's determination or to evaluate the adequacy of the remedies mandated by the consent order because, "[u]nder 42 U.S.C. § 9613(h) of CERCLA, with exceptions not applicable here, no Federal court has jurisdiction to review any challenges to a removal or remedial action selected under CERCLA § 104 or to review any order issued under CERCLA § 106(a)."[269] Because the court found that the defendant's "request for additional or other remedies different from that selected by the EPA" constituted a challenge to the actions ordered by the AOC, it held that the claim was barred by CERCLA.[270]

The *Schrader* court did not engage in any discussion of "completion" with regard to the challenged institutional controls; instead, it simply applied the same standard as it would to other challenges to a remedial action. By implicitly finding that selection of a remedy including institutional controls did not constitute an exception to the timing of pre-completion review under section 113(h), the court appears to have cut off all means of review of EPA's selection, regardless of the efficacy of the remedy. As described above, concerns have been raised regarding the unavailability of review of selected remedies and resulting irreparable injury related to section 113(h).[271] That bar on review is particularly troublesome in the arena of institutional controls, the ongoing nature of which means that they are not necessarily subject to "completion." Under the *Schrader* court's approach, harm from a faulty institutional control may be not only irreparable but also perpetual.

One decision, decided outside the context of institutional controls, may offer a different framework. When the Court of Appeals for the Seventh Circuit decided *Frey I*, it reversed the district court's previous dismissal of the suit and directed it to revisit its findings.[272] In *Frey v. U.S. Environmental Protection Agency* (*Frey II*),[273] EPA moved for summary judgment, arguing that Frey's claim was barred by CERCLA section 113(h) because the agency continued to actively investigate and evaluate its options for further treatment, and, therefore, the action was not "complete."[274] The district court agreed with EPA and dismissed the claim, and the Seventh Circuit again

268 *Pub. Serv. Co. of Colo.*, 2007 WL 2962747, at *3.

269 *Id.*

270 *Id.*

271 *See e.g.*, Jennings, *supra* note 134, at 679 (discussing the unavailability of review and irreparable injury in the context of *Frey I*, 270 F.3d 1129 (7th Cir. 2001)).

272 *See supra* notes 162–67 and accompanying text.

273 403 F.3d 828 (7th Cir. 2005).

274 *Id.* at 832–33; Jennings, *supra* note 134, at 691.

reversed, ultimately granting plaintiffs judicial review of EPA's remedial action.[275] The Court reiterated its position that review may occur only after a selected action has been completed. It noted, however, that EPA could not rely on an "amorphous study and investigation phase" to evade review.[276] "At oral argument, the court had asked EPA whether CERCLA would preclude review if EPA asserted it would take action 'at some point before the sun becomes a red giant and melts the earth;' EPA reportedly had no response."[277] The court found that "there must be some objective indicator that allows for an external evaluation, with reasonable target completion dates," but declined to require a formal agency plan.[278] Thus, *Frey II* appears to suggest a reasonableness requirement regarding the availability of review. According to the Seventh Circuit, "Congress intended for remedial action to be complete before permitting judicial review. . .Congress did not, however, intend to extinguish judicial review altogether."[279]

There has not yet been a decision applying *Frey II* to the review of institutional controls. And it is not clear how a determination based on that opinion would come out on the question of reviewability of those controls. Although *Frey II* did not define the court's notion of a "reasonable target date," it did comment that a "100-year plan" would be unreasonable.[280] To rely solely on the *Schrader* court's determination that courts lack jurisdiction over review of challenges to institutional controls as part of the remediation plan would be to find that institutional controls are wholly outside the purview of the courts, or would postpone review for the life of the institutional control (decades or longer in many cases). Such an outcome could fall outside the *Frey II* court's definition of reasonableness.

Institutional controls, however, are not captured perfectly by the framework for review based on the idea of completeness. With institutional controls, unlike in *Frey II*, a remedy has been selected and is being implemented; unlike in traditional response actions, however, there is not necessarily a point at which the remedy is "complete" and when review would therefore be appropriate under section 113(h). The language of section 113(h) does nothing to address the issue of institutional controls, and, in this instance, "the failure to create specific statutory language defining . . . [when and how EPA] may use institutional controls arguably has the secondary effect of significantly restricting the ability of citizens to challenge any decision or the result of any decision based on institutional controls."[281] If courts interpret section 113(h) to mean that institutional

275 *Frey II*, 403 F.3d at 833 ("Nonetheless, the district court concluded that Frey's action was premature because 'active remedial planning' was underway. It granted EPA's motion for summary judgment."); Jennings, *supra* note 134, at 691.

276 *Frey II*, 403 F.3d at 834.

277 Jennings, *supra* note 134, at 691–92.

278 *Frey II*, 403 F.3d at 835.

279 *Id.* at 836; Jennings, *supra* note 134, at 692.

280 *Frey II*, 403 F.3d at 835.

281 Schofield, *supra* note 14, at 1000–01.

controls are wholly unreviewable pre-completion, it is unclear when, if ever, selection of that remedy would be subject to review.[282]

3. Other Federal Remedial Options

As noted, CERCLA provides for periodic review of institutional controls; although this review is not designed to provide remedies for harm, it may result in changes to failing institutional controls. Apart from that built-in review, however, third parties may be unable to gain review of or compensation for a faulty institutional control under federal law. As described, there is reason to believe that both actions for response costs and for review of the selected remedy are likely to be unsuccessful. CERCLA provides no private cause of action for economic losses or personal injuries.[283] Further, although section 107 of CERCLA creates liability for "injury to, destruction of, or loss of natural resources," such an action can only be brought by the federal government or by a state.[284] RCRA contains a citizen suit provision that may be used to compel cleanup of hazardous materials spilled or otherwise released into the environment.[285] As seen in *Schrader*, however, where contamination has already been addressed by an institutional control, courts may treat a RCRA claim as a challenge to EPA's remediation plan, and therefore find no jurisdiction over the claim. Thus, federal actions currently available do not appear to provide a viable means of challenging, or of making whole those individuals damaged resulting from, a failed institutional control.

4. State Law Remedies

Due to the lack of federal options, "[u]nless Congress sees fit to provide such a remedy, full compensation for hazardous waste harms will in most

282 As seen in *Artesian Water Co.*, 659 F. Supp. 1269 (D. Del. 1987), courts may be skeptical of claims that the unavailability of judicial review constitutes a lack of due process, as they may deem due process rights satisfied by the right to weigh in prior to the selection of a remedy. Public participation requirements may provide only limited opportunity for involvement, however. "Although institutional controls are often considered an integral part of the remedy for a site," and may be addressed generally in a published ROD, "agencies are not bound by the public participation requirements governing remedy selection when controls are selected after issuance of the ROD. As such, EPA, states, and local governments have tremendous latitude to determine if and to what extent they wish to involve affected communities. . . . [A]ny decision to provide opportunity for post-ROD public input is not enforceable." ENVTL. LAW INST., *supra* note 177, at 101.

283 *See Artesian Water Co.*, 659 F. Supp. at 1287; *see also* Kristen Elizabeth Sweeney, Daigle v. Shell Oil Company *and the Bumpy Road to the Recoverability of Medical Monitoring Expenses Under CERCLA*, 47 VAND. L. REV. 235, 237 (1994).

284 *Artesian Water Co.*, 659 F. Supp. at 1287–88 (citing Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9607(f)).

285 Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6972 (2006) (amending Solid Waste Disposal Act, Pub. L. No. 89-272, 79 Stat. 992 (1965)); *see also* Gaba & Kelly, *supra* note 95, at 938 (arguing that this provision "should be available" to prompt the cleanup of hazardous waste released into the environment).

instances remain the province of state law."[286] Where plaintiffs seek remedies solely under state law for damage caused by remediation efforts, such challenges do not conflict with CERCLA.[287] Such challenges may theoretically be brought against EPA, state or local agencies, or private parties. The Federal Tort Claims Act (FTCA)[288] waives governmental immunity for certain tort claims; "[h]owever, under the 'discretionary acts exception' of the FTCA, the government or its agent cannot be held liable for a tort claim if the challenged government action involves an element of judgment or choice and if the challenged government action is based on considerations of public policy."[289] A number of courts have found that the discretionary acts exception applies to challenges of EPA decisions in CERCLA actions, because "EPA officials make decisions in cleanups where they exercise discretion to weigh site-specific facts and determine the best way to meet CERCLA's goals."[290] Thus, an action against EPA for negligent selection of an institutional control remedy that causes harm to person or property is unlikely to be successful, as EPA's decision would likely be deemed a "policy judgment[t] based on resources and protecting public health and safety."[291] For a suit against not EPA but a state or local government agency, the availability of an action will depend on the law of the state.

Although the dearth of state case law on this issue makes outcomes somewhat difficult to predict, a recent case out of the Eastern District of Michigan applying state law reveals some of the potential problems that plaintiffs might face in state law claims. In *Saline River Properties, LLC v. Johnson Controls, Inc.*,[292] the court considered a suit by a landowner against a prior owner to enforce an administrative order requiring the prior owner to take various environmental remedial actions. The plaintiff asserted claims for breach of contract, negligence and negligence per se, nuisance, and tortious interference.[293] The court rejected the current owner's state law claims in their entirety, finding, in relevant part, that the order was not a contract under Michigan law, that the nuisance claim was barred by the relevant statute of limitations, and that there was no actionable legal duty under the consent order or otherwise that could form the basis of a negligence claim.[294]

Thus, although CERCLA specifically states that it is not intended to impact the availability of state law claims, there may be independent

286 *Artesian Water Co.*, 659 F. Supp. at 1299–1300.

287 *See, e.g.*, Beck v. Atl. Richfield Co., 62 F.3d 1240, 1243 (9th Cir. 1995).

288 28 U.S.C §§ 1291, 1346, 1402, 2401–2402, 2411–2412 (2006).

289 Gregory M. Romano, "*Shovels First and Lawyers Later*": *A Collision Course for CERCLA Cleanups and Environmental Tort Claims*, 21 WM. & MARY ENVTL. L & POL'Y REV. 421, 430 (1997).

290 *Id.* at 431–32.

291 *Id.* at 432. Some commentators have also suggested that state tort claims are subject to the ban on pre-completion review, and/or that they should be preempted by CERCLA where allegations of damages are based on compliance with an EPA-selected remedy. *Id.* at 440–41.

292 823 F. Supp. 2d 670 (E.D. Mich. 2011).

293 *Id.* at 672.

294 *Id.* at 674–77.

difficulties in attempting to apply state tort law to harms associated with institutional controls. The court's rejection of the state law claims in *Saline River Properties* points to the number of issues that an injured plaintiff may face. Statutes of limitation may bar claims in cases where an institutional control has been implemented years before the harm is created or noticed, especially in states that do not recognize a discovery or "continuing harms" rule. Courts may not acknowledge a duty of care; even where such a duty were found, it may be very difficult to establish any violation, particularly where all parties were in compliance with a mandated institutional control. The question of causation may also pose difficulties where many parties were engaged in shipping hazardous materials to a site and it is virtually impossible to assess, for instance, the ownership of each container, and the degree to which they contributed to any contamination.[295] Those issues, addressed by applying strict, joint and several liability in CERCLA, are not as easily dispatched under state tort standards.

5. Allocating Responsibility

As outlined above, those impacted by failed institutional controls appear to have little prospect for remedy or review. Perhaps unsurprisingly, environmental insurance, unique in its willingness to cover known conditions on property, has adapted to fill that void and insure against damage from failed institutional controls.[296] The prospect and availability of insurance raises the question of allocation of responsibility for harm from a failed institutional control—whether such responsibility should fall with the agency that selects an ultimately ineffective remedy, or whether it should be borne by the person who chooses to become exposed to a site that he knows contains latent contamination. Although insurance may be available, relying only on insurance to provide a remedy for harms from failed institutional controls is reminiscent of strategies employed in trying to deter population of a particular area.[297] Putting the burden on individuals who choose to repopulate sites under institutional controls may reinforce the same reluctance regarding contaminated sites that has driven so many policy changes over the past decades. Further, although insurance can help make whole those individuals who may be harmed by a control failure, it

295 William B. Johnson, Annotation, *Liability of Generators Pursuant to § 107(a)(3) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(42 USCS § 9607(a)(3))*, 126 A.L.R. FED. 265, 278 (1995) (discussing the complications that can arise in determining generator and arranger liability for hazardous waste materials).

296 Brad Maurer, *Institutional Controls and Insurance, in* IMPLEMENTING INSTITUTIONAL CONTROLS AT BROWNFIELDS AND OTHER CONTAMINATED SITES, *supra* note 212, at 111, 113.

297 For example, the National Flood Insurance Program, run by the Federal Emergency Management Agency, provides flood insurance and requires its purchase for receipt of federal mortgage loans in certain high-risk areas. *See, e.g.*, Nat'l Flood Ins. Program, *Understanding the Basics*, http://www.floodsmart.gov/floodsmart/pages/residential_coverage/understanding_the_basics.jsp (last visited Nov. 18, 2012). One of the purposes of that program is to limit development in flood-prone areas. Christine M. McMillan, *Federal Flood Insurance Policy: Making Matters Worse*, 44 HOUS. L. REV. 471, 476 (2007).

cannot remedy the problem of the failure itself, nor can it endow individuals with the ability to alter an institutional control as needed. Thus, while environmental insurance may be a helpful supplemental remedy, without some other kind of recourse it is unlikely to foster or support continued growth in contaminated areas.

Reshaping the new urban environment depends on development of brownfields. Recognizing that fact, there is need for a clearer interpretation of CERCLA as applied to institutional controls, whether through statutory amendment, judicial interpretation, or both. Removal of liability from parties who comply with the mandated terms of a cleanup is sensible. There must, however, be a way in which those harmed by a failed institutional control can be made whole. One means of accomplishing that goal may be to establish a cause of action against EPA, state or local entities, or other individuals responsible for selection of the ultimately ineffective institutional control. Such a strict liability[298] action could serve as a means of ensuring that the true costs of institutional controls are taken into account at the time of selection, and that agencies are responsive to the need for plan modification where there is evidence that controls are not working as expected.

Further, it is the responsibility of courts and Congress to clarify how section 113(h) applies to institutional controls, when such remedial actions are "complete," and at what point review will be available.[299] Congress should consider amending CERCLA's timing of review provision so as to clarify when review of institutional controls is possible; in the meantime, courts may be able to expand on the *Frey II* court's conception of reasonableness to better address institutional controls. Until that necessary clarification occurs, any judicial review of institutional controls is likely to be either haphazard or nonexistent. And, as noted, such uncertainties regarding remedy and review make the use of institutional controls a much shakier platform on which to rebuild the urban environment.

V. CONCLUSION

A return of the population to cities holds the promise of benefits both social and environmental. And because unremediated brownfields pose an obstacle to full renewal of many urban areas, cities have an interest in cleaning up sites contaminated by hazardous waste as quickly and as cheaply as possible. It is attractive to think that we can take care of past harms to the environment in an efficient manner and forge ahead quickly to

298 A negligence-based standard would not go far enough in properly allocating the burden for ensuring institutional controls, if implemented, are effective; thus—rather than falling on the affected parties—this burden should fall on the government entity responsible for selecting a remedy.

299 As seen in the first wave of judicial review suits regarding CERCLA, the prospect of judicial review may have the undesirable result of slowing cleanups and complicating the remediation process. However, because any challenges based on failure would take place post-completion and post-failure, such suits would not have the same effect of holding up the remediation process.

a world of sounder environmental use governed by the principles of smart growth and other renewal-based planning theories. Renewing our cities, however, necessarily implicates confronting our urban past.

As seen in the example of the Gowanus Canal,[300] prior industrial uses have turned otherwise highly desirable sites into repositories of large quantities of toxic chemicals. CERCLA and various state programs have established means by which to carry out the cleanup of sites polluted by former industrial practices. Part of what has helped to drive the urban renewal of the last several decades, however, is the lessening of remediation disincentives through liability waivers and use of institutional controls in the place of full cleanups. To ensure that cities experience regrowth in a healthy way, it must be acknowledged that where institutional controls are put in place to contain contamination, some of those controls are likely to fail, either because of human error or because of unexpected performance by the institutional control. Even assuming that every institutional control was implemented and maintained perfectly, that every land use remains exactly as predicted, and that every control is viable and enforceable, some controls will simply not perform as expected. And those controls' failure to contain contamination may subject individuals using the sites to harm.

Both policymakers and the individuals and businesses relocating to sites protected by institutional controls must be aware that, if failure of these controls occurs, those affected will likely be left without a remedy, in terms of either review or compensation. Congress and the courts ought to reconsider CERCLA's citizen suit and timing of review provisions in light of the growing use of institutional controls, and make a determination about when selection and implementation of such controls can be challenged. Further, Congress should endeavor to codify proper allocation of responsibility for selection of institutional controls. Until that happens, institutional controls should be used cautiously, and with acknowledgment of the possibility of failure. Should that kind of caution not prevail, it is likely that "the beneficiaries of risk avoidance will be limited to the current generation."[301] It is easily imaginable that, once neighborhoods or individuals begin to confront reemerging harms, an inability to recover costs necessary to remedy the harm or even to force a change in a failing institutional control would be sufficient to again trigger dying pockets of cities, a downward spiral of blight, and a renewed wave of suburban sprawl.

Given the positive changes that institutional controls can help foster, the lesson of failed institutional controls is perhaps not that they are not valuable tools, but rather that—in a situation where environmental harms are present both in keeping people in the suburbs and in moving them back into the cities—there is no easy solution. As the impacts of sprawl become clear, there is an obvious vested interest in promoting urbanism. As one commentator has noted, cities are "this fragile planet's last, best hope—the only alternative to settling on the ever-contracting fringes, consuming the

300 *See supra* Part I.B.

301 O'Neill, *supra* note 228.

last chance landscape, extinguishing resources and species."[302] The early days of the CERCLA scheme demonstrated that overly restrictive liability policies will prevent people from reusing sites, and will drive them instead to greenfields where the environmental impact is far worse than in the city. Even accounting for some failure, institutional controls may be the best choice for this situation, both economically and ecologically. Knowing that, however, policymakers and courts must adjust to provide a remedy to those who may be harmed by this calculated move to reclaim the land of our industrial past. Policymakers today have a chance to usher in a period of growth that is not only smart in its innovations for renewed urban living, but also wise in its ability to forecast where those innovations will lead us and how best to ensure that they are long-lasting. In reclaiming our cities, we cavalierly approach the remnants of our past to the detriment of our future.

302 Jane Holtz Kay, *The Lived-In City: A Place in Time, in* TOWARD THE LIVABLE CITY, *supra* note 39, at 5, 8.