

PRECEDENTIAL

UNITED STATES COURT OF APPEALS  
FOR THE THIRD CIRCUIT

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Nos. 03-2760/3037/3585

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INTERFAITH COMMUNITY ORGANIZATION;  
LAWRENCE BAKER; MARTHA WEBB HERRING;  
MARGARET WEBB;  
REV. WINSTON CLARKE; MARGARITA NAVAS,

v.

HONEYWELL INTERNATIONAL, INC. formerly known as  
ALLIEDSIGNAL, INC.; RONE REALTY OF JERSEY CITY,  
INC.; RONE REALTY OF UNION CITY, INC; W.R.  
GRACE & COMPANY; ECARG, INC; W.R. GRACE, LTD.

W.R. GRACE & COMPANY; ECARG, INC; W.R. GRACE,  
LTD.,  
Defendants/Third-Party Plaintiffs

v.

HELLER-JERSEY CITY, L.L.C.; HOME DEPOT, U.S.A.;  
SEAMAN FURNITURE COMPANY, INC.  
Third Party Defendants (U.S.D.C. of  
New Jersey (Newark): 95-cv-02097)

HACKENSACK RIVERKEEPER, INC.; WILLIAM  
SHEEHAN

v.

HONEYWELL INTERNATIONAL, INC. formerly known as  
ALLIEDSIGNAL, INC; RONE REALTY OF JERSEY CITY,  
INC.; RONE REALTY OF UNION CITY, INC.;  
W.R. GRACE, LTD.

(U.S.D.C. of New Jersey (Newark):  
00-cv-01451)

Honeywell International, Inc.,  
Appellant

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On Appeal from the United States District Court  
for the District of New Jersey  
(D.C. Nos. 95-cv-02097 and 00-cv-1451)  
District Judge: Honorable Dennis M. Cavanaugh

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Argued December 14, 2004  
Before: AMBRO, VAN ANTWERPEN, and STAPLETON,  
Circuit Judges.

(Filed: February 18, 2005)

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OPINION OF THE COURT

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VAN ANTWERPEN, Circuit Judge.

Appellant Honeywell International, Inc. challenges an injunction entered against it after the District Court found it had violated the citizen suit provision of the Resource Conservation and Recovery Act, (“RCRA”), 42 U.S.C. § 6972(a)(1)(B). The District Court had jurisdiction over this claim pursuant to 42 U.S.C. § 6972. We have jurisdiction over Honeywell’s consolidated appeals pursuant to 28 U.S.C. § 1291 and will affirm.

## *I. Background Facts*

Starting in 1895, Mutual Chemical Company of America (“Mutual”), later the largest chrome manufacturer in the world, operated a chromate chemical plant in Jersey City, New Jersey. Its process resulted in a waste residue that had a high pH and high concentrations of hexavalent chromium. Mutual piled this waste at a tidal wetlands site along the Hackensack River. The piling of the waste created a land-mass (the “Site”) which is the subject of this appeal. The Site consists of some 1,500,000 tons of the waste, 15 to 20 feet deep, on some 34 acres. The Site’s high pH prevents the hexavalent chromium from reducing naturally to its less-toxic trivalent form, and enhances its ability to leach freely into surface water and groundwater. The hexavalent chromium is highly soluble, a known carcinogen to humans, and toxic to the environment.<sup>1</sup>

Mutual continued dumping until 1954, when it was succeeded by the Allied Corporation, in turn succeeded by AlliedSignal, Inc., and then Honeywell. The site was never cleaned up.

The State of New Jersey first sought a permanent remedy for the Site in 1982, about the time a “green stream” and “yellowish-green plumes” were observed in surface water on the Site. In 1983, a Honeywell official described it as an “extremely contaminated site, visible to the naked eye” with “yellow water . . . draining into the Hackensack River,” and concluded “there’s something terribly not right with the site.” Honeywell did not act, however, until seven years later, about two years after NJDEP had ordered it to do so. The result was not a permanent remedy but rather an “interim” measure consisting of poured concrete and asphalt over 17 acres of the Site and a plastic liner

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<sup>1</sup> As the District Court found, the United States Environmental Protection Agency (“EPA”) classifies hexavalent chromium in the first quartile of known human carcinogens, more potent than arsenic, benzene, and PCBs. It is toxic not only to humans, but also animals and lower life forms, including benthic organisms. The New Jersey Department of Environmental Protection (“NJDEP”) has made similar determinations.

“cap” over the remaining 17 acres.<sup>2</sup> This was intended to last only five years while a permanent remedy was to be studied and implemented. Honeywell had told NJDEP that the interim measure would not prevent all discharges, even assuming proper maintenance; in any event, as the District Court found, and as we discuss *infra*, the interim measure was constantly in need of repair, having succumbed to, among other things, a phenomenon called “heaving” caused by the waste.<sup>3</sup>

In a 1993 consent order arising from litigation over the Site, AlliedSignal promised \$60 million towards a permanent containment solution and NJDEP reserved the right to compel a full cleanup at higher cost. The order also stated that the permanent remedy would be put in place through the NJDEP’s usual process, which was to: (I) delineate, or identify, all of the conditions needing remedy; (ii) analyze remedial alternatives and select a remedy; and (iii) take “remedial action.” The District Court found, and the record shows, that these steps were not taken or completed.

In 1995, a local community organization, Interfaith Community Organization (“ICO”), and five individual plaintiffs sued Honeywell’s predecessor AlliedSignal and the then-owners of the Site under the citizen suit provision of RCRA, § 6972(a)(1)(B), alleging the Site “may present an imminent and substantial endangerment to health or the environment.” At the conclusion of a two-week bench trial, the District Court found for plaintiffs and enjoined Honeywell to clean up the Site through excavation of the contamination.<sup>4</sup>

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<sup>2</sup> A chain-link fence was also placed around the Site.

<sup>3</sup> As we discuss *infra*, the District Court found and the record shows that chromium waste at the Site is literally “heaving” the ground vertically and horizontally, without warning, causing peaks and valleys of two feet or more in the interim measure “cap,” compromising it. The heaving has also caused the structural failure of at least one building.

<sup>4</sup> Honeywell has filed a post-trial motion pursuant to Fed. R. Civ. P. 60(b) for relief from the judgment asserting it has since (a) abated the endangerment by adding additional interim measures; and (b) acquired ownership of all but one acre of the property.

## **II. Standards of Review**

Honeywell challenges plaintiffs' standing, the District Court's imminent and substantial endangerment determination, and the District Court's remedial injunction. We review legal conclusions of standing *de novo*, see *Public Interest Research Group of New Jersey v. Magnesium Elektron, Inc.*, 123 F.3d 111, 119 (3d Cir. 1997), and the underlying factual determinations for clear error. See *Gen. Instrument Corp. v. Nu-Tek Electronics & Mfg., Inc.*, 197 F.3d 83, 86 (3d Cir. 1999). The injunction is reviewed for an abuse of discretion, which requires a showing that the District Court's ruling "rests upon a clearly erroneous finding of fact, an errant conclusion of law, or an improper application of law to fact." *Ameristeel Corp. v. Int'l. Bhd. of Teamsters*, 267 F.3d 264, 267 (3d Cir. 2001); see also *Cooter & Gell v. Hartmax Corp.*, 496 U.S. 384, 402 (1990).

We have not previously determined the standard of review for RCRA endangerment determinations. Other courts of appeals consider it a question of fact. See *Parker v. Scrap Metal Processors, Inc.* 386 F.3d 993, 1014-15 (11th Cir. 2004) (reviewing jury's RCRA endangerment finding for sufficiency of the evidence); *Cox v. City of Dallas*, 256 F.3d 281, 300-01 (5th Cir. 2001) (concluding district court "did not clearly err" in finding RCRA endangerment); *Dague v. City of Burlington*, 935 F.2d 1343, 1355-56 (2d Cir. 1991) (concluding district court's endangerment "finding" was not error), *rev'd on other grounds*, 505 U.S. 557 (1992). We will accordingly not disturb the determination here absent clear error. Clear error exists "only if [a finding] is completely devoid of a credible evidentiary basis or bears no rational relationship to the supporting data." *Shire U.S., Inc. v. Barr Labs., Inc.*, 329 F.3d 348, 352 (3d Cir. 2003); see also *United States v. U.S. Gypsum Co.*, 333 U.S. 364, 395 (1948) (reviewing court, on the entire evidence, must be left with the definite conviction that a mistake has occurred). "This standard plainly does not entitle a reviewing court to reverse the finding of the trier of fact simply because it is convinced that it would have decided the case differently." *Anderson v. City of Bessemer*, 470 U.S. 564, 573 (1985). As long as the District Court's account of the evidence is "plausible in light of the record," we may not reverse even if convinced that we "would

have weighed the evidence differently.” *Id.* at 574. Additionally, where findings of fact are based on live testimony, “due regard shall be given to the opportunity of the trial court to judge the credibility of the witnesses.” Fed. R. Civ. P. 52(a).

### ***III. Analysis***

#### ***A. Standing***

Honeywell first challenges plaintiffs’ standing. The Constitution, Art. III, § 2, limits the federal judicial power to the resolution of “cases and controversies.” *McConnell v. Federal Election Com’n*, 540 U.S. 93, 225 (2003); *Friends of Earth, Inc. v. Laidlaw Envtl. Services (TOC), Inc.*, 528 U.S. 167, 180 (2000). One element of the case-or-controversy requirement is that plaintiffs must establish that they have standing to sue. *McConnell*, 540 U.S. at 225. “Standing is a threshold jurisdictional requirement,” *Magnesium Elektron*, 123 F.3d at 117, and we have an obligation to examine our own jurisdiction and that of the district courts. *Id.*; see also *FW/PBS Inc. v. City of Dallas*, 493 U.S. 215, 230-31 (1990). As such, “[p]laintiffs must have standing at all stages of the litigation . . . and they bear the burden of proving it.” *Magnesium Elektron*, 123 F.3d at 117.

Three requirements constitute the “irreducible constitutional minimum” of standing. *McConnell*, 540 U.S. at 225 (internal quotation omitted). First, a plaintiff must demonstrate an “injury in fact” that is “concrete,” “distinct and palpable,” and “actual or imminent.” *Id.* (internal quotations omitted); *Laidlaw*, 528 U.S. at 180. It must be “an invasion of a concrete and particularized legally protected interest,” *id.* at 227 (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992)), and may not be either “conjectural or hypothetical,” *Laidlaw*, 528 U.S. at 180, or “too remote temporally.” *McConnell*, 540 U.S. at 226 (internal quotation omitted). That said, “an identifiable trifle is enough.” *United States v. Students Challenging Recruiting Agency Procedures*, 412 U.S. 669, 689 n. 14 (1973); see also *Gen. Instrument Corp.*, 197 F.3d at 87 (same); *Pub. Interest Research Group of N.J., Inc. v. Powell Duffryn Terminals, Inc.*, 913 F.2d 64, 71 (3d Cir. 1990) (same).

Second, a plaintiff must demonstrate “a causal connection between the injury and the conduct complained of – the injury has to be ‘fairly trace[able] to the challenged action of the defendant, and not . . . th[e] result [of] some third party not before the court.” *McConnell*, 540 U.S. at 225 (internal quotations and citations omitted). Third, a plaintiff must show the “substantial likelihood that the requested relief will remedy the alleged injury in fact.” *Id.* at 225-26 (internal quotation omitted). It must be “likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision.” *Laidlaw*, 528 U.S. at 181. Thus, “[a]lthough standing in no way depends on the merits of the plaintiff’s contention that particular conduct is illegal, . . . it often turns on the nature and source of the claim asserted.” *McConnell*, 540 U.S. at 227 (internal quotations omitted).

### ***1. Standing of Individual Plaintiffs***

*Laidlaw*, the Supreme Court’s most recent explication of the injury-in-fact requirement in litigation arising under the federal environmental laws, instructs that courts may not “raise the standing hurdle higher than the necessary showing for success on the merits in an action.” *Laidlaw*, 528 U.S. at 181. The action in *Laidlaw* arose under the citizen suit provision of the Clean Water Act, which authorizes federal district courts to entertain suits initiated by “a person . . . having an interest which is or may be adversely affected.” *Id.* at 173; 33 U.S.C. §§ 1365(a), (g).

In *Laidlaw*, one plaintiff averred, *inter alia*, that he would like to “camp” and “picnic . . . near” the river at issue, “but would not do so because he was concerned that the water was polluted by [defendant’s] discharges.” *Laidlaw*, 528 U.S. 181-82. Another plaintiff averred, *inter alia*, that she had previously “picnicked, walked” and “birdwatched . . . along” the river at issue and that she “no longer engaged in these activities because she was concerned about harmful effects from discharged pollutants.” *Id.* at 182. The Court held that such statements “adequately documented injury in fact” because they



averred “use of the affected area” and because they were “persons ‘for whom the aesthetic and recreational values of the area will be lessened’ by the challenged activity.” *Id.* at 183 (quoting *Sierra Club v. Morton*, 405 U.S. 727, 735 (1972)). The Court distinguished its decision in *Lujan v. National Wildlife Federation*, 497 U.S. 871 (1990), in which it had declined to find standing upon “‘averments which state only that one of [the organization’s] members uses unspecified portions of an immense tract of territory . . . .’” *Id.* at 183 (quoting *Lujan*, 497 U.S. at 889). Further, the Court explained,

[T]he affiants’ conditional statements . . . [cannot] be equated with the speculative “‘some day’ intentions” to visit endangered species half-way around the world that we held insufficient to show injury in fact in *Defenders of Wildlife* [, 504 U.S. at 564] . . . .

[W]e see nothing “improbable” about the proposition that a company’s continuous and pervasive illegal discharges of pollutants into a river would cause nearby residents to curtail their recreational use of that waterway and would subject them to other economic and aesthetic harms. The proposition is entirely reasonable, the District Court found it was true in this case, and that is enough for injury in fact.

*Id.* at 184-85. Under *Laidlaw*, the individual Plaintiffs’ averments here are sufficient to establish injury-in-fact. One plaintiff averred, *inter alia*, that she has lived all of her life less than a quarter mile from the Site; that “I continue to be concerned about the risk to my health and the health of my son that may continue to be caused by exposure to waste from the adjacent [Site] when we pass by [it] and shop at the [supermarket one block from the Site]”; that the Hackensack River runs less than a quarter mile behind her home; that “[w]hen I was younger, I used to walk by the river on my way to events at Roosevelt Stadium”; that “[w]hen my sons were younger, they used to fish in the river”; that the “river is now dirty and contaminated with chromium and other pollutants”; that “[b]ecause of this pollution, I will no longer walk near or

use the river and my sons will no longer fish in the river”; and that “[i]f the river were cleaner, I would walk next to the river and my sons would fish in it.” She reaffirmed these statements in deposition testimony.

A second plaintiff averred, *inter alia*, that since 1991 she has also lived less than a quarter mile from the Site; that “I am concerned about the risk to my health and the health of my husband that may be caused by our exposure to chromium-bearing waste from the [Site] both at our home and when we pass by the Site and shop [a block from the Site]”; that the Hackensack River runs less than a quarter mile behind her home; that “I walk or bike by the river with my children almost every day when the weather is warm”; that “[t]he river is dirty and contaminated with other pollutants, which detracts from my enjoyment of the river”; and that “[i]f the river were cleaner, I would enjoy recreating near the river more.” This plaintiff also reaffirmed these statements in her deposition.

Another plaintiff averred, *inter alia*, that he too lives less than a quarter mile from the Site; that “I am concerned about the risk to my health and the health of my family that may be caused by our exposure to chromium-bearing waste from the [Site] both at our home and when we pass by the site and shop at the [supermarket one block from the Site]”; that the Hackensack River flows less than a quarter mile behind his home; that “[t]he river is dirty and I understand it to be contaminated with chromium wastes, among other pollutants;” that “I avoid going near the river, because it is unpleasant to look at and because I am afraid that it may be harmful to my health”; and that “if the river were cleaner, I would enjoy walking near it.” This plaintiff also reaffirmed these statements in deposition testimony.

A fourth plaintiff averred, *inter alia*, that for fifty years he has lived about two miles from the Site; that he must use “Jersey City Incinerator Authority gas pumps once or twice a month” located “adjacent to the [Site]”; and that he is “concerned about the risk to my health . . . that may continue to be caused by exposure to waste at the [Site] when I go to the Jersey City Incinerator Authority gas pumps.” In his deposition, he too reaffirmed his statements.

These sworn statements, found in the individual plaintiffs' affidavits and deposition testimony, were record evidence from which the District Court made numerous findings that are neither clearly erroneous nor challenged by Honeywell on appeal. Honeywell argues instead that the statements held sufficient in *Laidlaw* averred direct use of an area, e.g., "swim[ing] . . . in" and "wad[ing] . . . in" a river, *Laidlaw*, 528 U.S. 181-82, whereas here the averments speak only to recreating "near," "next to," and "along" the river adjacent to Honeywell's Site. Honeywell contends they are thus insufficiently direct to be legally cognizable concerns about whether Honeywell's contamination "may" present an endangerment to human health or to the environment.

The argument is unpersuasive, as such indirect averments may be found in *Laidlaw* itself. *See id.* at 181-82 (summarizing averments of, *inter alia*, camping, picnicking, and walking near a river). More fundamentally, Honeywell's argument neglects *McConnell*'s observation that "standing . . . often turns on the nature and source of the claim asserted," 540 U.S. at 227, as well as *Laidlaw*'s instruction that we may not "raise the standing hurdle higher than the necessary showing for success on the merits" under the governing statutory provision. *Id.* at 181. Here, the action arose under a provision of RCRA authorizing suits initiated by "any person . . . against any person . . . who [possesses a statutorily defined nexus to waste that] *may* present an imminent and substantial endangerment to health *or* the environment." § 6972(a)(1)(B) (emphasis added). The individual Plaintiffs, in establishing injury-in-fact, have shown sufficiently direct and present concerns, neither general nor unreasonable, that constitute a legally cognizable injury as recognized by § 6972(a)(1)(B). *See Laidlaw*, 528 U.S. at 181-84; *see also Friends of the Earth v. Gaston Copper Recycling*, 204 F.3d 149, 160 (4th Cir. 2000) ("The Supreme Court has consistently recognized that threatened rather than actual injury can satisfy Article III standing requirements . . . Threats or increased risk thus constitutes cognizable harm.") (collecting cases).

Having found an injury-in-fact, Honeywell's arguments as to traceability and redressability do not detain us long.

Plaintiffs have shown that their legally cognizable injuries under § 6972(a)(1)(B) relate directly to Honeywell’s Site, and the “fairly traceable” requirement “does not mean that plaintiffs must show to a scientific certainty that defendant’s [actions], and defendant’s [actions] alone, caused the precise harm suffered by plaintiffs . . . . The fairly traceable requirement . . . is not equivalent to a requirement of tort causation.” *Powell Duffryn*, 913 F.2d at 72. Plaintiffs have also established that injunctive relief will permanently end the endangerments arising from Honeywell’s Site as found to exist at trial; at a minimum, the relief will materially reduce their reasonable concerns about those endangerments. *See id.* at 73 (where areas polluted by multiple sources, citizens “need not show that [an area] will be returned to pristine condition”). As the connection between the legally cognizable injury and Honeywell’s site was established, *McConnell*, 124 S. Ct. at 707, and as there is more than a substantial likelihood that the relief will remedy that injury, *id.*, the individual plaintiffs have established standing.

## ***2. Associational Standing of ICO***

As the Supreme Court confirmed in *Laidlaw*:

An association has standing to bring suit on behalf of its members when its members would otherwise have standing to sue in their own right, the interests at stake are germane to the organization’s purpose, and neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.

528 U.S. at 181 (citing *Hunt v. Wash. State Apple Adver. Comm’n*, 432 U.S. 333, 343 (1977)). We have found that the individual plaintiffs have standing, and Honeywell does not challenge the District Court’s membership findings. The interests at stake in this litigation are germane to ICO’s purpose, which the District Court found to be, *inter alia*, the improvement of the quality of life in Hudson County, New Jersey, where all of the individual plaintiffs live and the Site is located. Finally, neither the claim asserted nor the injunctive relief sought requires the participation of the individual members of ICO.

Accordingly, ICO has established associational standing.

***B. Imminent and Substantial Endangerment***

***1. Legal Standard***

Honeywell contends it did not violate § 6972(a)(1)(B). As we have already noted, a person may bring suit under this provision

against any person . . . who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.

42 U.S.C. § 6972(a)(1)(B). This provision explicitly allows the consideration of environmental or health effects arising from waste and authorizes suit any time there may be a present threat – an imminent and substantial endangerment – to health or the environment. *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 485 (1996). To prevail under § 6972(a)(1)(B), a plaintiff must prove:

(1) that the defendant is a person, including, but not limited to, one who was or is a generator or transporter of solid or hazardous waste or one who was or is an owner or operator of a solid or hazardous waste treatment, storage, or disposal facility; (2) that the defendant has contributed to or is contributing to the handling, storage, treatment, transportation, or disposal of solid or hazardous waste; and (3) that the solid or hazardous waste may present an imminent and substantial endangerment to health or the environment.

*Parker*, 386 F.3d at 1014-15 (quoting *Cox*, 256 F.3d at 292); 42 U.S.C. § 6972(a)(1)(B). Because Honeywell concedes that it is legally responsible for the Site and that chromium is both a solid and a hazardous waste under RCRA, the only remaining issue is

whether it “may present an imminent and substantial endangerment to health or the environment.” *Id.* The meaning of this statutory language has been summarized as follows:

The operative word . . . [is] “may” . . . .  
[P]laintiffs need only demonstrate that the waste . . .  
. “may present” an imminent and substantial threat  
. . . . Similarly, the term “endangerment” means a  
threatened or potential harm, and does not require  
proof of actual harm . . . . The endangerment must  
also be “imminent” [meaning] threatens to occur  
immediately . . . . Because the operative word is  
“may,” however, the plaintiffs must [only] show  
that there is a potential for an imminent threat of  
serious harm . . . [as] an endangerment is  
substantial if it is “serious” . . . to the environment  
or health.

*Parker*, 386 F.3d at 1015 (internal quotations and citations omitted); *Cox*, 256 F.3d at 299-300; *see also United States v. Price*, 688 F.2d 204, 213-14 (3d Cir. 1982) (concluding § 6972(a)(1)(B) contains “expansive language” conferring upon the courts the authority to grant affirmative equitable relief to the extent necessary to eliminate any risk posed by toxic wastes”).

This approach, we believe, is most faithful to the statutory language, especially as to the word “substantial.” *See, e.g., United States v. Union Corp.*, 259 F. Supp. 2d 356, 399-400 (E.D. Pa. 2003) (observing that RCRA’s “substantial” requirement ““does not require quantification of the endangerment (*e.g.*, proof that a certain number of persons will be exposed . . . or that a water supply will be contaminated to a specific degree)’”) (quoting *United States v. Conservation Chemical Co.*, 619 F. Supp. 162, 194 (W.D. Mo. 1985)). For the reasons we discuss *infra*, we believe that decisions such as *Parker*, *Cox*, *Union Corp.*, and *Conservation Chemical* define “substantial” in a manner consistent with the statutory language, the legislative history, and the plain meaning of that word. *See, e.g., Cox*, 256 F.3d at 300 (stating that “an endangerment is ‘substantial’ if it is ‘serious’”); *Union Corp.*, 259 F. Supp. 2d at

400 (stating that a RCRA “endangerment is substantial if there is some reasonable cause for concern that someone or something may be exposed to a risk of harm . . . if remedial action is not taken.”) (internal quotation omitted). We do not disagree that, given RCRA’s language and purpose, Congress must have intended that “if an error is to be made in applying the endangerment standard, the error must be made in favor of protecting public health, welfare and the environment.” *Conservation Chemical*, 619 F. Supp. at 194.

Here, the District Court added four additional requirements to the endangerment showing. These held plaintiffs to a higher than needed showing for success on the merits under § 6972(a)(1)(B). The additional requirements were as follows:

[A] site “may present an imminent and substantial endangerment” within the meaning of RCRA where: (1) there is a potential population at risk; (2) the contaminant at issue is a RCRA “solid” or “hazardous waste”; (3) the contaminant is present at levels above that considered acceptable by the state; and (4) there is a pathway for current and/or future exposure.

263 F. Supp. 2d at 838.

At least two of these requirements are irreconcilable with § 6972(a)(1)(B).<sup>5</sup> The first requirement requires a “population,” but § 6972(a)(1)(B)’s disjunctive phrasing, “*or* environment,” means a living population is not required for success on the merits, as we discuss *infra*. The third requirement, apparently intended by the District Court to give quantitative meaning to the word “substantial” in § 6972(a)(1)(B), is similarly without support. The word “substantial” is not defined by the statute or its legislative history. Turning to a dictionary, we find that

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<sup>5</sup> The second requirement is superfluous as it merely repeats the second element of § 6972(a)(1)(B), which requires a “solid or hazardous waste.” Although not expressly stated, the fourth requirement is implicit in a finding of liability under § 6972(a)(1)(B).

“substantial” means “having substance” and “not imaginary”; only as the last of several definitions does the dictionary offer “of considerable size or amount.” *Webster’s New Universal Unabridged Dictionary* 1817 (2d ed. 1983). These definitions do not support one particular type of quantification measurement, such as the District Court’s requirement that there be an exceedance of state standards. Honeywell, tacitly following *Cox*, 256 F.3d at 300, equates “substantial” with “serious,” which also does not support one particular type of quantification measurement. As noted, the word “substantial” is not defined by the statute or its legislative history, and we have not found any binding authority which stands contrary to this analysis. It is thus difficult to see how § 6972(a)(1)(B) justifies the kind of hurdle created by the District Court’s third quantitative requirement – let alone the even *higher* requirements for “substantial” that Honeywell argues for, without citation.

Honeywell’s arguments actually provide an additional reason why we will not read state standards into the language of this federal law. Honeywell contends that its conceded discharges into the Hackensack River could not possibly be “substantial” because New Jersey has not yet established a remedial standard for river sediment chromium. We do not believe that Congress intended § 6972(a)(1)(B) to be dependent upon the states in such a manner, and the statutory language provides no support for such dependency.

When Congress enacted RCRA in 1976, it sought to close “the last remaining loophole in environmental law, that of unregulated land disposal of discarded materials and hazardous wastes.” H.R. Rep. No. 1491, 94th Cong., 2d Sess. 4, *reprinted in* 1976 U.S.C.C.A.N. 6238, 6241. As we have noted, there is no definition or explanation of the meaning of “substantial,” but a discussion of RCRA’s amendments observes that § 6972(a)(1)(B) is “intended to confer upon the courts the authority to eliminate any risks posed by toxic wastes,” S. Rep. No. 98-284, 98th Cong., 1st Sess. at 59 (1983) (quoting *Price*, 688 F.3d at 213-14), and further that courts should “recogniz[e] that risk may be assessed from suspected, but not completely substantiated, relationships between imperfect data, or from



probative preliminary data not yet certifiable as fact.” *Id.* (internal quotations and citations omitted). This supports neither the District Court’s particular quantitative requirement nor the even higher and more narrow quantitative standards that Honeywell would have us impose.

Decisions of the other courts of appeals are not to the contrary. None require a particular quantitative showing as a *sine qua non* for liability. *See Parker*, 386 F.3d at 1015 (considering evidence of contamination at levels requiring landfill operator to notify state agency but determining substantialness on totality of the evidence); *Cox*, 256 F.3d at 299-301 (finding endangerments at two dumps on totality of the evidence; considering evidence of exceedences as to only one dump); *Dague*, 935 F.2d at 1356 (affirming endangerment finding without considering any quantitative evidence).

The only support we have found for the District Court’s requirement is district court authority that is readily distinguishable. In *Price v. U.S. Navy*, 818 F. Supp. 1323 (S.D. Cal. 1992), a district court heard testimony from the defendant’s two experts that an endangerment under § 6972(a)(1)(B) could only be found upon satisfaction of the four requirement standard that the District Court used in the present case. The Ninth Circuit affirmed without discussing the experts’ four requirements, 39 F.3d 1011 (9th Cir. 1994). Other lower courts have, from time to time, treated the experts’ testimony as law without examining the statutory validity of the four requirements. We decline to follow *Price*.

Plaintiffs in this case were required to make a merits showing higher than that actually contemplated by the statute. Even under the higher requirements, the District Court found endangerments as to both human health and the environment as well as *actual* harm to the environment. As we will discuss below, these findings are not clearly erroneous. The District Court’s inadvertent legal error with respect to the higher requirements it applied is therefore harmless, as plaintiffs were required to prove, and did prove, more than was needed, not less. *See McQueeney v. Wilmington Trust Co.*, 779 F.2d 916, 917 (3d Cir. 1985) (error is harmless in civil context if there is a high

probability that it did not affect the outcome of the case). Proof of contamination in excess of state standards may support a finding of liability, and may alone suffice for liability in some cases, but its required use is without justification in the statute. Accordingly, Honeywell's argument that the District Court erred by not grafting even *higher* quantitative requirements onto § 6972(a)(1)(B) is without merit.

## ***2. Evidence of Endangerment***

Having analyzed the meaning of the statute, we turn now to the straightforward clear error analysis before us. The District Court first found that the amounts of hexavalent chromium for which Honeywell was responsible far exceeded all applicable NJDEP contamination standards for soil, groundwater, surface water, and river sediments adjacent to the Site. The evidence shows this finding was not clearly erroneous. Hexavalent chromium concentrations in the soil at the Site were as high as 17,900 to 22,100 parts per million (ppm) and averaged 7,800 ppm. As New Jersey's applicable soil standard allows for only 240 ppm, the average level of contamination was over 30 times higher than the state standard, and, at its highest, was about 75 to 90 times higher. Similarly, hexavalent concentrations in surface water at the Site in drainage ditches, or "swales," are as high as 19,000 to 19,900 parts per billion (ppb). As New Jersey allows contamination only on the order of 50 ppb, surface water contamination was over 350 times higher than New Jersey's acceptable limit. Next, concentrations in the groundwater were as high as 23,300 to 24,400 ppb (shallow) and 708,000 ppb to 850,000 ppb (deep). Under New Jersey standards, which are on the order of 100 ppb, this meant concentrations ranged from about 200 to 8,000 times higher than acceptable. Finally, concentrations in the river sediments adjacent to the Site were as high as 33,500 ppm. New Jersey's standard, although apparently not finalized at the time of trial, was tentatively in the range of 80 to 370 ppm. Concentrations in the river sediments were thus roughly 90 to 400 times higher than allowed.<sup>6</sup>

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<sup>6</sup> As we have previously indicated, state standards do not define a party's federal liability under RCRA. However, we find New Jersey's standards relevant and useful in determining the existence of an

The District Court then found that there existed present and continuing pathways for exposure such that both human health and the environment were endangered. The evidence showed, among other things, breaches in the 17-acre plastic liner, estimated at the rate of over one million holes per acre; “ponding” of contaminated, high pH water on the Site’s surface; percolation of contaminated water to the surface and through the breaches in the liner, as well as through cracks in the asphalt cap; Honeywell’s admission that its hexavalent chromium is discharging from the Site’s shallow groundwater into the Hackensack River; Honeywell’s admission that hexavalent chromium is also seeping to the surface of the Site, mingling with surface water run-off, and entering the river; Honeywell’s admission that chromium from its Site has already contaminated river sediments, which would not be possible absent a pathway; and Honeywell’s admission that the interim measures it had installed to date were not preventing all discharges of chromium residue from the Site. Additionally, at least one expert testified that the site presented a current risk associated with current exposures existing through these pathways. The District Court credited this testimony, finding it to be credible.

There was also evidence, relevant to several of the District Court’s findings, that Honeywell had expressly informed NJDEP at the time of Honeywell’s installation of its “interim” measures that they could not prevent all discharges of chromium contamination from the Site, but would rather only “substantially reduce” discharges through their “various routes.” The evidence showed that these measures, as built and maintained, were now severely compromised because the 17-acre plastic liner, or “cap,” had been used years beyond its intended useful life and was ripped and leaking due to, among other things, wind damage. Similarly, the asphalt portion of the cap used to cover the remaining 17 acres of the site was buckled and cracked in numerous places due to “heaving” caused by the chromium at the Site.

Additionally as to pathways for human endangerment, the

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imminent and substantial endangerment.

evidence showed ample evidence of human trespass at the Site and in and around the river, including holes and damage to the Site's fence and fencing around the river, discarded food and wrappers, toys, fishing poles and equipment, and graffiti. Our review of the record reveals additional evidence of humans at the Site, including soccer balls and soda bottles. Additionally as to pathways for endangerment to the environment, the District Court found, and the evidence shows, discharges into the groundwater, the river, and river's sediments through multiple routes, as summarized above. Honeywell conceded some of these, notably the discharge of contaminated groundwater into the Site's surface waters that in turn discharge into the river.

On the basis of the above evidence, the District Court's findings were not clearly erroneous. Having reviewed the voluminous record in this case, we find no valid reason to disturb any of the District Court's thorough findings. We also observe that, on appeal, Honeywell conceded that its Site is discharging into the river and that it is possible for those discharges to be harming aquatic organisms. As Honeywell further conceded at argument, there presently exists a problem with the river sediments that needs attention.

In addition to the evidence of contamination of water, river sediments, and the river itself, the record also shows evidence of dogs and birds at and around the Site, as well as fish, invertebrates, benthic organisms, barnacles, mussels, crabs, clams, and crustaceans in the river; and seagulls, owls, pigeons, mice, and Canadian geese around both the Site and the river. As to other organisms living in the river's sediments, an expert in the fields of ecological risk and sediment contamination conducted standard bioassay tests on sediment dwelling organisms, taking sediment samples directly adjacent to the Site. These tests exhibited mortality rates of 50 to 100 percent for those organisms, which the expert attributed to the Site's contamination. The District Court found this expert knowledgeable and credible.

Finally, the evidence further showed that up to a third of all the chromium waste at the Site remains in the toxic hexavalent state; that the high pH of the Site precludes the

normal natural reduction to less-toxic trivalent chromium; that the high pH of the Site in turn assists the hexavalent chromium in freely leaching into water, as it enhances solubility; that NJDEP determined in the late 1980s that the Site posed a risk of human exposure to chromium waste constituting a “substantial risk of imminent damage to public health and safety and imminent and severe damage to the environment”; and that the interim containment measure undertaken by Honeywell in response did not obviate that determination, as the measure was never intended to prevent all discharges, has been used many years past its designed useful life of five years, and has been significantly damaged and compromised by the elements and the phenomenon of “heaving.”

Honeywell’s criticisms of the District Court’s findings and the evidence raise, at most, only minor conflicts that were reasonably reconciled by the District Court. In light of the totality of the evidence, these minor conflicts do not establish any basis for finding clear error as to the findings upon which the District Court’s decision solidly rests.

Even assuming *arguendo* the District Court clearly erred with respect to its findings relating to human endangerment, the findings with respect to environmental endangerment are manifestly correct on this record. That is all that is required under § 6972(a)(1)(B), which imposes liability for endangerments to the environment, including water in and of itself. *See, e.g.*, 42 U.S.C. § 6903(3) (defining “disposal” to include waste discharges “into or on any land or water” where waste is “emitted into the air or discharged into any waters, including groundwaters”); *cf.* N.J. Admin. Code tit. 7 § 26E-1.8 (2002) (identifying groundwater in and of itself as an environmental “receptor” due to its status as an “environmentally sensitive natural resource”). Honeywell does not argue otherwise, concedes direct exposure pathways, and faces evidence of, *inter alia*, concentrations of contamination in groundwater to be on the order of hundreds if not thousands of times greater than the relevant state standard would allow. Indeed, Honeywell concedes the groundwater at the Site is in “danger” because it is so highly contaminated by hexavalent chromium. Chromium from its Site is also discharging into the

Hackensack River, which, like groundwater, is part of the environment in and of itself. *See, e.g.*, 42 U.S.C. § 6903(3); *cf.* N.J. Admin. Code tit. 7 §§ 1E-1.8(a), 26E-1.8 (2002) (identifying rivers as an environmental receptor). Although there was some conflicting evidence on the point, the testimony of one of Honeywell's experts may be read to have conceded that Honeywell's Site is discharging chromium into the river on a continuing basis through not one but two separate pathways: over the Site's surface and into the river; and through the Site's fill into the river.

To the extent Honeywell argues that insufficient quantitative assurances existed at trial to guarantee the substantialness of the endangerments, we observe that multiple experts in the areas of human health and/or ecological risk opined as to the cumulative facts establishing the substantialness of the endangerments. These experts were found credible by the District Court over Honeywell's presentation of evidence and cross-examinations to the contrary. Even where there are conflicting interpretations of data and other scientific information, a trial court's findings will not be overturned so long as the experts whose testimony was credited by the court "provided a reasonable explanation of the scientific data." *Lansford-Coaldale Joint Water Auth. v. Tonolli Corp.*, 4 F.3d 1209, 1216-18 (3d Cir. 1993) (affirming findings regarding contamination threat where evidence reasonably supported expert). That is the case here. The extensive trial record includes the testimony of ten exceptionally qualified experts in the fields of health and environmental risk, ecological and aquatic toxicology, hydrogeology, environmental engineering and geochemistry, environmental remediation, dermatology, and "heaving." Their testimony rested upon legally relevant and permissible facts and assumptions, and had sound factual and scientific basis. We will not disturb findings supported by their testimony.

In sum, on the basis of all of the above evidence, the imminent and substantial endangerment determination was not clearly erroneous.

#### ***IV. Propriety of the Injunction***

Honeywell argues the District Court erred in enjoining Honeywell to clean up its Site through excavation and removal of the contaminated waste. In addition to the findings of fact we have already discussed, the District Court also found, specific to remedy, that a permanent solution (as opposed to an interim solution) was necessary within the meaning of the statute to eliminate the established endangerments; that NJDEP had already independently come to the same conclusion; that injunctive relief, as opposed to some other form of relief, was necessary to obtain a remedy that was permanent; that Honeywell presented no credible evidence at trial that either a containment “cap” or shallow groundwater treatment, or both, would be an effective permanent remedy; and that excavation and removal of the contamination from the Site was necessary within the meaning of the statute to ensure a permanent remedy. The evidence shows that experts presented all other conceivable remedial options known to be potentially available, and, on the basis of computer modeling and other factual and scientific grounds, they demonstrated why none were appropriate for the site except excavation. These included capping, encapsulation, reactive barriers, vitrification, solidification and stabilization, bioremediation, chemical reduction, chemical stabilization, chemical extraction, electrokinetics, soil washing, and, finally, “pump and treat” remedies.

The evidence also shows, as discussed *supra*, a Site with unusually high levels of contamination and other unique characteristics, such as the high pH level. A soil and hydrogeology expert, expressly found by the District Court to be credible, and who possessed twenty-five years of experience in the field, stated that “over a large area, I have never seen anything like [this].” The record also demonstrates the unpredictable and structurally damaging phenomenon of “heaving” caused by the chromium. Here, the evidence showed that the Site’s heaving has structurally compromised a large building, buckles the 17-acre asphalt portion of the “cap,” and defies prediction as to when, where, or to what degree it may move the Site’s surface. Honeywell’s own consultants called the heaving at the Site “erratic” and “unpredictable,” and estimated it will occur for at least another 50 years. Honeywell’s experts also conceded there is no viable treatment method capable of

stopping heaving, except to remove the chromium waste that causes it. The evidence also showed that the containment remedy of “capping” would not be viable at the Site due to this heaving. Damage to the cap caused by heaving would allow surface water to infiltrate the cap and become contaminated with chromium, creating contaminated surface water and groundwater that would puddle on the surface of the cap and then discharge into the Hackensack River. The evidence further showed that the holes in the cap and other damage to it caused by heaving would also provide pathways for humans and animals to be exposed not only to the contaminated water, but also the contaminated soil itself. As such, the evidence shows the containment remedy of “capping” would not be an appropriate remedy for the Site. One Honeywell expert conceded this at trial, and another acknowledged that the heaving would cause the damage that leads to that conclusion.

The evidence also shows that at least two experts gave extensive testimony, unrebutted by Honeywell, that, due to the Site’s unique characteristics and problems, the District Court’s injunction was necessary because only the excavation decreed by the Court could actually permanently abate the endangerments. The Court, which expressly found these witnesses to be credible, heard extensive testimony as to why containment was not appropriate for the Site. The experts articulated reasonable, substantiated concerns about containment, explaining, *inter alia*, that a cap with a containment wall would, upon leaking, cause the Site to “fill up like a bathtub” with contaminated water, which would then overflow into the river. They also explained that heaving would cause such structural stress to a containment liner, no matter the design, that it would eventually fail. As discussed, at least one of Honeywell’s own experts, and arguably both, effectively conceded most if not all of these points. Moreover, Honeywell acknowledged at argument that its remedy depends upon continuous institutional monitoring and maintenance for a considerable, perhaps indefinite, period of time, and that, even then, its remedy may not solve the problem of groundwater contamination. As such, none of the District Court’s findings in this area were clearly erroneous.



Certainly nothing definitive has been cited to us in support of Honeywell's argument that the critical remedy expert impermissibly "distrusted" containment maintenance and offered only an unsupportable "personal" opinion about long-run maintenance and monitoring in relation to the permanent remediation of the Site. The record testimony shows that this expert's opinions and testimony were based upon legally relevant and permissible facts and assumptions and had a sound scientific and factual basis. These included the expert's professional experiences and knowledge of other remediation sites involving long term institutional controls such as monitoring and maintenance.

These also included the District Court's independent findings as to Honeywell's dilatory tactics and the inability of NJDEP to deal effectively with those tactics with respect to the Site's clean-up. This finding itself was not clear error, as the evidence shows that, *inter alia*, a complete delineation of the Site's contamination and discharges to the surrounding environment remains incomplete, as a witness from NJDEP stated at trial; and that, similarly, NJDEP still lacked a timetable from Honeywell for the permanent remediation of the Site and had no idea when such a schedule or remedy would be forthcoming. Nor will we disturb the finding of NJDEP's inability to deal effectively with Honeywell and its tactics with respect to the outstanding schedule for a permanent remedy and the implementation of that remedy. The evidence demonstrates a substantial breakdown in the agency process that has resulted in twenty years of permanent clean-up inaction. In conjunction with expert testimony on the question of remedy, this portion of the trial record supports the District Court's findings with respect to long-run maintenance and monitoring of Honeywell's proposed containment system and the necessity of permanently abating the endangerments in this case through excavation.

Honeywell contends the injunction is not sufficiently narrow to be "necessary" within the meaning of RCRA. In so contending, it directs us to post-trial remedial measures that Honeywell has adopted while this appeal was pending. The sound course with respect to these post-trial activities is to require Honeywell to seek post-trial relief from the District

Court pursuant to Fed. R. Civ. P. 60(b). That Court is in the best position to evaluate the question of post-trial relief in light of its findings, which include a history of dilatoriness, failure of prior remedies, and a finding that alternatives other than those ordered by the injunction will not be sufficient to abate the established endangerments. Honeywell's other argument with respect to the injunction's necessity turns on its interpretation of expert witness testimony on the question of long-run maintenance and monitoring of a containment remedy. The District Court expressly rejected Honeywell's position, in findings that were not clear error, and expressly found that the critical expert was credible. That finding, in turn, was based on, among other things, the expert's ability to withstand a thorough cross-examination by Honeywell, which elected to present the bulk of its affirmative case on remedy through this cross-examination instead of calling its own expert. As we discussed *supra*, we will not disturb such testimonial evidence lightly, especially where, as here, it was amply supported by other evidence in the record.

The injunction's language, read in conjunction with the District Court's findings, confirms the necessity for the injunction within the meaning of RCRA. The injunction only orders Honeywell to excavate and remove contaminated soil and then "remedy" those river sediments that have been contaminated with chromium residue from the Site. As to deep groundwater, the injunction only requires Honeywell to study the contamination, and provides that, once that study is complete, the District Court will order additional remedial actions only if "necessary." Given the record in this case, the injunction is reasonable and narrow, as it requires only what is necessary now to abate the established endangerments.

Honeywell argues that the District Court improperly relied on property development interests, unrelated to the established endangerments, in finding the injunction was necessary. This argument does not detain us long. Although the District Court did discuss the impact of the contamination on possible future development, we do not read its opinion to indicate that this was a determinative factor in granting relief.

The District Court found under RCRA that excavation and removal was necessary to remedy the endangerment and rejected a containment remedy because it “is not a viable remedy” given the endangerments and the unique characteristics of the Site. It also found that Honeywell had presented no credible evidence that a cap would be an effective remedy to protect human health and the environment.

Honeywell next argues that the injunction does not serve a public interest. In its brief, Honeywell poses the question as follows: even if cleaning up hexavalent chromium would be “better” for humans living near the site “and for some barnacles and clams in the Hackensack River . . . is it worthwhile to move over 1,500,000 tons of fill” and replace it with “over 1,500,000 tons of clean fill?” Honeywell asserts that environmental agencies would answer this question in the negative, and that therefore the District Court erred in reaching a different conclusion.

Without a doubt, the injunction will require the movement of a substantial amount of fill. Nevertheless, Honeywell’s framing of the issue misses the point in several respects: the 1,500,000 tons of fill are all contaminated with a hazardous waste; plaintiffs have satisfied the standard for liability; and the evidence they adduced persuaded the District Court that a cleaning up through excavation was necessary, even in light of the monetary and other costs associated with that remedy, including the use of hazardous waste landfill capacities. The record shows the District Court considered the cost-benefit analysis evidence appropriately and made findings consistent with the public interest as reflected in the applicable statutory scheme.

In passing RCRA, Congress established a national policy to “minimize the present and future threat to human health and the environment” from wastes of the type found at Honeywell’s Site, 42 U.S.C. § 6902, and Congress has instructed that § 6972 “is intended to allow citizens exactly the same broad substantive and procedural claim for relief which is already available to the United States under section 7003.” S. Rep. No. 98-284, 98th

Cong., 1st Sess., at 59 (1983). We have previously determined that “due to the nature of the hazards presented by disposal sites, section 7003 is intended to confer upon the courts the authority to grant affirmative equitable relief to eliminate any risks posed by toxic wastes.” *Price*, 688 F.2d at 213-14. As such, Honeywell’s claim that the District Court “ignore[d] the judgment of Congress, deliberately expressed in legislation” is without merit. *United States v. Oakland Cannabis Buyers’ Coop.*, 532 U.S. 483, 497 (2001) (internal quotation omitted).

Honeywell next suggests the public interest requires a sophisticated, step-by-step, “sound” analysis appropriate for the permanent cleanup of a site as large and as contaminated as Honeywell’s Site is, and that the District Court lacked the ability to “appreciate the inherent complexity and difficulty” of making “sound” remedial decisions. The District Court was very thorough and its decision is not lacking in any of these respects. It imposed an even higher liability standard than required and properly applied the remedial powers of § 6972(a)(1)(B) through an approach that tracked the very steps Honeywell agreed to in a 1993 consent order with NJDEP.

Honeywell’s final argument is that the District Court improperly overrode an ongoing administrative process. As discussed *supra*, the District Court’s findings as to Honeywell’s dilatory tactics and NJDEP’s inability to deal effectively with those tactics are not clear error. Indeed, a fair reading of the record casts strong doubt as to whether there *is* a process to override in this case. Honeywell next suggests that NJDEP’s presence alone precludes a judicial remedy, given Congress’ preference for agency-directed cleanups. Not only does the statute not bar the remedy here, but Congress has rejected Honeywell’s argument outright. *See* S. Rep. No. 98-284, 98th Cong., 1st Sess. at 57 (1983) “[C]itizens need not exhaust or rely upon other resources or remedies before seeking relief under these amendments. As with Section 7003, these amendments are to be an alternative and supplement to other remedies.” Courts should consider the availability of other alternatives, as the District Court did here, but there is no requirement to defer to them, notwithstanding Honeywell’s protestations otherwise. *Id.*

More fundamentally, Honeywell argues the remedial injunction usurps agency power. The reconciliation of such power in the injunctive context, however, is not difficult. Honeywell has violated the statute; and, despite Honeywell's argument to the contrary, nothing in the statute precludes the nature of the injunctive relief ordered here. Depending on the particular characteristics of a given RCRA site, as found by a district court on a case-by-case basis, particular types of injunctive relief may not be circumscribed by arguments as to what an agency might have done. "The comprehensiveness of [a court's] equitable jurisdiction is not to be denied or limited in the absence of a clear and valid legislative command." *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 313 (1982) (quoting *Porter v. Warner Holding Co.*, 328 U.S. 395, 398 (1946)). Here, the enforcement language of § 6972(a)(1)(B) is generous: it says that a district court may, *inter alia*, "order . . . such other action as may be necessary" to remedy a violation of the statute. Nothing in this language precludes, as part of this enforcement authority, measures such as those required by the District Court here. Certainly we have not been cited to authority requiring otherwise.

Moreover, the injunctive powers of district courts are not as limited as Honeywell would claim. In *Natural Resources Defense Council v. Southwest Marine, Inc.*, 236 F.3d 985 (9th Cir. 2000), a company was violating the terms of its Clean Water Act permit. The question on appeal was whether the District Court in that case could merely order that the permit's terms be observed, or whether it could impose affirmative obligations to remedy the violation. The Court rejected the more restrictive view, stating:

According to Defendant, a court may do little more than tell the violator to comply with the applicable [state plan] requirements . . . . We do not agree that a district court's equitable authority is so cramped. The authority to "enforce" . . . is more than the authority to declare that [a] requirement exists and repeat that it must be followed. So long as the district court's equitable measures are reasonably

calculated to “remedy an established wrong,” they are not an abuse of discretion.

*Southwest Marine*, 236 F.3d at 1000 (quoting *Alaska Ctr. for Env’t v. Browner*, 20 F.3d 981, 986 (9th Cir. 1994)) (internal citations and quotations omitted). In the case before us, the District Court was presented with a statutory violation, no evidence of a state agency schedule for a permanent clean-up, and expert testimony, found credible by the District Court, that only one approach would in fact remedy the violation permanently. On appeal, Honeywell contends the allowed injunctive relief on such facts may only be, at most, an order “directing Honeywell not to miss NJDEP deadlines.” We do not agree. *See, e.g., Southwest Marine*, 236 F.3d at 1000. Given the severity of the contamination at the Site and its other unique characteristics, precisely established in the evidence, the injunction was reasonably calculated, narrowly tailored, and thus necessary to remedy an established wrong. *See Laidlaw*, 528 U.S. at 193 (federal courts should ensure “the framing of relief no broader than required by the precise facts”). As the District Court did not abuse its discretion, the injunction is affirmed.

## ***VI. Conclusion***

We have considered all of the other arguments advanced by the parties and conclude that no further discussion is necessary. Enough time has already been spent in the history of this matter and the time for a clean-up has come. Accordingly, the judgment of the District Court will be affirmed.

AMBRO, Circuit Judge, concurring

Judge Van Antwerpen has written a superlative opinion both in content and tone. I join wholeheartedly but for one issue—how we determine the standard of review—that does not affect the outcome. Indeed, our respective standards of review arrive essentially at the same place though by different paths.

My colleagues conclude that the question of whether waste “may present an imminent and substantial endangerment to health or the environment” under the Resource Conservation and Recovery Act (“RCRA”) § 7002(a)(1)(B), 42 U.S.C. § 6972(a)(1)(B), is a question of fact. To me, it is not. Instead, I believe it is a mixed question of fact and law. Whether an issue is of fact, or of fact and law, is important because it generally determines the applicable standard of review. *See A & H Sportswear, Inc. v. Victoria’s Secret Stores, Inc.*, 237 F.3d 198, 210 (3d Cir. 2000) (a district court’s factual determinations are reviewed for clear error); *In re Cellnet Data Sys. Inc.*, 327 F.3d 242, 244 (3d Cir. 2003) (“We review . . . mixed questions of law and fact under a mixed standard, affording a clearly erroneous standard to integral facts, but exercising plenary review of the lower court’s interpretation and application of those facts to legal precepts.”).

My colleagues’ reason for concluding that imminent and substantial endangerment is factual is that three “[o]ther courts of appeals consider it a question of fact.” *See Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993 (11th Cir. 2004); *Cox v. City of Dallas*, 256 F.3d 281 (5th Cir. 2001); *Dague v. City of Burlington*, 935 F.2d 1343 (2d Cir. 1991), *rev’d on other grounds*, 505 U.S. 557 (1992). However, none of these decisions explicitly states that the determination of imminent and substantial endangerment is one of fact.<sup>7</sup>

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<sup>7</sup>In *Parker*, the Eleventh Circuit reviewed imminent and substantial endangerment for sufficient evidence. 386 F.3d at 1015. The Court did not explain why it used a sufficient evidence standard. In *Cox*, the Fifth Circuit reviewed imminent and substantial endangerment under a clearly erroneous standard. 256 F.3d at 300-01. It did not explain why. In *Dague*, the Second Circuit did not explicitly state which standard of review it applied and offered no reasoning for why it applied that standard. The Court referred to the determination of imminent and substantial endangerment as a “finding.” 935 F.2d at 1356. As “finding”

The Supreme Court has written that “we [do not] yet know of any . . . rule or principle that will unerringly distinguish a factual finding from a legal conclusion.” *Pullman-Standard v. Swint*, 456 U.S. 273, 288 (1982). However, a practical test I propose for determining whether a question is of fact, of law, or of both fact and law, is as follows. A question of fact can be answered solely by determining the facts of a case (without any need to know the law relevant to the case). A question of law can be answered solely by determining what relevant law means (without any need to determine the facts of a case). A mixed question of fact and law can only be answered by both determining the facts of a case and determining what the relevant law means.

For example, imagine that a man is appealing his conviction under a law that states “it is a crime to be tall.” What kind of question is: “Was the trial court correct to find the man ‘tall’?” Can we answer it solely by determining the facts of the case? No, because even if we know the fact that the man is five feet ten inches, we do not know if he is “tall” in the sense that Congress intended the word “tall” to mean. Can we answer it solely by determining what the relevant law means without knowing the man’s height? No, because even if we know that the statute defines “tall” as “six feet or taller,” we do not know how tall the man is. Thus, we have a mixed question of fact and law. Once we know the facts of the case (that the man is five feet ten inches tall), and what the relevant law means (it is a crime to be six feet tall or taller), we can answer “no” to the

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implies a question of fact, I agree with the majority that the *Dague* Court thought imminent and substantial endangerment was a question of fact. *Parker*, *Cox*, and arguably *Dague* thus use a deferential standard of review for imminent and substantial endangerment. However, none of these decisions gives any reasoning for why imminent and substantial endangerment should be reviewed deferentially.



question “Was the trial court correct to find the man ‘tall’?”

Applying the test to this case, an example of a question of fact (requiring evidence, experts, studies, *etc.*) is the following: “What are the dangers caused by Honeywell’s chromium?” An example of a finding of fact is: “Honeywell’s chromium caused a 10% chance that between 10,000 and 20,000 mollusks in the sediments will be exposed to chromium between 2006 and 2007, which will eventually lead to infertility in 5% of chromium exposed mollusks.”

However, the essential question (“May Honeywell’s chromium present an imminent and substantial endangerment to the environment?”) is a mixed question of fact and law. The reason this is so is that this question can only be answered by both determining the facts of the case and determining what the relevant law means. That is, not only do we need to know the answer to the following question of fact—“What are the dangers caused by Honeywell’s chromium?”—but also, once we get the answer—“Honeywell’s chromium caused a 10% chance that between 10,000 and 20,000 mollusks in the sediments will be exposed to chromium between 2006 and 2007, which will eventually lead to infertility in 5% of chromium exposed mollusks.”—we must determine what the relevant law means and whether the fact(s) applied to the law signal a violation. That is, we must ask: What did Congress mean by “may,” “imminent,” “substantial,” “endangerment,” “health,” and “environment” in RCRA? More specifically, we must at least ask: (1) Is an exposure to a toxin that will occur between one and two years from now “imminent” in the sense that Congress intended “imminent” to mean in RCRA?; and (2) Is a 10% chance that between 10,000 and 20,000 mollusks will incur a 5% increased risk of infertility a “substantial” endangerment in the sense that Congress intended “substantial” to mean in RCRA? Thus, at first blush it appears that, while we should apply a clearly erroneous standard to the facts (the dangers caused by Honeywell’s chromium) found by the District Court, we should

apply plenary review to the Court's "application of those facts to legal precepts." *Cellnet*, 327 F.3d at 244.

All this theory aside, practical reasons dictate that a mixed standard should not be used in a case such as this. Fact questions predominate the determination of imminent and substantial endangerment. In this case, the District Court had to evaluate the testimony of numerous experts and determine the implications of scientific studies. The First Circuit has adopted a sliding scale approach to such fact-dominated mixed questions, explaining that "[t]he standard of review applicable to mixed questions usually depends upon where they fall along the degree-of-deference continuum: the more fact-dominated the question, the more likely it is that the trier's resolution of it will be accepted unless shown to be clearly erroneous." *In re Extradition of Howard*, 996 F.2d 1320, 1328 (1st Cir. 1993). The Fifth, Sixth, Eighth, and Ninth and Tenth Circuits have also applied clearly erroneous review to mixed questions when fact questions predominated. *See Love Box Co. v. Comm'r*, 842 F.2d 1213, 1215 (10th Cir. 1988); *Supre v. Ricketts*, 792 F.2d 958, 961 (10th Cir. 1986); *Levi Strauss & Co. v. Blue Bell, Inc.*, 778 F.2d 1352, 1355-56 (9th Cir. 1985); *Connally v. Transcon Lines*, 583 F.2d 199, 202 (5th Cir. 1978); *Nash v. Farmers New World Life Ins. Co.*, 570 F.2d 558, 561 n.7 (6th Cir. 1978); *Backar v. W. States Prod. Co.*, 547 F.2d 876, 884 (5th Cir. 1977); *Rogers v. Bates*, 431 F.2d 16, 18 (8th Cir. 1970). Two commentators have concluded that "[m]ore and more courts . . . attempt to sort out whether a particular mixed law-fact question primarily involves a factual inquiry (in which case [Fed. R. Civ. P.] Rule 52 deference is appropriate even for mixed questions) or primarily the consideration of legal principles (so that de novo review follows)." Steven Alan Childress & Martha S. Davis, *Federal Standards of Review* 2-100 (1999).

Most important, the Supreme Court has stated:

[W]e have held that deferential

review of mixed questions of law and fact is warranted when it appears that the district court is “better positioned” than the appellate court to decide the issue in question or that probing appellate scrutiny will not contribute to the clarity of the legal doctrine. *Miller v. Fenton*, 474 U.S. 104, 114, 106 S.Ct. 445, 451, 88 L.Ed.2d 405 (1985); *see also Cooter & Gell v. Hartmarx Corp.*, 496 U.S. 384, 402, 110 S.Ct. 2447, 2459, 110 L.Ed.2d 359 (1990) (“[T]he district court is better situated than the court of appeals to marshal the pertinent facts and apply [a] fact-dependent legal standard” such as Rule 11); [*Pierce v. Underwood*, 487 U.S. 552, 562 (1988)] ([T]he question whether the Government’s litigating position has been ‘substantially justified’ is . . . a multifarious and novel question, little susceptible, for the time being at least, of useful generalization.”).

*Salve Regina Coll. v. Russell*, 499 U.S. 225, 233 (1990).

In RCRA cases such as this one, the District Court is better positioned than are we to marshal the pertinent facts and apply a fact-dependent legal standard. The determination of whether waste may present an imminent and substantial endangerment is heavily fact intensive, typically relying on expert testimony and expert studies interpreted at trial by experts. Also, the determination of whether waste may present an imminent and substantial endangerment is a multifarious question, not susceptible to useful generalization. Even though our question is a mixed one, Supreme Court precedent and

treatise argument<sup>8</sup> support reviewing it deferentially under a clearly erroneous standard. Thus I arrive at essentially the same deferential standard as my colleagues by a different, and certainly more Proustian, path of analysis.

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<sup>8</sup>As Childress and Davis write:

If the application [of law to facts] refines the [legal] test or suggests something broadly applicable in future cases, the appellate court legitimately performs the function *de novo*. However, the actual application of law to facts to see whether a particular set of facts rises up sufficiently to meet the test, except to the extent it defines the test for future courts, is just the fact-finding process, not law-making; it should be reviewed for clear error.

Childress & Davis, *supra*, at 2-102.