

No. 99-3684

Defendants.

¹As of January 30, 2001, the name of this entity was changed to Crompton Co./Cie.

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Washington Legal Foundation; John *

Doull, Ph.D., M.D.; Karl K. Rozman, *

Ph.D.; William J. Waddell, M.D.; K. *

Roger Hornbrook, Ph.D.; Daniel M. *

Byrd, III, Ph.D., D.A.B.T.; Robert *

Golden, Ph.D.; B. Frank Vincent, Ph.D.; *

International Society of Regulatory *

Toxicology and Pharmacology; *

American Council on Science and *

Health; The Allied Educational *

Foundation; Frank B. Cross; Michael *

R. Fox, Ph.D.; Gary E. Marchant, *

Amici on behalf of *

Appellant. *

No. 99-3685

United States of America; Arkansas *

Department of Pollution Control and *

Ecology, *

Plaintiffs/Appellees, *

v. *

Hercules, Inc., *

Defendant/Appellee, *

Vertac Chemical Corporation; *

Department of Defense; Dow Chemical *

Corporation, *

	*
Defendants,	*
	*
Uniroyal Chemical Limited, formerly	*
known as Uniroyal Limited,	*
	*
Defendant/Appellant,	*
	*
Velsicol Chemical Corporation;	*
John Does, 1-5,	*
	*
Defendants.	*
	*
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	*
Arkansas Department of Pollution	*
Control and Ecology,	*
	*
Plaintiff/Appellee,	*
	*
v.	*
	*
Vertac Chemical Corporation; Hercules,	*
Inc., a Corporation,	*
	*
Defendants.	*
	*
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	*
Washington Legal Foundation; John	*
Doull, Ph.D., M.D.; Karl K. Rozman,	*
Ph.D.; William J. Waddell, M.D.; K.	*
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R. Fox, Ph.D.; Gary E. Marchant,	*
	*
Amici on behalf of	*
Appellant,	*
	*
United States of America,	*
	*
Plaintiff/Appellee,	*
	*
Vertac Chemical Corporation,	*
	*
Defendant,	*
	*
Hercules, Inc.,	*
	*
Defendant/Appellee,	*
	*
Dow Chemical Corporation,	*
	*
Defendant,	*
	*
Uniroyal Chemical Limited, formerly	*
known as Uniroyal Limited,	*
	*
Defendant/Appellant.	*

No. 00-1473

United States of America; Arkansas	*
Department of Pollution Control and	*
Ecology,	*
	*
Plaintiffs,	*

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Hercules, Inc.,	*
	*
Defendant/Appellant,	*
	*
Vertac Chemical Corporation;	*
Department of Defense; Dow Chemical	*
Corporation,	*
	*
Defendants,	*
	*
Uniroyal Chemical Limited, formerly	*
known as Uniroyal Limited,	*
	*
Defendant/Appellee,	*
	*
Velsicol Chemical Corporation;	*
John Does, 1-5,	*
	*
Defendants.	*

Submitted: June 12, 2000

Filed: April 10, 2001

Before WOLLMAN, Chief Judge, McMILLIAN, and BYE, Circuit Judges.

WOLLMAN, Chief Judge.

Hercules, Inc. (Hercules) and Uniroyal Chemical Co. (Uniroyal) raise various claims arising from a series of decisions made by the district court over the past decade finding them jointly and severally liable to the United States for environmental cleanup costs and allocating such costs between them pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§

9601-9675 (1995 & Supp. 2000), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 11 Stat. 1613. We affirm in part and reverse and remand in part.

I. BACKGROUND

A. Factual History

This case involves the Vertac Chemical Plant site, a ninety-three acre tract of land in Jacksonville, Arkansas (the Jacksonville site or the site), that was originally developed by the federal government in the 1930s as a munitions factory. In the late 1940s the site was sold to a now-defunct company called Reasor-Hill Corporation (Reasor-Hill), which at first manufactured various pesticides but in 1958 began to make herbicides including dichlorophenoxyacetic acid (2,4-D) and trichlorophenoxyacetic acid (2,4,5-T), synthetic hormones that kill weeds or brush by accelerating growth to the point of natural death. Although these herbicides rapidly biodegrade into harmless substances, the manufacture of 2,4,5-T (but not of 2,4-D) creates a byproduct, 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin), that is now viewed as hazardous to humans. While Reasor-Hill operated the site, an unknown quantity of these and other untreated chemical wastes from the production process flowed through cooling ponds on the west side of the plant into a nearby stream. Other wastes were stored in numerous drums stacked in a field on the site.

Hercules bought the site from Reasor-Hill in 1961 and continued to manufacture herbicides, including 2,4-D and 2,4,5-T, at the plant until 1971. During this period Hercules sold the bulk of its product to the United States Department of Defense as the defoliant Agent Orange, a herbicide used in Vietnam to clear jungle undergrowth.² Soon after Hercules took over the site it buried the deteriorating drums of chemical waste left by Reasor-Hill in unlined trenches on the site. Hercules did not learn of the

²Agent Orange is made from a mixture of 2,4-D and 2,4,5-T. O'Dell v. Hercules, Inc., 904 F.2d 1194, 1197 n.6 (8th Cir. 1990).

toxicity of dioxin until March of 1965, when a scientific study found that it could cause chloracne, a particularly persistent and disfiguring form of acne that typically affects the face, neck, and shoulders. Dioxin was subsequently linked to cancer.

Later in 1965, Hercules instituted a “toluene extraction” process designed to remove organic impurities from 2,4,5-T products. This process yielded residue (“stillbottoms”) containing extremely high levels of dioxin. Hercules placed this residue in drums, some of which it buried at the site and some of which it disposed of at two nearby landfills. Although Hercules has acknowledged numerous leaks and spills during its operation of the site, the record indicates that Hercules generally improved the safety and cleanliness of the site and complied with environmental regulations between 1961 and 1971.

In 1971, Hercules ceased production at the site and leased the facility to Transvaal, Inc., which later became Vertac Chemical Corp. (Vertac). When Hercules ceased operations at the site, it cleaned out all of its equipment and production vessels, buried its waste, and shipped empty drums off-site.

Initially, Vertac continued the production of 2,4-D and 2,4,5-T and followed Hercules’s practice of burying most of the waste. In 1975, however, Vertac began shipping its 2,4-D waste to off-site landfills and began to store its 2,4,5-T stillbottoms above ground at the site with the hope that the waste might someday be recycled. In 1976, Hercules sold the site to Vertac, which continued its operations until 1986 and abandoned the site altogether when it went into receivership in 1987. By then there were nearly 29,000 waste-filled drums at the site that contained waste materials including 2,4-D, 2,4,5-T, and dioxin. Many of these drums had corroded and leaked, contaminating more soil, groundwater, and buildings at the site. Contamination was also found in other areas of the site, at the landfills, in nearby neighborhoods, and in grounds adjacent to the site.

Uniroyal was a customer of Vertac's and purchased 2,4,5-T and other products from Vertac during the 1970s. In 1978, Vertac informed Uniroyal that it lacked the funds to purchase enough 1,2,4,5-tetrachlorobenzene (TCB), a key ingredient in the manufacture of 2,4,5-T, to fulfill its regular contractual obligations to Uniroyal. Uniroyal consequently agreed to supply Vertac with enough TCB to create some 1.3 million pounds of 2,4,5-T that was to be shipped back to Uniroyal. Vertac did not purchase the TCB from Uniroyal, but rather reduced the amount it ultimately charged Uniroyal for the 2,4,5-T to reflect the value of the TCB that Uniroyal had supplied. This arrangement (a "toll conversion agreement") was embodied in two separate contracts and was carried out between March 1978 and March 1979. The 2,4,5-T that was produced with Uniroyal's TCB represents less than one percent of the more than 150 million pounds of 2,4-D and 2,4,5-T that were manufactured at the site over the course of its operation.

Vertac was the last operator of the Jacksonville site. After it abandoned the plant, the United States Environmental Protection Agency (EPA) took over the site, closed down all operations, and assumed cleanup responsibilities that have cost well over \$100 million to date.

B. Procedural History

The environmental cleanup undertaken at the site has resulted in extensive litigation over the past 20 years.³ In 1980, the EPA sued Vertac and Hercules under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6973 *et seq.*, the Clean Water Act, 33 U.S.C. § 1312 *et seq.*, and the Refuse Act, 33 U.S.C. § 407, seeking to enjoin the continuing discharge of hazardous waste at the site. The Arkansas Department of Pollution Control and Ecology (Arkansas) sought similar relief

³For an account of some of the financial disputes between various contractors involved in the cleanup efforts at the site, see Costner v. URS Consultants, Inc., 153 F.3d 667 (8th Cir. 1998).

under state law. After consolidating the cases, the district court granted a preliminary injunction ordering Vertac to stop the chemical leakage from various disposal areas but denied relief against Hercules, which was not in possession or control of the site at the time. United States v. Vertac Chemical Corp., 489 F. Supp. 870, 888 (E.D. Ark. 1980) (Vertac I). Several years later, the court approved consent decrees representing a negotiated remedial plan to address the containment and monitoring of waste. United States v. Vertac Chemical Corp., 588 F. Supp. 1294, 1296-97 (E.D. Ark. 1984) (Vertac II). The lawsuit was later converted into a CERCLA action.

Although Vertac stipulated that it was an owner and operator of the site liable to the government for response costs under CERCLA, it ultimately failed to comply with the consent decrees and eventually sold its assets to third parties, forcing the court in 1987 to appoint a receiver to handle the company's affairs. United States v. Vertac Chemical Corp., 671 F. Supp. 595, 623-24 (E.D. Ark. 1987) (Vertac III), vacated, 855 F.2d 856 (8th Cir. 1988) (table); United States v. Vertac Chemical Corp., 756 F. Supp. 1215 (E.D. Ark. 1991) (Vertac IV), aff'd, 961 F.2d 796 (8th Cir. 1992). In an effort to identify all those potentially liable for environmental harm at the site, numerous additional parties, including the United States Department of Defense, were brought into the suit.⁴ These parties filed various cross-claims, counterclaims, and third party complaints; many of the parties settled and entered into consent decrees.⁵

Beginning in 1993, the district court issued a number of decisions that are the subject of the instant appeal. On October 12, 1993, it entered an order of partial summary judgment in favor of the United States. Dist. Ct. Order at 5 (Oct. 12, 1993)

⁴The Department of Defense was found not liable. United States v. Vertac Chemical Co., 841 F. Supp. 884, 891 (E.D. Ark. 1993) (Vertac V), aff'd, 46 F.3d 803 (8th Cir. 1995) (Vertac VI).

⁵Additional parties have attempted to intervene in the Jacksonville site cleanup over the years. Arkansas Peace Ctr. v. Arkansas Dep't of Pollution Control & Ecology, 992 F.2d 145 (8th Cir. 1993).

(Vertac VII). The court found Hercules jointly and severally liable under CERCLA for the release of hazardous substances at the Jacksonville site, landfills, neighborhoods, and off-site areas, and rejected Hercules's argument that the harm at the site was divisible. The court reiterated these conclusions on November 1, 1993, and again on May 5, 1998, when it denied motions for reconsideration brought by Hercules.

The remaining claims in the case went to trial on November 3, 1993, before an advisory jury. The jury rejected Hercules's claim for response costs and contribution against Standard Chlorine of Delaware, Inc., a party not involved in this appeal. Uniroyal was found liable to the United States, Arkansas, and Hercules for remediation of wastes at the site and off-site areas. The jury also found that the harm caused by Uniroyal was divisible. Thereafter, the district court filed an opinion in which it endorsed all of the jury's findings except its conclusion regarding divisibility. United States v. Vertac Chemical Corp., 966 F. Supp. 1491, 1501-04 (E.D. Ark. 1997) (Vertac VIII).

The United States subsequently moved for summary judgment on the issue of cost recoverability, which the district court granted on October 23, 1998. The court rejected several arguments raised jointly by Hercules and Uniroyal in an attempt to establish that the EPA's response decisions were arbitrary and capricious. It declined to consider their takings and due process claims, which it characterized as illegitimate attempts to "relitigate liability." United States v. Vertac Chemical Corp., 33 F. Supp.2d 769, 785 (E.D. Ark. 1998) (Vertac IX). Accordingly, on August 6, 1999, the court entered judgments of joint and several liability against Hercules in the amount of \$100,560,491 plus interest and costs, and against Uniroyal in the amount of \$89,084,710 plus interest and costs.

Finally, on December 28, 1999, the district court addressed the issue of allocation of costs between Hercules and Uniroyal for the more than \$89 million for

which they were both jointly and severally liable.⁶ Acknowledging that “Uniroyal and Hercules are left ‘holding the bag’ for Vertac, who at least arguably caused the greatest amount of harm,” Dist. Ct. Order at 3 (Dec. 28, 1999) (Vertac X), the court determined that Hercules’s share of the response costs should be 97.4 percent and Uniroyal’s share should be 2.6 percent. Id. at 11. A judgment reflecting these conclusions was entered on February 8, 2000.

On appeal, Hercules challenges the 1993 entry of partial summary judgment and the court’s subsequent denials of its motions to reconsider. Uniroyal challenges the district court’s 1997 adoption of the advisory jury’s liability verdict but not its rejection of the divisibility verdict. Hercules and Uniroyal together appeal the 1998 recoverability order. Only Hercules appeals the 1999 allocation decision. These appeals have been consolidated.

II. CERCLA

A. Background

CERCLA authorizes the federal government to respond to any threatened or actual release of any hazardous substance that may pose an imminent and substantial public health threat. 42 U.S.C. § 9604. Cleanup decisions are guided by the National Contingency Plan (NCP), which prescribes methods for investigating health and environmental problems resulting from a release or threatened release and establishes criteria for determining the appropriate extent of response activities. 42 U.S.C. § 9605; 40 C.F.R. Part 300; In re Bell Petroleum Servs., Inc., 3 F.3d 889, 894 (5th Cir. 1993). Although response activities are initially funded by the Superfund, a multi-billion-dollar fund financed through a combination of appropriations, EPA fees, and industry taxes, 26 U.S.C. § 9507(b), CERCLA provides for the subsequent recovery of response costs

⁶The additional \$11,182,781 for which Hercules was liable was based on costs associated with the two landfills not at issue in the allocation phase.

from all parties responsible for the release of a hazardous substance. 42 U.S.C. §§ 9607, 9611.

To establish that a party is liable, CERCLA section 9607(a) requires the government to prove that there has been a release or threat of release of a hazardous substance at a “facility,” as a result of which the United States incurred response costs that were necessary and consistent with the NCP, and that the defendant falls within one of four listed categories of responsible parties. 42 U.S.C. § 9607(a); Control Data Corp. v. S.C.S.C. Corp., 53 F.3d 930, 934 (8th Cir. 1995). The categories are: (1) current owners or operators of a site at which a release or threatened release occurred; (2) owners or operators of such a site at the time of disposal of hazardous material; (3) generators who arranged for disposal at such a site; and (4) transporters of hazardous waste to such a site. Id. CERCLA liability attaches “[n]otwithstanding any other provision or rule of law, and subject only to” three narrowly defined defenses.⁷ 42 U.S.C. § 9607(a) & (b). Liability is strict and is typically joint and several. United States v. Northeastern Pharmaceutical & Chem. Co., 810 F.2d 726, 732 n.3 (8th Cir. 1986) (NEPACCO). Where multiple defendants are involved, the initial liability finding is followed by a contribution proceeding to allocate damages among responsible parties. Control Data, 53 F.3d at 934.

⁷These absolute defenses encompass (1) acts of God, (2) acts of war, and (3) acts or omissions of unrelated third parties where the defendant “establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions.” 42 U.S.C. § 9607(b).

B. Divisibility of Harm

One aspect of CERCLA that has long vexed courts is the role of causation in the statutory scheme. Id. at 935 (describing the causation element as a “problematic portion” of the CERCLA calculus). This is because, “[a]lthough the simplistic slogan ‘make the polluter pay’ may have helped propel CERCLA into law, the statutory scheme does not take a simplistic view of who is and who is not a ‘polluter.’” Westfarm Assoc. Ltd. Partnership v. Washington Suburban Sanitary Comm’n, 66 F.3d 669, 681 (4th Cir. 1995) (citation omitted). Indeed, at least at the liability stage, the language of the statute does not require the government to prove as part of its prima facie case that the defendant caused any harm to the environment. Control Data, 53 F.3d at 935. Rather, once the requisite connection between the defendant and a hazardous waste site has been established (because the defendant fits into one of the four categories of responsible parties), it is enough that response costs resulted from “a” release or threatened release—not necessarily the defendant’s release or threatened release.⁸ 42 U.S.C. § 9607(a)(4). Thus, the government need not trace or “fingerprint” a defendant’s wastes in order to recover under CERCLA. United States v. Monsanto, 858 F.2d 160, 169-70 (4th Cir. 1988). Considerations of causation explicitly enter into the statutory liability scheme only as part of the three statutory defenses not at issue in this case. Id. at 170; 42 U.S.C. § 9607(b).

⁸Although we have stated that “CERCLA focuses on whether the defendant’s release or threatened release caused harm to the plaintiff in the form of response costs,” Control Data, 53 F.3d at 935 (emphasis added), the case we cited for that proposition referred not to the defendant’s release but merely to “a” release, General Electric Company v. Litton Industrial Automation Systems, Inc., 920 F.2d 1415, 1417 (8th Cir. 1990) abrogated on other grounds, Key Tronic Corp. v. United States, 511 U.S. 809, 814, 819 (1994). The argument that the government must prove a direct causal link between the incurrence of response costs and an actual release caused by a particular defendant has been rejected by “virtually every court” that has directly considered the issue. United States v. Alcan Alum. Corp. (Alcan I), 964 F.2d 252, 264-65 (3d Cir. 1992) (citing cases); see 42 U.S.C. § 9607(a)(4).

Many courts, however, have recognized the defense of divisibility of harm, a “special exception to the absence of causation requirement” that in effect brings causation principles “back into the case – through the backdoor, after being denied entry at the front door.” United States v. Alcan Alum. Corp. (Alcan II), 990 F.2d 711, 722 (2d Cir. 1993); see United States v. Township of Brighton, 153 F.3d 307, 317-19 (6th Cir. 1998); Bell, 3 F.3d at 894-902; Alcan I, 964 F.2d at 268-69; O’Neil v. Picillo, 883 F.2d 176, 178-79 (1st Cir. 1989); Monsanto, 858 F.2d at 171-73. Although we have not been squarely presented with the question whether a divisibility defense should be allowed under CERCLA, we have expressed our approval of the doctrine on several occasions. Control Data, 53 F.3d at 934 n.4 (“Once liability is proved, all of the defendants are jointly and severally liable, unless a particular defendant can establish that his harm is divisible, a very difficult proposition.”); Interstate Power Co. v. Kansas City Power & Light Co., 992 F.2d 804, 808 (8th Cir. 1993) (remanding for liability findings and suggesting that the district court might find divisible harms); cf. United States v. Dico, Inc., 136 F.3d 572, 578-79 (8th Cir. 1998) (remanding for trial on liability because district court failed to distinguish between two geographically separate areas within single hazardous waste site).

The parties in this case do not dispute the general validity of the divisibility doctrine, and we find it to be both compatible with the text and the overall statutory scheme of CERCLA⁹ and a sensible way to avoid imposing on parties excessive liability for harm that is not fairly attributable to them. See Alcan I, 964 F.2d at 269. We thus proceed to a more detailed discussion of the doctrine.

⁹Other courts have persuasively argued, based on the legislative history surrounding CERCLA and its 1986 Superfund amendments, that the divisibility of harm doctrine is consistent with the intent of Congress that “‘traditional and evolving common law principles’ should define the scope of liability under CERCLA.” Redwing Carriers, Inc. v. Saraland Apts., 94 F.3d 1489, 1513 (11th Cir. 1996) (quoting Bell, 3 F.3d at 895); see O’Neil, 883 F.2d at 178-79; Monsanto, 858 F.2d at 171 n.23; United States v. Chem-Dyne Corp., 572 F. Supp. 802, 805-08 (S.D. Ohio 1983).

The universal starting point for divisibility of harm analyses in CERCLA cases is the Restatement (Second) of Torts, which provides for the apportionment of damages among two or more parties when at least one is able to show either (1) “distinct harms” or (2) a “reasonable basis for determining the contribution of each cause to a single harm.” Restatement (Second) of Torts § 433A (1965); see Township of Brighton, 153 F.3d at 318; Bell, 3 F.3d at 895; Chem-Dyne, 572 F. Supp. at 810. We will follow the Restatement, however, only to the extent that it is compatible with the provisions of CERCLA. See O’Neil, 883 F.2d at 179 n.4 (describing the Restatement as “one source for us to consult”). Thus, for example, although the Restatement contemplates that plaintiffs bear the burden of proving causation, in a CERCLA case, once the government has established the four essential elements of liability the burden shifts to the defendant to demonstrate, by a preponderance of the evidence, that there exists a reasonable basis for divisibility. Township of Brighton, 153 F.3d at 318; O’Neil, 883 F.2d at 182. Divisibility generally limits the scope of, but does not entirely eliminate, CERCLA liability since the doctrine is essentially a defense only to joint and several liability. Control Data, 53 F.3d at 934 n.4; Bell, 3 F.3d at 895.

We have previously observed that proving divisibility is a “very difficult proposition,” Control Data, 53 F.3d at 934 n.4, and the Restatement recognizes that some harms, “by their nature, are normally incapable of any logical, reasonable, or practical division.” Restatement (Second) of Torts § 433A cmt. to subsection (2) (1965), quoted in Bell, 3 F.3d at 896. Where this is the case, the Restatement cautions against making an “arbitrary apportionment for its own sake.” Id.; see also United States v. Colorado & Eastern R. Co., 50 F.3d 1530, 1535 (10th Cir. 1995) (noting that “the courts have been reluctant to apportion costs” and that “responsible parties rarely escape joint and several liability”); O’Neil, 883 F.2d at 183 (defendants hoping to escape joint and several liability must satisfy the “stringent burden placed on them by Congress”). When a defendant is successful in demonstrating a reasonable basis for apportionment, approaches to divisibility will vary tremendously depending on the facts and circumstances of each case. Evidence of divisibility will focus on determining the

amount of harm caused by the defendant. Bell, 3 F.3d at 903. Our description below of some of the most common approaches is by no means intended to be exhaustive, for “we know that we cannot define for all time what is a reasonable basis for divisibility and what is not.” Township of Brighton, 153 F.3d at 319.

“Distinct harms” are those that may properly be regarded as separate injuries. See Restatement (Second) of Torts § 433A (1965); Bell, 3 F.3d at 895. Defendants may be able to demonstrate that harms are distinct based on geographical considerations, such as where a site consists of “non-contiguous” areas of soil contamination, Akzo Coatings, Inc. v. Aigner Corp., 881 F. Supp. 1202, 1210 (N.D. Ind. 1994), clarified on reconsid., 909 F. Supp. 1154 (N.D. Ind. 1995), or separate and distinct subterranean “plumes” of groundwater contamination, United States v. Broderick Investment Co., 862 F. Supp. 272, 277 (D. Colo. 1994).

Other cases, by contrast, involve a “single harm” that is nonetheless divisible because it is possible to discern the degree to which different parties contributed to the damage. Id. The basis for division in such situations is that “it is clear that each [defendant] has caused a separate amount of harm, limited in time, and that neither has any responsibility for the harm caused by the other,” such as where “two defendants, independently operating the same plant, pollute a stream over successive periods of time.” Bell, 3 F.3d at 895. Single harms may also be “treated as divisible in terms of degree,” based, for example, on the relative quantities of waste discharged into the stream. Id. at 895-96. Divisibility of this type may be provable even where wastes have become cross-contaminated and commingled, for “commingling is not synonymous with indivisible harm.” Alcan II, 990 F.2d at 722; see also Bell, 3 F.3d at 903.

Evidence supporting divisibility must be concrete and specific. See United States v. Alcan Alum. Corp., 892 F. Supp. 648, 657 (M.D. Penn. 1995) (Alcan III) (rejecting divisibility argument on remand because defendant took “all or nothing

approach,” presenting no new evidence beyond what court of appeals had already considered), aff’d, 96 F.3d 1434 (3d Cir. 1996) (table). The preliminary issue of whether the harm to the environment is capable of apportionment among two or more causes is a question of law. Bell, 3 F.3d at 902. Then, “[o]nce it has been determined that the harm is capable of being apportioned among the various causes of it, the actual apportionment of damages is a question of fact.” Id. at 896.

We also observe that the divisibility doctrine is conceptually distinct from contribution or allocation of damages. See Redwing, 94 F.3d at 1513. At the allocation phase, the only question is the extent to which a defendant’s liability may be offset by the liability of another; the inquiry at this stage is an equitable one and courts generally take into account the so-called “Gore factors.” See 42 U.S.C. § 9613(f) (providing that a court “may allocate response costs among liable parties using such equitable factors as the court determines are appropriate”); Township of Brighton, 153 F.3d at 318; Control Data, 53 F.3d at 935. The divisibility of harm inquiry, by contrast, is guided not by equity—specifically, not by the Gore factors—but by principles of causation alone. United States v. Rohm & Haas Co., 2 F.3d 1265, 1280-81 (3d Cir. 1993). Thus, where causation is unclear, divisibility is not an opportunity for courts to “split the difference” in an attempt to achieve equity.¹⁰ Township of Brighton, 153 F.3d at 319. Rather, “[i]f they are in doubt, district courts should not settle on a compromise amount that they think best approximates the relative responsibility of the parties.” Id. In such circumstances, courts lacking a reasonable basis for dividing causation should avoid apportionment altogether by imposing joint and several liability. Id.

¹⁰Accordingly, we reject any suggestion that the financial condition of the parties should play a role in a CERCLA divisibility analysis. But see Bell, 3 F.3d at 896 (noting that the Restatement allows courts to consider insolvency); id. at 902 n.13 (“[T]here may be exceptional cases in which it would be unjust to impose several liability, such as when one of the defendants is so hopelessly insolvent that the plaintiff will be unable to recover any damages from it.”).

III. ANALYSIS

A. Hercules

Hercules challenges the district court's imposition of joint and several liability, raising various divisibility arguments that are specific to certain areas of the site, off-site areas, neighborhoods, and landfills. In some of these arguments Hercules urges us to reverse outright the entry of summary judgment against it and instruct the district court to deduct from the final judgment all response costs pertinent to the area at issue; in others it asks us to hold simply that there is a reasonable basis for divisibility and remand to the district court to apportion the harm. We review the district court's October, 1993, summary judgment decision (Vertac VII) de novo, viewing the evidence in the light most favorable to the nonmoving party. Dico, 136 F.3d at 578. We will affirm only if we conclude that there are no genuine issues of material fact and that the United States is entitled to judgment as a matter of law. United States v. Findett Corp., 220 F.3d 842, 845 (8th Cir. 2000); Fed. R. Civ. P. 56.

We believe that the district court's analysis of Hercules's divisibility arguments reflects a fundamental misunderstanding of the doctrine of divisibility. These legal errors clouded the court's view of the evidence supporting divisibility. For example, when the district court discussed divisibility in Vertac VII, it did so in summary fashion, stating merely that "Hercules has not set forth any facts establishing that the harm is clearly divisible, or that Hercules' waste did not, or could not, contribute to the release and the resulting response costs at the site." Vertac VII, Dist. Ct. Order at 4 (Oct. 12, 1993). The proper standard for determining divisibility, however, is that the defendant show either distinct harms or a "reasonable basis" for apportioning causation for a single harm. Restatement (Second) of Torts § 433A (1965). A defendant need not prove that its "waste did not, or could not, contribute" to any of the harm at a CERCLA site in order to establish divisibility, because it is also possible to prove divisibility of single harms based on volumetric, chronological, or other types of evidence. Bell, 3 F.3d at 895-96. A site may also be divisible if a defendant can

establish that it consists of “non-contiguous” areas of contamination. Akzo, 881 F. Supp. at 1210; Broderick, 862 F. Supp. at 277.

Accordingly, we reverse the summary judgment against Hercules on the issue of liability (Vertac VII) and remand so that the district court can address the evidence supporting divisibility in light of the proper legal standards. In so holding, we reject the EPA’s suggestion that evidence adduced subsequent to summary judgment—specifically, evidence presented against Uniroyal at the 1993 liability trial and evidence from the 1998 allocation trial—incontrovertibly demonstrates that Hercules cannot prevail on any of its divisibility arguments. By the same token, we deny Hercules’s request that we reverse the district court’s decision outright and hold that certain harms were divisible, for we conclude that the question of divisibility is one to be determined in the first instance by the district court.

B. Uniroyal

Uniroyal challenges the district court’s conclusion that it fits within one of CERCLA’s four categories of responsible parties—namely, that it is liable as an “arranger” under 42 U.S.C. § 9607(a)(3). Uniroyal does not contest the other three relevant statutory elements of CERCLA liability. We review the district court’s factual findings for clear error and its legal conclusions de novo. Consolidated Electrical & Mechanicals, Inc. v. Biggs General Contracting, Inc., 167 F.3d 432, 434 (8th Cir. 1999).

In Vertac VIII, the district court noted that we have “given a liberal interpretation to ‘arranger liability.’” Vertac VIII, 966 F. Supp. at 1501. The court made this observation in light of our decision in United States v. Aceto Agricultural Chemicals Corp., 872 F.2d 1373 (8th Cir. 1989), in which we declined to dismiss a CERCLA complaint alleging that a number of pesticide manufacturers were liable for supplying to a formulator materials used to create a final product where (1) the

suppliers retained an ownership interest in the materials throughout the formulation process as well as in the finished product, (2) the generation of wastes was inherent in the formulation process, and (3) wastes were in fact generated and disposed. Id. at 1378-82. In Vertac VIII, 966 F. Supp. at 1501, the district court found that Uniroyal's toll conversion agreement to supply TCB to Vertac for formulation into 2,4,5-T closely tracked the legal standards set forth in Aceto, and on appeal the EPA argues that this case is "nearly identical" to Aceto. We agree.

Uniroyal first contends that the district court erred as a matter of law by focusing its analysis on ownership, and not on the authority to control the production and disposal process. Uniroyal argues that in Aceto, a case that considered no actual facts but only the prima facie validity of a complaint, ownership was deemed significant only insofar as it gave rise to a permissible inference of authority to control. Here, by contrast, Uniroyal suggests that the district court erroneously elevated mere ownership to the level of a sufficient basis for finding arranger liability. We conclude that this argument fails.

Although we stated in Aceto that "it may be reasonably inferred that [defendants] had the authority to control the way in which the pesticides were formulated," id. at 1383, this observation came as part of our discussion of RCRA and was not necessary to our prior conclusion that the complaint stated a valid claim under CERCLA. Indeed, in the portion of Aceto that discussed CERCLA, we specifically rejected the defendants' contention that control is required in every circumstance. To support their argument, the defendants in Aceto quoted NEPACCO, 810 F.2d at 743, for the proposition that they should "escape liability because they had no authority to control" the formulation and disposal process. Aceto, 872 F.2d at 1381-82. We distinguished NEPACCO by observing that a finding of control had been necessary in that case only because ownership was lacking. Id. at 1382. The Aceto defendants, however, unlike those in NEPACCO, "actually owned the hazardous substances, as well as the work in process," id., and thus an arguable absence of control did not mandate dismissal of

the complaint. Control, therefore, is not a necessary factor in every case of arranger liability. See also United States v. TIC Investment Corp., 68 F.3d 1082, 1087-88 (8th Cir. 1995) (holding that a finding of arranger liability requires either control over, or “some level of participation in,” activities related to the arrangement of hazardous waste disposal).

Uniroyal also challenges the district court’s factual finding that Uniroyal “retained an ownership interest in its material during the processing stage” and “owned the 2,4,5-T that was returned.” Vertac VIII, 966 F. Supp. at 1501. In reaching this determination, the district court relied heavily on the fact that Uniroyal, which purchased its TCB in Europe, imported it into the United States under a temporary import bond to avoid the payment of taxes and duties. Id. at 1498-99. Under the terms of the bond, the Customs Office required, throughout the toll agreement transaction, that Uniroyal maintain ownership of the TCB. Uniroyal agreed to have the TCB processed into 2,4,5-T for shipment to Canada within one year. Id. That Uniroyal’s interactions with Vertac in fact met these demands is supported by a 1982 letter that was sent by a Uniroyal attorney to the Customs Commissioner as part of a dispute over the bond requirements.

On appeal, however, Uniroyal argues that the terms of the temporary import bond cannot change the “real character” of its interaction with Vertac, which it describes as having involved so much intermingling of materials that Uniroyal could not have owned either the “work in process” or the finished product throughout the entire transaction. To bolster its position, Uniroyal points to the testimony of Robert Ellis, Vertac’s controller of the Jacksonville plant, in which Ellis explained that Uniroyal’s supply arrangement with Vertac differed from typical toll conversion agreements in several respects. Ellis testified, for example, that TCB was only one ingredient out of a total of seven materials required to produce 2,4,5-T (albeit “the key ingredient,” Vertac VIII, 966 F. Supp. at 1498), and that many of the bookkeeping practices of

Vertac and Uniroyal during the agreement period were compatible with the view that Vertac owned the TCB throughout the formulation process.

Although we find the ownership issue to be debatable, the evidence in favor of Uniroyal's position is not strong enough to convince us that the district court's resolution of this factual dispute is clearly erroneous—a conclusion that demands a definite and firm conviction on our part that a mistake has been made. Consolidated Electrical, 167 F.3d at 434. In deciding questions of arranger liability, we do not rely on bright-line rules but look to the totality of the circumstances to determine whether the facts of a given case fit within CERCLA's "overwhelmingly remedial scheme." NEPACCO, 810 F.2d at 733, quoted in Aceto, 872 F.2d at 1380; see TIC Investment, 68 F.3d at 1090 (totality of the circumstances). Even were we to conclude that, on balance, Uniroyal and Vertac intended the supply of TCB to be technically considered a "sale," we have "not hesitated to look beyond defendants' characterizations to determine whether a transaction in fact involves an arrangement for the disposal of a hazardous substance." Aceto, 872 F.2d at 1381. Here, where Uniroyal provided Vertac with the main ingredient necessary for the production of 2,4,5-T during a period of financial difficulty for Vertac, and was not charged for the TCB until the relevant amount was offset against its final purchase price, we see no basis to reverse the district court's finding that Uniroyal owned the material throughout the transaction and thus qualified as an "arranger" under CERCLA. Accordingly, we affirm the judgment of liability against Uniroyal (Vertac VIII).

C. Other Arguments

Because we remand the case on the antecedent issue of liability, we decline to address questions related to recoverability or contribution, nor do we address Hercules's constitutional arguments. See Int'l Assoc. of Firefighters, Local No. 3808 v. Kansas City, 220 F.3d 969, 975 (8th Cir. 2000).

Uniroyal also presents takings and due process challenges to the retroactive application of CERCLA in this case. It argues, relying on Eastern Enterprises v. Apfel, 524 U.S. 498 (1998), that the imposition of liability in this instance is unconstitutional because the liability could not be anticipated and because it is substantially disproportionate to Uniroyal's conduct related to the pollution at the site and in the surrounding areas. We decline to address these arguments for two reasons.

First, we believe that Uniroyal's constitutional arguments are not ripe for our consideration. Without addressing the merits of Uniroyal's claims, we observe that it essentially presents an as-applied constitutional challenge to CERCLA. Because we are vacating the recoverability and contribution judgments, however, there exists no final judgment of liability against Uniroyal. This determination will be made by the district court on remand. Because we can only speculate as to what conclusions the district court may reach, it would be premature for us to address the question of whether Uniroyal's liability is unconstitutionally disproportionate to its underlying conduct. See Babbitt v. United Farm Workers Nat'l Union, 442 U.S. 289, 298 (1979) (citation omitted) (federal courts should not address hypothetical or abstract disputes).

Second, we observe that Uniroyal presents only skeletal constitutional arguments of its own while purporting to incorporate and adopt Hercules's more thorough constitutional analysis. We note, however, that an inquiry into the constitutionality of CERCLA in this case would be "essentially ad hoc and fact intensive." See Eastern Enterprises, 524 U.S. at 523 (1998) (plurality opinion). Because the record indicates that Hercules's potential liability in this case is predicated on facts materially different from those underlying Uniroyal's liability, and because the ultimate liability of both Hercules and Uniroyal remains unknown, we conclude that Uniroyal has not adequately briefed the complexities involved in its constitutional challenge to CERCLA.

IV. Conclusion

The summary judgment against Hercules on the issue of liability (Vertac VII) is reversed. On remand, the district court should address Hercules's divisibility arguments. The judgment of liability against Uniroyal (Vertac VIII) is affirmed. The judgments of recoverability (Vertac IX) and contribution (Vertac X) are vacated; these issues should be revisited by the district court following further proceedings consistent with this opinion. All pending motions to strike are denied.

A true copy.

Attest:

CLERK, U.S. COURT OF APPEALS, EIGHTH CIRCUIT.