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Not-so-super Superfund: CERCLA's Biggest Issues

Cameron Berthiaume

In Niagara Falls, New York, an empty canal known as Love Canal was used for around a decade as a chemical dumping site. Hooker Chemical Company dumped thousands of tons of hazardous chemicals into the ditch and then covered the dump with soil. After selling off the land, a school and houses were built nearby. Meanwhile, the buried chemicals continued to leak and contaminated the soil and groundwater (United States Environmental Protection Agency [EPA], n.d.c). In the 1970s, residents saw contaminated groundwater surfacing and their complaints and concerns about the situation increased. Eventually, media coverage granted the situation national attention, resulting in the state of New York and the Environmental Protection Agency (EPA) getting involved. Their tests confirmed the presence of hazardous chemicals and President Jimmy Carter declared a state of emergency, granting federal funding to clean up the site. Families were completely relocated, never to return, and their homes demolished.

The attention Love Canal received meant that growing concerns about sites contaminated with hazardous materials across the nation were a salient issue. The Love Canal case is widely credited as the inciting factor in the creation of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund). CERCLA was passed by Congress on the 11th of December, 1980 (EPA, 2023a). Its primary purpose is to address sites contaminated with hazardous substances by cleaning them up and holding the parties responsible for the contamination financially liable for cleanup costs (Congressional Research Services [CRS], 2021). In some cases, this may even involve the responsible party performing cleanup itself.

Love Canal demonstrated the importance of addressing sites contaminated with hazardous substances. Contaminants from these sites can cause harm to the environment and to human health. For example, contaminants may make their way into groundwater, which is an important water source for many human populations. People may even need to find alternate water sources if their wells are contaminated. Contaminated groundwater, over time, may also find its way out of the ground and end up in bodies of surface water like lakes and rivers (EPA, 2022a). This can cause the degradation of aquatic habitats and loss of biodiversity (EPA, n.d.a).

Because contaminated sites have the potential to contribute to water pollution in these ways, CERCLA has the potential to impact great numbers of people, especially in Minnesota, where 75% of residents get their drinking water from groundwater (Minnesota Department of Health [MDH], n.d.). The city of Morris also gets all its drinking water from groundwater sources (MDH, 2023b). Eagan, where the author's home is located, gets its drinking water from groundwater as well (MDH, 2023a).

CERCLA is not the only legislation to deal with groundwater, of course. Other examples of legislation pertaining to groundwater contamination and hazardous waste are the Safe Drinking Water Act (requires drinking water to meet health standards), the Resource Conservation and Recovery Act (regulates hazardous and nonhazardous wastes), and the Toxic Substances Control Act (regulates manufactured chemicals) (EPA, n.d.a). CERCLA is unique among these laws

because it primarily deals with contaminants after they've already been released to the environment rather than making sure those contaminants don't get there in the first place.

However, there are many problems related to CERCLA, both within the bill itself and within the governmental structures that interpret, modify, and enforce the law. Loopholes, exemptions, court rulings, lax enforcement, unstable funding, EPA rule changes, and other factors have served to weaken the law, making it less effective. If CERCLA isn't properly doing what it was originally intended to do, people and the environment are at risk. This paper will cover the basics of CERCLA and its major related problems. It will also describe why these issues are problematic for human health, environmental health, and for the effectiveness of the act. Examples from the state of Minnesota will be used to illustrate each issue where possible. Minnesota has a vested interest in clean water for both health reasons and cultural reasons. The state's nickname, the "land of 10,000 lakes", shows that our water is what defines us. Minnesota is also the source of the iconic Mississippi River and part of Lake Superior's shoreline.

To begin, it will be helpful to review the basic things that CERCLA does. As previously mentioned, CERCLA's primary goal is to orchestrate cleanups and make the responsible parties pay. The law allows the federal government to respond to contaminated sites in two ways: removal actions and remedial actions. Removal actions are for short-term responses that are used for immediate, emergency situations such as sudden releases or spills. This also includes threatened releases of hazardous substances. Remedial actions are long-term actions that aim to permanently reduce or contain the hazardous substances at a site. Remedial actions can only occur at National Priorities List (NPL) sites (Cornell Law School, n.d.b). The NPL, which CERCLA compels the Environmental Protection Agency (EPA) to maintain, is a catalog of the most hazardous sites, which are considered top priority for cleanup (CRS, 2012). Love Canal was one of the sites on the first NPL (EPA, n.d.c). Sites that don't make it onto the NPL are left to the states to clean up, except in emergency situations, when there may be federal intervention (CRS, 2012).

Liable parties to contamination at Superfund sites are called potentially responsible parties (PRPs). PRPs can fall into four categories: past facility owners and operators, current facility owners and operators, anyone who arranged for disposal or transport of hazardous substances to a site, and anyone who transported said substances (if they had something to do with selecting the disposal site) (Cornell Law School, n.d.b). Liability under CERCLA is strict, joint and several, and retroactive (EPA, 2022d). Strict liability means that PRPs will be held liable regardless of any negligence or lack of intention to cause harm. Joint and several liability means that one PRP can be held liable for the whole cleanup. For example, if three PRPs were responsible for hazardous substances at a site, but only one of them could pay, the EPA could collect the full cost of the cleanup from that one PRP (Cornell Law School, n.d.c).

Another name for CERCLA is Superfund because when the act was passed, a tax was levied on petroleum and chemical companies (EPA, 2023a). These taxes went into a trust fund called the Superfund, which is used to cover cleanup costs for contaminated sites when the responsible parties no longer existed or could not pay (CRS, 2012).

In addition to establishing the Superfund, creating rules for liability, and giving the federal government the authority for cleanup, CERCLA also created a system for gathering and analyzing information about contaminated sites. Anyone in charge of a facility who knows about a release of “a reportable quantity of any hazardous substance” (Ferrey, 2004, p. 339) must send notification to the National Response Center (NRC) of the EPA. A release is defined as “any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant” (p. 342). The NRC will then contact the relevant state’s governor and “the appropriate government agencies” (p. 339). This system allows for the assessment of contaminated sites across the nation. Owners/operators of any facilities that deal with hazardous substance treatment, disposal, and storage are required to tell the EPA about the fact that they’re doing these activities and what sorts of substances are being handled. Failure to notify the correct people/agencies in either of these situations can carry a hefty fine and years of prison time.

EPA makes decisions about what sites go on the NPL by evaluating them using the Hazard Ranking System (HRS). The HRS factors in the amount, concentration, and toxicity of wastes as well as the risk to drinking water, ecosystems, natural resources, and people. The result is a numerical risk value that quantifies the danger and potential for exposure of the hazardous substances at a site. Scores above 28.5 indicate eligibility for the NPL (Ferrey, 2004). Citizens may also petition for the EPA to conduct a preliminary assessment of a site that isn’t on the EPA radar for response actions. The list of substances defined as hazardous under CERCLA consists mainly of lists that were pulled from other federal environmental statutes (EPA, 2023c). As a result, a huge variety of hazardous substances are able to be considered under CERCLA.

On the surface, CERCLA certainly seems to fit the “Comprehensive” part of its name. However, upon closer examination, some of the provisions of CERCLA show concerning weaknesses. For example, take CERCLA’s Natural Resource Damages (NRD) provision. It allows the United States, the states, and tribes to recover NRDs that resulted from a release (Marshall, 2021). Natural resources include water, air, land, biota, wildlife, and “other such resources” (EPA, 2023e). However, natural resources as defined under the statute are limited to Trust Resources, resources held in public trust. NRDs are normally collected after cleanups are finished, though not in every case (Marshall, 2021). NRDs can be used to “restore, replace, or acquire the equivalent of the natural resource damaged” (Marshall, 2021, p. 486). Since CERCLA doesn’t recommend one of those options over another, acquiring equivalent resources is often disproportionately chosen over restoring the original natural resources. During CERCLA’s first 20 years, only \$8.8 million was spent on resource restoration out of the \$61 million that was collected. CERCLA also doesn’t allow for private landowners to be able to recover NRDs, resulting in such landowners having to rely on state law remedies.

Some of CERCLA’s most glaring weaknesses are found in the things it does *not* do. For example, consider the types of substances that CERCLA doesn’t count as hazardous. One of the most notable exceptions to the definition of a “hazardous substance” under CERCLA is the so-called “petroleum exemption”, which exempts petroleum, crude oil, “fractions of crude oil”, and natural gas (EPA, 2022b). Additionally, this exemption includes “the hazardous substances, such as benzene, that are indigenous in ... petroleum substances” and “hazardous substances that are

normally mixed with or added to crude oil or crude oil fractions during the refining process” (EPA, 2022b). Luckily, the Oil Pollution Act of 1990 covers petroleum releases, the Clean Water Act addresses petroleum releases into “navigable waters” (CRS, 2012, p.5), and the Solid Waste Disposal Act (SWDA) deals with leaks from underground tanks.

However, coal ash is not considered hazardous waste by the EPA. “Coal ash is a byproduct of burning coal in coal-fired power plants that, without proper management, can pollute waterways, groundwater, drinking water, and the air. Coal ash contains contaminants like mercury, cadmium, chromium, and arsenic associated with cancer and various other serious health effects” (EPA, 2023b). In the last decade, some progress has been made in regulating coal ash. However, the 2015 Coal Ash Rule, which included “groundwater monitoring and corrective action requirements” for coal ash ponds, notably excluded types of coal ash impoundments called legacy sites (Hopp & Rokoff, 2023). It is only recently that the EPA announced they would be crafting regulations about these legacy sites, but even so, the agency does not plan to announce a final rule until May of 2024.

So because of the failure to classify coal ash as a hazardous substance, coal ash ponds have been neglected for years. Minnesota is home to multiple coal ash ponds and is no stranger to spills and leaks from those ponds. In 2008, coal ash from the Clay Boswell Power Station overflowed into a lake, and the Sherburne County Power Station had two coal ash spills of 600 gallons and 8,000 gallons in 2007 and 2008 respectively (Earthjustice, 2009). Those two stations are still active and producing coal ash today. Groundwater monitoring wells indicate unsafe levels of arsenic, lithium, sulfate, and other contaminants around the Boswell site (“Boswell Energy Center”, 2022). At the Sherburne site, there are unsafe levels of lead, selenium, antimony, and other contaminants (“Sherburne County (Sherco) Generating Station”, 2022).

Holes in CERCLA also increase the danger of fracking. Hydraulic fracturing, also called fracking, is a process for extracting natural gas from underground shale formations. During the process, a borehole is drilled and then fracking fluid is injected, opening fractures in the shale and releasing natural gas (Joyner, 2011). Fracking fluid contains chemicals that are classified as hazardous substances under CERCLA. Naturally, these chemicals can cause a variety of adverse health effects in people. Thus, one might assume that fracking fluids would be within the scope of CERCLA. However, this is not the case. Fracking isn’t actually regulated under federal law, but under state law. That means as long as a fracking operation is within the bounds of the state permit it is operating under, fracking is considered a federally permitted release. Federally permitted releases are notably exempt from liability under CERCLA (Ferrey, 2004).

All is not lost on the fracking front; the EPA is still allowed to conduct response actions when hazardous substances from a federally permitted release contaminate soil or water (Joyner, 2011). However, the inability to hold PRPs financially liable in fracking cases is still a huge hole in federal law. For those that live in Minnesota, fracking isn’t a concern. This is because Minnesota is not home to any fracking operations due to its lack of oil and natural gas reserves. Though fracking doesn’t take place here, Minnesota still contributes to the fracking industry because frac sand, an important ingredient in the fracking process, is mined and processed in the state (“Silica (frac) sand mining”, 2022). Fracking remains a salient issue for people across the nation whose drinking water becomes contaminated with toxic chemicals because of fracking.

Yet another exemption of note is the exemption for “the proper application of a registered pesticide product” (CRS, 2012, p.6). The EPA can still conduct cleanups of hazardous substances that result from pesticide application, but those who apply the pesticide cannot be held financially liable. However, “it is of note that the primary pesticide statute, [the Federal Insecticide, Fungicide, and Rodenticide Act], contains no clear authority for the government to remedy groundwater contamination resulting from the release of registered pesticides” (Ferrey, 2004, p. 343). State and common law remedies may be able to fill this gap where they exist, but there is no guarantee.

A last thing to note is that “normal” fertilizer application is exempt from the definition of a release (CRS, 2012, p. 6). This means that response actions can't be taken at all in this case. Disposal/dumping of large amounts of fertilizer would still be considered a release, however.

Of course, there are plenty of things that *do* fall under the scope of CERCLA. Still, even when there's a release of hazardous substances that isn't exempt from financial liability at a site, there are issues concerning what sites do not make it onto the NPL. For example, because of the way that the HRS weighs the many factors involved in calculating a site's HRS score, a site that is severely contaminated but in a remote location might not qualify for the NPL because it's so far away from human populations (CRS, 2012).

Borenstein (2013) goes as far as to argue that the NPL site listing process is inherently biased towards wealthier, whiter communities because those communities have more social and political sway. As a result, contaminated sites in these communities receive more attention. Even so, “due to the increased presence of industrial facilities in predominantly lower-income communities, these already disadvantaged citizens are put at a significantly higher risk of being affected by a severe, NPL-worthy toxic waste incident” (p. 44).

Once a site does make it onto the NPL, the extent to which it is cleaned up is based on applicable, relevant, and appropriate requirements (ARARs). ARARs are generally based on any standards set in other federal environmental laws (RCRA, TCSA, SDWA, etc.) and on any standards set by the state the site is located in, if state standards happen to be stricter than federal ones (Sheckells, 1992). There are certain situations where particular standards can be waived, most of which are relatively common sense. For example, a standard might be waived if complying with a standard might “result in a greater risk than the alternatives” or if it might be “technically impracticable from an engineering perspective” (CRS, 2012, p. 10). However, one situation stands out; a standard may be waived if “meeting the standard would not provide a balance between the need for protection of public health and welfare and the environment at the site under consideration, and the availability of monies in the Superfund Trust Fund to respond to more immediate risks at other sites” (p. 10).

This becomes a problem when we consider the history of the Superfund itself. The tax on polluting industries that originally financed the Superfund expired in 1995 (CRS, 2012). When the taxes expired, only general tax revenues from the General Fund of the U.S. Treasury, appropriations by Congress, and costs recouped from PRPs were left to keep the Superfund afloat, leaving it without its primary source of money. In fact, “the Superfund trust fund ran dry

by 2003, and while a one-time \$600 million stimulus was added to the superfund (sic) in 2009, Superfund site annual completion totals dropped off by more than 50% following the exhaustion of the trust fund” (Borenstein, 2013, p. 20).

This image is under copyright. It can be viewed online in the publication [*The Toll of Superfund Neglect: Toxic Waste Dumps & Communities at Risk*](#) by Rena Steinzor and Margaret Clune, p. 20

The Superfund declined from \$4.7 billion in fiscal year 1997 to \$67 million in fiscal year 2022 (U.S. PIRG Education Fund, 2021). Additionally, annual appropriations to the fund decreased by over one billion from 1999 to 2021. The amount of cleanup actions that were started per year went from 91 in 1999 to 14 in 2021. 31 projects didn’t start at all in fiscal year 2021 because there wasn’t funding for them. It wasn’t until the passage of the Bipartisan Infrastructure Bill in 2021 that the original “polluter pays tax” on industries was finally reinstated.

Another thing about the lack of funding that complicates CERCLA’s ability to perform as intended is the fact that response actions under CERCLA are guided by the National Contingency Plan (NCP). Among other things, the NCP requires that remedial actions be “cost-effective” (Ferrey, 2004, p. 344). In addition, the level of cleanup at a site may be adjusted based on the anticipated future use of a site (Marshall, 2021). For example, it might be the case that cleanup can only make a certain site safe for industrial use, not residential use, which would involve a higher chance of people being exposed to hazardous substances. In a case like this, institutional controls such as zoning the land for industrial use only need to be put in place to ensure public health (Laws, 1995).

Further compounding funding issues was the arguably poor enforcement of CERCLA under some presidential administrations. Under the Reagan administration, CERCLA and the EPA were targeted with the aim of weakening their regulatory power. Conservative Anne Gorsuch was appointed as head of the EPA (Borenstein, 2013). She “filled the EPA with appointees that were lobbyists for chemical, petroleum, automobile, and asbestos companies, slashed the EPA’s operating budget by 60 percent, and abolished the EPA’s office of enforcement, replacing the office with the position of Chief Enforcement officer-- a position filled by a former Exxon employee who reported directly to Gorsuch” (p. 18). Gorsuch also cut \$55 million from the EPA’s hazardous waste program and only utilized a small portion of funds that were available for cleaning up toxic waste (\$8 million out of \$78 million available in 1981 and \$71 million out of \$170 million available in 1982). The EPA under Gorsuch was “filled with senior officials who had secretly granted cleanup discounts to corporations liable under superfund (sic), while also manipulating cleanup timetables in a manner advantageous for Republican congressional candidates” (p. 32). By the end of the first year in her position, 4,100 employees had left the EPA because of her “budget slashing and political pressuring” (p. 32).

Now the “Liability” portion of CERCLA’s name must be examined. CERCLA requires that the President declare financial responsibility requirements for “classes of facilities” (presumably those that deal with hazardous substances) and that those requirements should correlate with the risk involved in those facilities’ usage of said hazardous substances (Financial Responsibility

Requirements Under CERCLA Section 108(b) for Classes of Facilities in the Hardrock Mining Industry, 2018). The responsibility for figuring out these regulations was delegated to the EPA. Financial responsibility requirements require facilities to keep evidence that ensures that they can pay for cleanups and damages in case of a release of hazardous substances (EPA, 2018). These regulations are intended to make sure that companies don't file for bankruptcy and leave taxpayers to have to cover cleanup costs (Harvard Environmental & Energy Law Program, n.d.).

The EPA considered creating financial responsibility requirements for facilities in four different industries: the hardrock mining industry, the electric power generation, transmission, and distribution industry, the petroleum and coal products manufacturing industry, and the chemical manufacturing industry (EPA, 2022g). Under the Trump administration, the EPA issued their final decisions on the matter; there would be no financial responsibility requirements for any of the listed industries (Harvard Environmental & Energy Law Program, n.d.; EPA, 2022g). These rulings excluded environmental and human health concerns from their definition of the "risk" involved in the industries' usage of hazardous substances, instead only considering financial risk to the federal government and the Superfund, which they deemed insufficient to warrant regulation (Harvard Environmental & Energy Law Program, n.d.).

To see why the lack of financial responsibility requirements is an issue, one only needs to look towards the many examples of the industries that are exempt being the very same industries responsible for pollution. There are many opportunities for contamination during the hardrock mining process. Mine tailings, which are composed of waste minerals that are separated from the minerals of value, can leak out of the ponds where they are typically stored (Murphy, 2019). Additionally, solvents that are used in the leaching process, which separates minerals of value, may contain dangerous chemicals like cyanide. The commonly-used solvent sodium cyanide has been the subject of "major environmental cleanups costing hundreds of millions of dollars" (Murphy, 2019, p. 3).

Minnesota's Mesabi Range has a rich history of taconite/iron ore mining (Tieberg, 2020). A Minnesota example of hardrock mining pollution can be found in the Dunka Pit Mine, located southeast of Babbitt. While it was in operation, the mine produced taconite, but in order to get to that taconite, the layer of sulfide-bearing rock on top of it was first removed (Helmberger, 2015). LTV Steel, which operated the mine, went bankrupt in 2001. Meanwhile, the piles of waste rock have been leaking toxic metals, sulfates, and more into nearby water bodies for decades (Marcotty, 2011). Hardrock mining is not just a thing of the past, though. The proposed copper-nickel PolyMet mine, also near Babbitt, has long been the subject of opposition because of concerns about sulfuric acid pollution (Karnowski, 2023). Another proposed copper-nickel mine, the Twin Metals mine, has also inspired fierce resistance due to its placement in the watershed that drains into the Boundary Waters.

For the electric power generation, transmission, and distribution industry, we need only look back to the previously discussed example of coal ash ponds. As for the petroleum and coal products manufacturing industry, we can look to the Koppers Coke NPL site in St. Paul as an example. For over six decades, Koppers, Inc. produced coke, a fuel made from coal, and other coal byproducts (EPA, n.d.b). The way they disposed of their waste caused groundwater and soil to become contaminated with hazardous substances.

Minnesota has its history of contamination from the chemical manufacturing industry, too. One of the most well-known examples would be 3M's dumping of per- and polyfluoroalkyl substances (PFAS). 3M disposed of these chemicals, which are used in products like firefighting foam and non-stick coatings, at four different sites in Minnesota: Cottage Grove, Woodbury, Oakdale, and the now-closed Washington County Landfill, which is in Lake Elmo (Black, 2020). These chemicals contaminated the drinking water of over 140,000 Minnesotans (Minnesota Pollution Control Agency, n.d.).

PFAS highlight another potential pitfall of the way CERCLA defines "hazardous substances". Though "some PFAS have been linked to negative health effects including low birth weight, kidney and thyroid problems and some cancers" (Marohn, 2021), PFAS are not designated as "hazardous substances" under CERCLA. Interestingly, this means that the EPA could take response actions to clean up PFAS, but couldn't hold any parties responsible for PFAS contamination financially liable under CERCLA. This is because response actions can be taken in response to hazardous substance releases and in response to "releases of other pollutants or contaminants that may present an imminent and substantial danger to public health or welfare" (CRS, 2022). However, liability for response costs only applies to hazardous substances, not other pollutants or contaminants. The EPA is currently in the process of proposing a rule that would designate PFAs as hazardous substances (EPA, 2023d).

Another thing to note regarding liability is that direct compensation for victims of hazardous substance releases is lacking. "The only way that the Carter Administration was able to get CERCLA through Congress in time without resistance was by striking a clause that would require direct compensation of victims of toxic waste spills" (Borenstein, 2013, p. 17). Hence, liability doesn't include personal injury, medical costs, or health effects sustained due to a hazardous substance release (CRS, 2012). Tort law concerning personal injury varies on a state-by-state basis. Tort claims can also be leveled against the U.S. government for death and personal injury, but only if the injury was "caused by negligent or wrongful federal acts or omissions" (CRS, 2022, p. 34). However, there is a legal defense "for discretionary functions of federal departments and agencies in carrying out their respective missions" (p. 34).

There are a few main legal defenses that can be employed in order to escape liability. Most of them are fairly common-sense, but they are worth listing. One defense is the "act of God/act of war" defense, which would cover an "exceedingly rare and unforeseen set of circumstances" (Cornell Law School, n.d.b) that led to contamination. Predictable events such as earthquakes aren't covered under this defense, however. Another is the "third-party defense", where "acts/omissions of a third party with whom a PRP has no contractual relationship" led to the contamination (EPA, 2022c). "Moreover, an entity asserting the third-party defense must show that: (a) it exercised due care with respect to the contamination; and (b) it took precautions against the third party's foreseeable acts or omissions and the consequences that could foreseeably result from such acts or omissions" (EPA, 2022f). There is also a defense for so-called "innocent landowners", those who acquire a property without knowing about the contamination or those who inherited contaminated property. "Persons desiring to qualify as innocent landowners must perform "all appropriate inquiries" prior to purchase and cannot know,

or have reason to know, of contamination in order to have a viable defense as an innocent landowner” (EPA, 2022f).

De minimis parties that contributed only a small amount to the contamination may be offered a settlement from the EPA rather than go through the typical Superfund liability process (Cornell Law School, n.d.b). “Likewise, if a PRP can show that the mess was contained and removed (and thus contributed in no way to the hazardous release), the PRP may limit liability” (Cornell Law School, n.d.b). Owners of lands next to contaminated property who are unaware of contamination leaking onto their property won’t be held liable. Finally, there are “inability to pay” parties. “EPA will make special payment arrangements and/or reduce the amount of payment for PRPs who can demonstrate an inability to pay the total amount of their liability for cleanup costs” (EPA, 2022e).

As these defenses imply, the courts are a major part of how Superfund is enforced and interpreted. For example, The Supreme Court case *Burlington Northern v. United States* is worth noting because it set a concerning precedent: that a PRP that knew of a release isn’t liable if it took measures to prevent such a release from happening (Cornell Law School, n.d.b). In this case, a chemical distribution company called Brown & Bryant, Inc. bought pesticides from Shell Oil Company and distributed them. However, there were a multitude of leaks and spills during the processes of delivery and transfer (Cornell Law School, n.d.a). The courts eventually ruled that even though Shell knew that such spills were taking place, it wasn’t legally liable because it was technically not an “arranger” for disposal of hazardous substances due to the fact that the company “took numerous steps to encourage its distributors to *reduce* the likelihood of spills” (Cornell Law School. n.d.a).

A portion of the site where the spills took place was on property owned by Burlington Northern and the Union Pacific Railroad Company. The district court that had previously handled the case determined that the two railroad companies were only responsible for 9% of the costs of remediating the site based on a number of factors. Those factors were the amount of the site the railroad companies owned, the amount of time the property was leased to Brown & Bryant, and which of the chemicals were spilled on the railroad companies’ part of the site (Gershonowitz, 2012). The Supreme Court upheld this ruling. The railroad companies were not jointly and severally liable under CERCLA. Instead, only some of the costs were apportioned to them.

This had big implications for joint and several liability under CERCLA. According to Gershonowitz (2012), “if there is a reasonable basis for allocation of harms, Superfund defendants will not be subject to joint and several liability” (p. 121). This means that PRPs may not necessarily have to pay the full costs of a cleanup in every case. A “reasonable basis” for allocation of harms in place of joint and several liability is not clearly defined, but instead based on “fact-based analysis” (p. 122). PRPs don’t have to have hard evidence of what they’re responsible for, however. If there is a “reasonable basis”, only costs “attributable to their contamination” (p. 121) will be allocated to them. It is important to note that whether joint and several liability is applicable varies on a case-by-case basis. However, the precedent that this case established for exceptions to joint and several liability is still a significant one.

Liability at NPL sites owned by federal agencies works differently from non-federal sites. Cleanups at federal facilities are paid for by the agencies that are responsible for those sites (CRS, 2012). This means that Superfund money can't be used for cleanups at these sites. The Department of Defense (DOD) and the Department of Energy (DOE) perform the cleanups for most federal facilities. However, the "EPA and the states are responsible for overseeing and enforcing the implementation of CERCLA at federal facilities to ensure that applicable requirements are met" (p. 1). Though the EPA may choose the remedial actions at federal facility NPL sites, CERCLA "does not explicitly authorize EPA to direct the schedule of performing those actions, nor how those actions are to be operated and maintained over the long term to ensure their performance" (p. 28). Instead, these details are worked out via negotiation between the responsible federal agency and the EPA. Though the EPA can't schedule the remedial actions, the actions must be completed "as expeditiously as practicable" (p. 30). Additionally, there does not need to be a final agreement between the agencies in order for remedial actions that "address discrete contaminated sites at a facility" (p. 30) to take place, which means the EPA has even less formal oversight of the cleanup. Also, since federal agencies have limited ability to sue each other, the EPA's ability to enforce cleanup requirements through the courts is limited.

When a federal facility is listed on the NPL, the responsible federal agency must conduct a Remedial Investigation/Feasibility Study (RI/FS), the first step in the cleanup process (CRS, 2012). However, neither the EPA nor the states can control exactly how the RI/FS is carried out. The agency conducting the RI/FS must at least consult with the EPA and the states, though. For contaminated federal facility sites not on the NPL, states have more authority. These sites must conform to state cleanup standards. There doesn't need to be an agreement between the states and the federal agency responsible for the facility, but SDWA permits provide a more formal enforcement mechanism in lieu of an agreement.

Of course, federal facilities have to comply with CERCLA at the same level as non-federal entities, but in practice, they may not always do so (CRS, 2012). For example, the DOD has outright refused orders from the EPA to clean up contaminated military bases like Fort Meade in Maryland despite the EPA's declarations that the hazardous substances at the site were causing imminent danger to the environment and to public health (Layton, 2008). Though cleanup activities were being voluntarily conducted, they were not meeting EPA standards. At non-federal sites, the EPA can take polluters who don't comply with final orders to court. However, the EPA cannot sue the DOD.

When DOD property is operated/leased by a contractor with the government, the liability question gets even more complicated. "Determining where DOD responsibility for hazardous waste ends and the contractor's responsibility begins is complex and is often legally determined on a case-by-case basis according to the terms of the federal contract in place" (Beyer, 2019).

There are other issues when it comes to the DOD, too. The Superfund Amendments and Reauthorization Act of 1986 created the Defense Environmental Restoration Program to handle cleanup of U.S. military facilities. The cleanup duties for this program also deal with unexploded ordnance. A sub-program, the Military Munitions Response Program, was created to deal with such ordnance. However, these munitions cleanups can only be done at decommissioned military sites and not at "operational ranges" (CRS, 2012, p. 34). This is because the Department of

Defense is concerned that cleanups at operational facilities would “impair military readiness” (p. 35). Operational ranges still have to comply with requirements for waste disposal under the SWDA. However, munitions on operational ranges aren't classified as hazardous and aren't subject to the SWDA unless removed from said range. Since munitions aren't normally removed from ranges unless they present a safety risk, they may remain there as long as the range is in operation (indefinitely). The only time contamination from these munitions can be addressed is after the location is decommissioned or if the contamination migrates offsite.

There is one last flaw to note. To prevent the government from selling off federal property and making somebody else responsible for cleanup, the United States must clean up any contaminated federal property before transferring it out of federal ownership, with some exceptions (CRS, 2012). Exceptions include transferring the property before cleanup ends as long as there is a contract for the United States to continue its cleanup. Another exception would be a case of transferring only the uncontaminated parcels up front and then transferring the contaminated parcels once cleanup has finished. In any of these cases, the United States is not obligated to clean up the contamination well enough for any particular future use. The United States negotiates with whoever is about to acquire the property about the land's future use and the appropriate cleanup level for that use. The agreement reached may also restrict the property's future use if it is decided that cleanup cannot reach adequate levels for certain uses.

All in all, CERCLA faces a multitude of challenges to performing as originally intended. This overview is meant to serve as a reference document for some of Superfund's biggest shortcomings. It is not a completely comprehensive report of every single issue facing the law. From Congress to the courts and beyond, CERCLA's crucial charge is to protect our land, water, people, and more. It is in our nation's best interests to make sure it can do so effectively.

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