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RCRA'S NEW CAUSATION QUESTION: LINKING UBIQUITOUS WASTES TO SPECIFIC DEFENDANTS

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Abstract: The Resource Conservation and Recovery Act (RCRA) imposes liability on defendants whose handling of solid waste may present an imminent and substantial danger to the environment. For most of RCRA's history, there was no need to prove a link between waste that was harming the environment and the waste handled by the defendant, because the highly specific materials litigated under RCRA only could have come from the defendant. However, now that plaintiffs have sued defendants over the handling of naturally occurring wastes, courts must decide what level of proof is required to demonstrate the link between the defendant's waste and the waste causing the harm. This Note argues that courts should use the same low standard of proof of causation that applies throughout the rest of the statute.

INTRODUCTION

When Americans think about the problem of waste disposal, their heads immediately fill with images of nuclear waste, overflowing landfills, and the sights and smells that accompany traditional forms of "waste." However, while waste indeed includes such traditional notions of hazardous waste or garbage, it can refer to any material discarded by humans and put back into the environment.¹ When waste is considered in such terms, even naturally occurring bacteria or minerals, such as ammonia and nitrate, can be considered waste if discarded by humans back into the environment.²

Naturally occurring and common wastes, in addition to more dangerous types of waste, are regulated by the United States' federally run, and extremely comprehensive, waste management programs.³ While

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¹ Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6903(27) (2006). RCRA defines "solid waste" as "discarded material . . . from industrial, commercial, mining, and agricultural operations, and community activities."

² *See id.*; Complaint at 4-6, United States v. Seaboard Foods LP, No. 06cv00989 (W.D. Okla. Sept. 14, 2006), 2006 WL 3098823.

³ *See, e.g.*, Toxic Substances Control Act (TSCA), 15 U.S.C. §§ 2601-2692 (2006); RCRA, 42 U.S.C. §§ 6917-6991; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675 (2006).

natural wastes receive relatively little attention due to the comparatively high-profile nature of hazardous waste, their regulation is an important part of proper waste management.⁴ The Resource Conservation and Recovery Act (RCRA) plays a large role in the regulation of non-hazardous solid wastes, and is one of the few federal statutes that regulates naturally occurring wastes.⁵ This regulation is done in part through one of RCRA's citizen suit provisions, which allows citizens to sue a party whose waste management practices may pose an imminent and substantial endangerment to the environment or human health.⁶

Citizen suits under RCRA often boil down to questions of causation, and problems of proof.⁷ Did the defendant contribute to the waste in question? Can the waste in question pose a threat to the environment? Is the waste posing a threat in this case? How dangerous must the threat be? How imminent must the danger be? What kinds of proof may be introduced to prove these factors? While decades of case law have somewhat settled these issues,⁸ a new question is starting to emerge in the context of naturally occurring wastes. Is the harmful waste actually the same waste produced by the defendant, or has this naturally occurring waste come from a different man-made source, or even from the environment itself?⁹ Plaintiffs litigating these cases often do not have the scientific proof necessary to answer this question with certainty.¹⁰ Thus, courts that have heard the issue seem to reject these RCRA claims due to a lack of causation, and specifically a lack of scientific evidence to prove this causation question.¹¹

This Note will examine the level of causation that RCRA requires plaintiffs to demonstrate when linking a common and ubiquitous waste to a specific defendant, and specifically what types of scientific proof are permissible to establish this evidence. Part I will introduce the reader to the topic of solid waste regulation by offering a brief history

⁴ See John C. Chambers & Mary S. McCullough, *From the Cradle to the Grave: An Historical Perspective of RCRA*, 10 NAT. RESOURCES & ENV'T., Fall 1995, at 21, 22; Lori Gilmore, Comment, *The Export of Nonhazardous Waste*, 19 ENVTL. L. 879, 883 (1989).

⁵ See RCRA, 42 U.S.C. § 6903(27); cf. TSCA, 15 U.S.C. §§ 2601–2692 (regulating only toxic materials); CERCLA, 42 U.S.C. §§ 9601–9675 (regulating only cleanup of hazardous waste sites).

⁶ RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B).

⁷ See, e.g., *Att'y Gen. of Okla. v. Tyson Foods Inc.*, 565 F.3d 769, 777 (10th Cir. 2009); *Interfaith Cmty. Org. v. Honeywell Int'l*, 399 F.3d 248, 261 (3d Cir. 2005); *Cox v. City of Dallas*, 256 F.3d 281, 297 (5th Cir. 2001).

⁸ See *Interfaith*, 399 F.3d at 259–60; *Cox*, 256 F.3d at 295.

⁹ See *Tyson Foods*, 565 F.3d at 777.

¹⁰ See *id.*

¹¹ See *id.*; *Steilacoom Lake Improvement Club Inc. v. Washington*, 138 F. App'x 929, 933 (9th Cir. 2005).

of the federal waste management statutes that lead to RCRA's citizen suit provision.¹² Part II will demonstrate that Congress intentionally authored this citizen suit provision to lower causation requirements from those of the common law and to ensure greater protection to the environment in the face of scientific uncertainty.¹³ Part III will show that courts have interpreted the language of the citizen suit provision very broadly based on the legislative history, making it easier for plaintiffs to demonstrate causation.¹⁴ Part IV will introduce the case of *Oklahoma v. Tyson Foods, Inc.*, which provides a helpful illustration of the new causation question, and also demonstrates the incorrect way to address the question.¹⁵ Finally, Part V will argue that this new causation question should benefit from the same relaxed standard of causation that intentionally appears in the rest of the statute.¹⁶

I. A HISTORY OF SOLID WASTE REGULATION IN THE UNITED STATES

A. *The Road to RCRA's Most Important Citizen Suit*

For much of the twentieth century, neither the United States government nor the American public was very concerned with the problem of waste disposal, despite the rapid increase in the amount of waste produced in the United States since the Industrial Revolution.¹⁷ Until 1965, the entire extent of solid waste regulation was under the Public Health Service Act (PHSA), which emphasized research into better ways to dispose of waste.¹⁸ In the 1960s, however, environmental issues became a larger part of congressional discussion as lawmakers looked for ways to clean up America's air, water, and land.¹⁹ This decade marked the first time that the United States began to think seriously about reshaping the way we regulate and dispose of waste.²⁰

¹² See *infra* Part I.

¹³ See *infra* Part II.

¹⁴ See *infra* Part III.

¹⁵ See *infra* Part IV.

¹⁶ See *infra* Part V.

¹⁷ See NEWSDAY, RUSH TO BURN: SOLVING AMERICA'S GARBAGE CRISIS? 28–29 (1989); Chambers & McCullough, *supra* note 4, at 21. In the middle of the twentieth century, waste was generally defined as “a great variety of things that individuals, manufacturers, commercial establishments, and communities discard as no longer usable, such as garbage, rubbish, ashes, street refuse . . . and the wastes from slaughterhouses, canneries, manufacturing plants, and hospitals.” H.R. REP. NO. 89–899, at 7 (1965).

¹⁸ See Chambers & McCullough, *supra* note 4, at 21.

¹⁹ *Id.*

²⁰ See *id.*

In 1965, President Lyndon Johnson urged Congress to act with respect to solid waste regulation.²¹ After Congress investigated the dangers behind improper waste disposal, it did not sugarcoat the situation for the American public.²² The Committee on Interstate and Foreign Commerce declared: “[W]aste collection and disposal activities create one of the most serious and most neglected aspects of environmental contamination affecting public health. . . . The efforts now being made to deal with this problem are clearly inadequate.”²³ Congress responded to these findings, in part, by passing the Solid Waste Disposal Act (SWDA) of 1965.²⁴ Like the PHSA, the SWDA focused on research goals and financial assistance to states, without any truly enforceable regulatory mechanism.²⁵

During the 1970s, Congress and the American public became increasingly concerned over a specific type of non-residential solid waste, namely hazardous waste.²⁶ Again, Congress was forthright about the extent of the problem: “[A]pproximately 30–35 million tons of hazardous waste are literally dumped on the ground each year . . . [which] can blind, cripple or kill . . . defoliate the environment, contaminate drinking water supplies and enter the food chain under preset [sic], largely unregulated disposal practices.”²⁷ With greater public attention in this decade to hazardous waste, Congress responded with the passage of the Resource Conservation and Recovery Act (RCRA), which amended the SWDA.²⁸ RCRA was intended to regulate the treatment, storage, and disposal of both solid and hazardous waste.²⁹ RCRA is often described as regulating waste “from cradle to grave” because it has provisions for the generation of waste through its eventual disposal.³⁰ Many heralded this statute as closing the last remaining loophole in environmental

²¹ *Id.*

²² See H.R. REP. NO. 89–889, at 7.

²³ *Id.*

²⁴ See Solid Waste Disposal Act, Pub. L. No. 89–272, 79 Stat. 992 (codified as amended at 42 U.S.C. §§ 6901–6992k (2006)).

²⁵ See Barry Needleman, *Hazardous Waste Recycling Under the Resource Conservation and Recovery Act: Problems and Potential Solutions*, 24 ENVTL. L. 971, 974 (1994).

²⁶ See Chambers & McCullough, *supra* note 4, at 22–23. EPA regulations define hazardous wastes in a complex manner, but generally consider the following four characteristics: ignitability, corrosivity, reactivity, and toxicity. See 40 C.F.R. § 261.20–24 (2009).

²⁷ H.R. REP. NO. 94–1491, at 11 (1976).

²⁸ See RCRA, Pub. L. 94–580, 90 Stat. 2759 (codified as amended at 42 U.S.C. §§ 6901–6992k (2006)) (amending Solid Waste Disposal Act, which is now commonly called RCRA).

²⁹ RCRA, 42 U.S.C. §§ 6901–6992k; see Gilmore, *supra* note 4, at 883.

³⁰ See Daniel Riesel, *Private Party Litigation Under RCRA*, in ENVTL. L. 229, 231 (A.L.L.-A.B.A. Course of Study, Feb. 4–6, 2009) available at Westlaw, SP036 ALI-ABA 229.

regulation as it applies to many harmful substances not covered by other environmental protection measures.³¹

Over the next several years, this “last remaining loophole” proved especially difficult to close because the regulation of solid waste, as opposed to hazardous waste, received little attention due to the high fears surrounding hazardous waste.³² Two years after the passage of RCRA, EPA had promulgated only a few regulations for the non-hazardous solid waste program.³³ After several high-profile hazardous waste disasters, the non-hazardous waste program became little more than a background concern.³⁴ Abandoned hazardous waste sites, such as Love Canal in Niagara Falls, brought the dangers of hazardous waste to the forefront of public attention and highlighted the need for a statute even stronger than RCRA.³⁵

The congressional response came with the passage of the Solid Waste Disposal Act Amendments of 1980, which focused on minimizing the danger of on-going hazardous waste sites.³⁶ However, EPA fell subject to the same problems as in the late 1970s—consistently missing deadlines, and failing to promulgate regulations for the proper disposal of solid waste.³⁷ Impatient with EPA's delays, Congress returned to the waste disposal issue with the Hazardous and Solid Waste Amendments (HSWA) of 1984.³⁸ Although Congress and the American Public were still primarily concerned with the regulation of hazardous waste,³⁹ the HSWA also included provisions for the regulation of solid waste.⁴⁰ Specifically, the HSWA added a citizen suit provision, which allowed citi-

³¹ *United States v. Waste Indus., Inc.*, 734 F.2d 159, 165 (4th Cir. 1984).

³² *See* Chambers & McCullough, *supra* note 4, at 22.

³³ *Id.*

³⁴ *See* Gilmore, *supra* note 4, at 883; Eric R. Pogue, *The Catastrophe Model of Risk Regulation and the Regulatory Legacy of Three Mile Island and Love Canal*, 15 PENN ST. ENVTL. L. REV. 463, 466 (2007).

³⁵ *See* Chambers & McCullough, *supra* note 4, at 22–23. In the Love Canal neighborhood of Niagara Falls, New York, the local school board purchased a piece of land from a chemical company. In 1978, years after developing a residential neighborhood on the land, known carcinogens were found in the basements and yards of the community. *See* Pogue, *supra* note 34, at 466.

³⁶ *See* Pub. L. No. 96–482, 94 Stat. 2334 (codified as amended at 42 U.S.C. §§ 6901–6992k (2006)); Chambers & McCullough, *supra* note 4, at 23. In order to address abandoned hazardous waste sites, Congress also passed CERCLA, commonly known as the “Superfund Act.” *See* CERCLA, 42 U.S.C. §§ 9601–9675 (2006); Chambers & McCullough, *supra* note 4, at 23.

³⁷ *See* Chambers & McCullough, *supra* note 4, at 22–23.

³⁸ *See* P.L. 98–616, 98 Stat. 3221, (codified as amended at 42 U.S.C. §§ 6901–6992k (2006)); Chambers & McCullough, *supra* note 4, at 23.

³⁹ *See* Gilmore, *supra* note 4, at 883.

⁴⁰ *See* RCRA, 42 U.S.C. § 6972(a)(1)(B) (giving citizens the right to sue when solid waste may be presenting a danger to the environment).

zens to act as the EPA Administrator in enforcing proper solid waste disposal.⁴¹

B. *The Basic Elements of RCRA's Citizen Suit Provision*

Even though RCRA already specified how, when, and where to dispose of many different wastes, Congress specifically intended to give citizens broad authority to avoid future disasters not contemplated⁴² in other parts of the statute.⁴³ The most important citizen suit⁴⁴ provision of RCRA, enacted in section 7002 under the 1984 amendments to RCRA, enables citizens bring a law suit to court in order to prevent harm to human health or the environment.⁴⁵ This citizen suit provision contains the exact language of a pre-existing RCRA provision, which allowed the Administrator of the EPA to commence lawsuits against waste-producing defendants who might present harm to the environment.⁴⁶ Initially, EPA used this power frequently, filing more than fifty actions between 1979 and 1981.⁴⁷ Despite EPA's active prosecution of many actions under this section, the agency failed to correct all the instances of improper waste disposal.⁴⁸ The amendment to section 7002

⁴¹ *Id.* Technically, this citizen suit provision can be found in the Hazardous and Solid Waste Amendment of 1984, which was an amendment to the Solid Waste Disposal Act. However, any provision falling under the HSWA, SWDA, or RCRA is commonly referred to as RCRA. See Chambers & McCullough, *supra* note 4, at 22-23.

⁴² Congress was also concerned that problems would be contemplated but still not enforced by the EPA. See Jonathan M. Peterson, Note, *RCRA Enforcement Provisions After the 1984 Amendments*, 5 VA. J. NAT. RESOURCES L. 323, 349 (1985).

⁴³ See Kathryn Saenz Duke, *Using RCRA's Imminent Hazard Provision in Hazardous Waste Emergencies*, 9 ECOLOGY L.Q. 599, 602 (1981).

⁴⁴ Citizens may also sue the Administrator of the EPA for failing to enforce non-discretionary duties under the statute, often relating to permitting schemes or labeling requirements. See RCRA, 42 U.S.C. § 6972(a)(1)(A).

⁴⁵ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); Duke, *supra* note 43, at 602.

⁴⁶ See RCRA, § 7003, 42 U.S.C. § 6973(a). Several procedural differences exist between suits brought by the EPA and those brought by citizens. See Peterson, *supra* note 42, at 349. First, for citizen suits, there is a ninety-day notice requirement. *Id.* Also, if the EPA has commenced or is "diligently prosecuting" its own RCRA suit, a CERCLA section 106 action, or a CERCLA response action, the citizen suit is barred. See *id.* Furthermore, many citizen suits are prevented from the outset because private citizens often do not have the resources available to initiate a complex cause of action. See *id.* Despite these differences, due to the identical language of these two sections regarding liability, this Note will alternate between analyzing section 7002 cases and section 7003 cases. For the purpose of construing a causation standard, judicial interpretations of section 7003 will be given as much weight as those interpreting section 7002. See *Cox v. City of Dallas*, 256 F.3d 281, 294 n.22 (5th Cir. 2001).

⁴⁷ See Duke, *supra* note 43, at 601.

⁴⁸ See Cynthia L. Koehler, *1984 RCRA Amendments: Expanding Citizens' Right to Sue*, 65 OR. L. REV. 659, 669 (1986).

extended this ability to citizens, giving individuals the right to assist EPA as citizen-enforcers.⁴⁹

Specifically, section 7002 states that a citizen may sue “any person⁵⁰ . . . 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.”⁵¹ Essentially, there are four elements that plaintiffs must prove: (1) the defendants “contributed to” handling of a waste; (2) such waste “may present” an “endangerment”; (3) the endangerment must be “substantial”; and (4) the endangerment must be “imminent.”⁵²

II. SECTION 7002 RELAXES COMMON LAW CAUSATION STANDARDS

A. *Section 7002's Causation Requirements Are More Favorable to Environmental Plaintiffs Than Traditional Common Law Standards*

As the above quoted language shows, Congress intended not only to give citizens a tool for enforcement, but also to lower strict notions of causation under the common law which prevented worthwhile environmental tort suits from moving forward.⁵³ One way the common law limits defendant liability is through the doctrine of proximate cause, which restricts the sphere of actors that may be held liable to those with a direct role in the harm.⁵⁴ To illustrate, an automobile repairman who flooded a plaintiff's gas tank, thereby causing an explosion when a customer threw a match on the floor, was held not to be the proximate cause of the damage because his action did not have a direct enough

⁴⁹ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B).

⁵⁰ A “person” has been interpreted through case law to include individual persons, owners of companies, and even cities. See *Cox*, 256 F.3d at 293.

⁵¹ Defendants may be liable for improperly storing, treating, disposing, or transporting solid waste. However, for purposes of this Note, all defendant actions concerning solid waste will be referred to generally as “handling.” See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B).

⁵² *Id.*

⁵³ See S. REP. NO. 98-284, at 59 (1983). Some early cases under section 7003 held that the language of the statute simply laid out the threshold requirements of when the Administrator may seek an action in courts, but did not change substantive standards of liability. See *United States v. Midwest Solvent Recovery, Inc.*, 484 F. Supp. 138, 144 (N.D. Ind. 1980). However, the congressional history of section 7002, discussed below, demonstrates Congress's desire to correct these early decisions and show courts that section 7002 actually changes substantive standards of liability, especially with regard to proximate cause. See S. REP. NO. 98-284, at 59; Solid and Hazardous Waste Committee, 16 NAT. RESOURCES LAW. 309, 310 (1983-1984).

⁵⁴ See, e.g., *Palmetto Fire Ins. Co. v. Clark Garage Co.*, 6 La. App. 420, 420 (La. Ct. App. 1927) (demonstrating the doctrine of proximate cause).

bearing on the eventual outcome.⁵⁵ According to the court, only the negligent match thrower was the proximate cause of the damage.⁵⁶ Section 7002 modifies standard notions of causation to be more favorable to plaintiffs in the solid waste context.

Section 7002 requires plaintiffs to prove four separate causation elements with lower proximate cause requirements than otherwise required under the common law.⁵⁷ First, plaintiffs must prove that a defendant “contributed to” the handling of the waste in question.⁵⁸ Second, under the “may present an imminent and substantial harm” standard, plaintiffs must establish the remaining three causal elements: (1) the endangerment is “imminent,”⁵⁹ (2) the level of risk is sufficient to justify court action,⁶⁰ and (3) the potential degree of harm is “substantial.”⁶¹ Rarely, when the waste is more common, a causation question arises as to whether the waste causing the potential harm is the same waste the defendant actually handled, or whether it is just the same type.⁶²

B. *Section 7002’s Language Interpreted Broadly Based on Legislative History*

1. The Phrase “Contribute To” Expands the Potential Sphere of Liable Defendants

Through the use of the phrase “contribute to,” Congress intended to broaden the traditionally narrow sphere of responsible defendants in the area of solid waste disposal.⁶³ As congressional reports show, common law notions of proximate cause are not to be considered when imposing liability on defendants who may only have had a relatively small role in the improper waste disposal.⁶⁴ Specifically, this report

⁵⁵ *See id.*

⁵⁶ *See id.*

⁵⁷ *See* RCRA, § 7002, 42 U.S.C. 6972(a)(1)(B) (2006); S. REP. NO. 98-294, at 59.

⁵⁸ RCRA, § 7002, 42 U.S.C. 6972(a)(1)(B).

⁵⁹ *See* Meghriq v. KFC Western, Inc., 516 U.S. 479, 485-86 (1996).

⁶⁰ *See* Dague v. City of Burlington, 935 F.2d 1343, 1356 (2d Cir. 1991).

⁶¹ *See* Interfaith Cmty. Org. v. Honeywell Int’l, 399 F.3d 248, 259 (3d Cir. 2005). It may be argued that timing of harm, degree of risk, and level of harm are not actually causation questions, but fall into the category of harm. However, these cases are about stopping potential harm, not analyzing the effects of a harm that has already taken place. Thus, the “harm” that must be proven consists of predictions based on scientific research. Since the harm that must be proven is actually scientific research projecting the likely outcome of such harm, it is better to think of these elements as questions of potential causation. *See* S. REP. NO. 98-284, at 59 (1983).

⁶² *See generally* Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769 (10th Cir. 2009).

⁶³ *See* S. REP. NO. 96-172, at 5 (1980).

⁶⁴ *See id.*

states that “terms and concepts, such as persons ‘contributing to’ the handling of the waste are to be construed more liberally than its common law counterpart.”⁶⁵ Thus, while the automobile repairman who overflowed the gas and had a role in the eventual explosion escapes liability under strict proximate cause analysis, defendants who merely transport or generate the solid waste, even if not directly responsible for its improper disposal, are to be held liable under section 7002.⁶⁶

Congress also intended for the “contribute to” requirement to increase the amount of time a court can look back to determine the “cause” of a specific harm.⁶⁷ When Congress first authored section 7003, the EPA had the authority to sue anyone *contributing* to the handling of potentially harmful waste.⁶⁸ When passed, the statute was unclear regarding whether the EPA had the authority to sue past contributors to the waste, or whether it was restricted to imposing liability on the current waste handler.⁶⁹ In order to clarify some initial court decisions, Congress amended the statute to give the EPA or citizens the right to sue any past *or* present handler of waste.⁷⁰ This exemplifies, again, how Congress changed the rules of proximate cause to ensure more defendants could be held liable under section 7002 than under the common law.⁷¹

Courts have adhered to Congress’s intention regarding the broad reach of the “contribute to” element.⁷² Courts have used this language to impose liability amongst actors along the entire chain of waste production such as generators, transporters, disposers, etc., as well as to actors far back in time.⁷³ The element simply ensures that someone potentially liable under section 7002 actually had “a share in any act or effect” in the production of the waste, and was not simply an innocent bystander in the process.⁷⁴

For example, in *United States v. Aceto Agricultural Chemical Corp.*, the court held that the defendant Aceto Corporation contributed to the disposal of pesticides, even though the Aidex Corporation had actually

⁶⁵ *Id.*

⁶⁶ See *Palmetto Fire Ins. Co. v. Clark Garage Co.*, 6 La. App. 420, 420 (La. Ct. App. 1927); S. REP. NO. 96-172, at 5.

⁶⁷ See H.R. REP. NO. 98-1133, at 119 (1984) (Conf. Rep.).

⁶⁸ See Peterson, *supra* note 42, at 337.

⁶⁹ See *id.*

⁷⁰ See H.R. REP. NO. 98-1133, at 119.

⁷¹ See *id.*

⁷² See *United States v. Aceto Agric. Chem. Corp.*, 872 F.2d 1373, 1384 (8th Cir. 1989).

⁷³ See *Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1015 (11th Cir. 2004); *Cox v. City of Dallas*, 256 F.3d 281, 298 (5th Cir. 2001); *Aceto*, 872 F.2d at 1383.

⁷⁴ See *Aceto*, 872 F.2d at 1384.

disposed of the pesticides.⁷⁵ The court noted that Aceto contracted with Aidex to formulate their pesticides, retained ownership of the pesticides throughout the process, and supplied the specifications for the process to Aidex.⁷⁶ These factors made it clear that Aceto had contributed to the disposal of the hazardous waste.⁷⁷ Similarly, a court found the city of Dallas contributed to illegal dumping of waste at a city dump, even though the company Dallas Demolition actually disposed of the waste.⁷⁸ The court reasoned that the city had also contributed to the unlawful disposal because it contracted with Dallas Demolition while knowing the illegal dumping was taking place.⁷⁹ Both cases refer to the defendant's contribution to the handling of the waste itself, not to the defendant's contribution to the alleged harm.⁸⁰

While courts have construed the "contribute to" element broadly, courts will not hold defendants liable who can prove their role had no impact on the handling of the waste.⁸¹ In *California Department of Toxic Substances Control v. Interstate Non-Ferrous Corp.*, the court refused to impose liability on a past waste handler because no evidence was introduced to establish that this specific defendant actually had any effect in the handling of the waste.⁸²

2. The "May Present a Substantial and Imminent Harm" Language Includes Three Additional Causation Elements

a. *Timing of Harm*

In addition to the "contribute to" element, the phrase "may present a substantial and imminent harm" presents three additional causation questions that all have a relaxed proximate cause standard.⁸³ First, section 7002 relaxes how close in time a potential harm must occur to be considered "imminent."⁸⁴ The Supreme Court made it clear that section 7002 requires an ongoing threat of harm, and does not apply to

⁷⁵ *Id.* at 1383.

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ See *Cox*, 256 F.3d at 296–97.

⁷⁹ See *id.*

⁸⁰ See *id.* at 296; *Aceto*, 872 F.2d at 1383.

⁸¹ See *Cal. Dep't of Toxic Substances Control v. Interstate Non-Ferrous Corp.*, 298 F. Supp. 2d 930, 979 (E.D. Cal. 2003).

⁸² *Id.*

⁸³ RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); see *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1020–21 (10th Cir. 2007).

⁸⁴ RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); see *Dague v. City of Burlington*, 935 F.2d 1343, 1355–56 (2d Cir. 1991).

past threats that no longer exist.⁸⁵ However, only a *threat* of harm must be imminent, not an actual harm itself.⁸⁶ Indeed, an imminent hazard may be declared “at any point in a chain of events which may ultimately result in harm to the public,”⁸⁷ and courts have made clear that section 7002 is not reserved only for emergency situations.⁸⁸

For instance, in *United States v. Waste Industries, Inc.*, the court rejected the defendant’s claim that section 7002 applies only to emergency situations due to the language of the section requiring that the event be probable.⁸⁹ The court stated that injunctions under section 7002 are proper when only a risk of harm exists, even though the actual harm might not occur until much later.⁹⁰ Thus, the Fourth Circuit reversed the district court’s “emergency only” ruling, and held that a landfill that only presented an imminent risk of harm satisfied this element.⁹¹

b. *Risk of Harm*

Aside from expanding the “imminence” of the harm, the “may present a substantial and imminent harm” element also alters the traditional amount of risk that plaintiffs must establish in order to prevail at both the preliminary injunction stage and at trial.⁹² With section 7002, Congress changed what plaintiffs must demonstrate to receive a preliminary injunction by replacing the “irreparable harm standard” of the common law with a “risk of harm” standard.⁹³ This would facilitate more injunctions for the benefit of the environment.⁹⁴ While the irreparable harm standard may be thought of as protecting defendants from the troubles of complying with an unnecessary injunction, the risk of harm standard showcases a choice to protect the environment from the unnecessary harm caused by a lack of hard science.⁹⁵

In addition to establishing a more relaxed standard for receiving an injunction, section 7002 also lowers the level of risk that plaintiffs must

⁸⁵ See *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 485–86 (1996).

⁸⁶ See *Dague*, 935 F.2d at 1356.

⁸⁷ *Id.* at 1355–56.

⁸⁸ *Id.*

⁸⁹ See *United States v. Waste Indus., Inc.*, 734 F.2d 159, 165 (4th Cir. 1984).

⁹⁰ See *id.*

⁹¹ *Id.* at 168.

⁹² RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); see *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1020–21 (10th Cir. 2007); *United States v. Price*, 688 F.2d 204, 211 (3d Cir. 1982).

⁹³ See *Price*, 688 F.2d at 211.

⁹⁴ See *id.*

⁹⁵ See *id.*

demonstrate in order to prevail at trial.⁹⁶ The “operative word . . . ‘may’,” when combined with the word “endangerment,” as both words are probable in nature, clearly demonstrates the low level of risk required by section 7002.⁹⁷ Courts have noted that this “expansive language” proves that section 7002 does not require proof of actual harm.⁹⁸ Indeed, wastes have been found to satisfy this causation element when there may be “*any risk*” of harm.⁹⁹ Furthermore, Congress intended that if an error is to be made regarding this element of causation, it should be made as to protect human health and the environment.¹⁰⁰

c. *Degree of Harm*

Aside from requiring a risk of the harm, section 7002 also requires that the degree of harm be “substantial.”¹⁰¹ The statute does not define “substantial,” but courts have consistently held that harm is substantial if it is “serious.”¹⁰² Further, harm is “serious” if there is reasonable concern that a person or the environment may be harmed by the waste in question.¹⁰³ This element does not require that the harm be quantified in order to be substantial.¹⁰⁴ For example, the court in *Interfaith Community Organization v. Honeywell International*—addressing a possible contamination of hexavalent chromium—found that the defendant’s contention that it was complying with state standards did not imply that the harm was insubstantial.¹⁰⁵

III. RELAXED CAUSATION STANDARDS OPENED THE DOOR FOR “IMPERFECT SCIENCE” TO SATISFY PROOF OF CAUSATION

These relaxed causation standards have also changed the level of scientific proof required to win a section 7002 case because they broaden the types of proof that can establish harm.¹⁰⁶ Specifically, section 7002 allows imperfect, or “soft,” science to serve as the basis of imposing liability.¹⁰⁷ Congress endorsed a standard of causation that is less

⁹⁶ See *Burlington*, 505 F.3d at 1020–21.

⁹⁷ See *id.*

⁹⁸ *Id.*

⁹⁹ See *Dague v. City of Burlington*, 935 F.2d 1343, 1355 (2d Cir. 1991).

¹⁰⁰ *Interfaith Cmty. Org. v. Honeywell Int’l*, 399 F.3d 248, 259 (3d Cir. 2005).

¹⁰¹ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006).

¹⁰² See *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1021 (10th Cir. 2007).

¹⁰³ *Id.*

¹⁰⁴ See *Interfaith Cmty. Org.*, 399 F.3d at 259–60.

¹⁰⁵ See *id.*

¹⁰⁶ See S. REP. NO. 98–284, at 59 (1983).

¹⁰⁷ See *id.*

than scientific certainty by stating that “risk may be ‘assessed from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections, from imperfect data, or from probative preliminary data not yet certifiable as ‘fact.’”¹⁰⁸ While Congress was well aware of the tension between imposing liability on defendants without sufficient proof, and allowing the environment to suffer due to a lack of science, Congress firmly came down on the side of the environment.¹⁰⁹

The “imperfect data” language quoted above is from *Ethyl Corp. v. EPA*, and Congress’s endorsement of this language sheds additional light on how Congress thought courts should treat issues of causation and lack of scientific certainty.¹¹⁰ *Ethyl Corp.* held that the Administrator of the EPA could promulgate rules limiting the amount of lead in gasoline, even though no hard proof existed establishing that auto emissions were the primary cause of human exposure to lead.¹¹¹ The court noted that it is virtually impossible to isolate one source of lead and determine its effect on the body,¹¹² and the lead industry argued that the lack of hard science linking human lead levels directly with auto emissions prevented EPA from enacting a rule limiting lead additives in gasoline.¹¹³ However, the court rejected that argument, noting that Congress understood these problems of proof when it used an “endangerment” standard, and decided that the environment or human health should not suffer due to a lack of scientific certainty.¹¹⁴ The “soft science” argument that humans derive some of their lead content from ambient air, and that auto emissions are the primary cause of lead in the ambient air, satisfied the endangerment standard.¹¹⁵ The court noted that when Congress authors a precautionary statute, courts will not require a “rigorous step-by-step proof of cause and effect.”¹¹⁶ Section 7002 also employs an endangerment standard, and thus the lessons from *Ethyl Corp.* are still very relevant to RCRA’s citizen suit.¹¹⁷

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* “The primary intent of the provision is to protect human health and the environment.” *Id.*

¹¹⁰ See 541 F.2d 1, 28 (D.C. Cir. 1976); S. REP. NO. 98–284, at 59.

¹¹¹ See *Ethyl Corp.*, 541 F.2d at 7–8 (stating that humans have multiple sources of exposure to lead).

¹¹² *Id.* at 9.

¹¹³ *Id.* at 12.

¹¹⁴ See *id.* at 25–26.

¹¹⁵ See *id.* at 10.

¹¹⁶ *Id.* at 27–28.

¹¹⁷ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006).

EPA has adhered to Congress's intentions and declared that imperfect science can be used to prove that waste may present an endangerment.¹¹⁸ In a 1997 document explaining the phrase "imminent and substantial endangerment," EPA lists several factors to be assessed when determining the connection between the waste and harm.¹¹⁹ For instance: (1) "the existence of a connection between the solid or hazardous waste and air, soil, groundwater, or surface water"; (2) "the pathway(s) of exposure from the hazardous or solid waste to the receptor population"; and (3) "the sensitivity of the receptor population."¹²⁰ Each of these factors demonstrates that an exact science linking the waste to the alleged harms will often not exist.¹²¹ Therefore, common sense indicators can be used to assess the level of risk involved.¹²²

Courts have also relied on "pathways of exposure" to satisfy the causation element when absolute scientific proof is lacking.¹²³ In *Interfaith Community Organization v. Honeywell International*, the defendant's chromium production site, which was possibly leaking hexavalent chromium into the Hackensack River, was held to present an endangerment in part because of the pathways of exposure between the waste and harm.¹²⁴ Specifically, holes in the company's plastic liner allowed the chromium to seep into and contaminate the groundwater.¹²⁵ This kind of proof satisfied requirements of section 7002 because its primary goal is to minimize future harm to the environment even without absolute scientific proof.¹²⁶

Leister v. Black & Decker presents an example of a court correctly rejecting a section 7002 claim when plaintiffs lack proof of any risk that the waste may present an endangerment to the environment or health.¹²⁷ The court held that the plaintiffs could not show a risk of harm from the industry defendant's solid waste because the plaintiffs had a filtration system for their water which eliminated the risk.¹²⁸ The court did not hold plaintiffs to a standard of actual harm, but rather,

¹¹⁸ See ENVTL. PROT. AGENCY, GUIDANCE ON THE USE OF SECTION 7003 OF RCRA 11 (1997) [hereinafter EPA RCRA GUIDANCE].

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *See id.*

¹²² *See id.*

¹²³ *See Interfaith Cmty. Org. v. Honeywell Int'l*, 399 F.3d 248, 261 (3d Cir. 2005).

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *See id.*; S. Rep. No. 98-284, at 59 (1983).

¹²⁷ *See* No. 96-1751, 1997 WL 378046, at *3 (4th Cir. July 8, 1997).

¹²⁸ *Id.*

consistent with the language of section 7002, held that plaintiffs were not entitled to relief because not even a risk of harm existed.¹²⁹

IV. THE NEW CAUSATION QUESTION—LINKING UBIQUITOUS AND NATURAL WASTES TO SPECIFIC DEFENDANTS

For most of section 7002's history, proving the above elements—contribution to the handling of solid waste, and that this type of waste may present an imminent and substantial endangerment to the environment—satisfied the question of causation.¹³⁰ It was rare for courts to require plaintiffs to prove a link between the waste causing harm and the waste handled by a specific defendant on his property, because the uncommon and specific materials usually at issue under this section could not have come from anywhere else.¹³¹

For example, when the plaintiffs in *United States v. Aceto Agricultural Chemical Corp.* alleged that the pesticides leaking from the defendant's property were contaminating their adjacent property, it was obvious the pesticides in the contaminated area were the same as the pesticides handled by the defendant.¹³² In the case of *Aurora National Bank v. Tri Star Marketing, Inc.*, the petroleum and kerosene handled by the defendants at their gas station were obviously the same petroleum and kerosene contaminating the same property that the plaintiffs now owned.¹³³ These cases illustrate that most of the wastes litigated under section 7002 just could not have come from anywhere else.¹³⁴

However, when plaintiffs use section 7002 to sue over a more common and ubiquitous solid waste, an additional causation question arises: is the waste that is harming the environment actually the same waste that was handled by the defendants on site, or has the waste harming the environment come from other industries, the environment, or a combination?¹³⁵

At least one EPA action shows that EPA believes RCRA can impose liability in the realm of ubiquitous wastes.¹³⁶ In 2006, EPA filed a complaint under section 7003 against Seaboard Foods because their con-

¹²⁹ *Id.*

¹³⁰ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); *supra* Part III.

¹³¹ See generally *ABB Indus. Sys., Inc. v. Prime Tech., Inc.*, 120 F.3d 351 (2d Cir. 1997) (perchloroethylene found on site resulting from defendant's circuit board manufacturing process); *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013 (10th Cir. 2007) (tar-like material contaminating property adjacent to an oil refinery).

¹³² See 872 F.2d 1373, 1375 (8th Cir. 1989).

¹³³ See 990 F. Supp. 1020, 1022 (N.D. Ill. 1998).

¹³⁴ See, e.g., *Aceto*, 872 F.2d at 1375; *Aurora*, 990 F. Supp. at 1022.

¹³⁵ See, e.g., *Att'y Gen. of Okla. v. Tyson Foods Inc.*, 565 F.3d 769 (10th Cir. 2009).

¹³⁶ See Complaint, *supra* note 2.

centrated animal feeding operations (CAFOs) were presenting an imminent threat to the environment by increasing the amount of nitrate and ammonia in ground water, a naturally occurring byproduct of CAFOs.¹³⁷ EPA believed that Seaboard Foods was liable under section 7003 even though it can be very difficult to prove concretely that a naturally occurring and ubiquitous waste is coming from a specific defendant rather than other sources.¹³⁸ A court never ruled on the merits of this case.¹³⁹ However, one recent case serves as a helpful illustration of the way courts are starting to deal with this issue.¹⁴⁰

A. *Oklahoma v. Tyson Foods, Inc. Illustrates RCRA's New Causation Question*

In 2005, the State of Oklahoma filed a complaint against several poultry processors (Tyson Foods) under section 7002 seeking a preliminary injunction to halt the application of "poultry litter" fertilizer¹⁴¹ on the ground within the Illinois River Watershed (IRW).¹⁴² The State alleged that the poultry processors were responsible for applying large quantities of poultry waste on the land within the IRW, which adversely affects the water quality of the IRW, as well as the humans who swim in it.¹⁴³ Oklahoma's motion for preliminary injunction was denied on causation grounds.¹⁴⁴ The court found that Oklahoma failed to establish that the bacteria found in the Illinois River was actually the same bacte-

¹³⁷ *Id.*

¹³⁸ *See id.*; *Steilacoom Lake Improvement Club, Inc. v. Washington*, 138 F. App'x. 929, 933 (9th Cir. 2005).

¹³⁹ *See Oklahoma v. Tyson Foods, Inc.*, No. 05-CV-0329-GFK-PJC (N.D. Okla. Feb. 17, 2010), 2010 WL 653032, at *11 (noting that the court in *Seaboard* never ruled on the merits.)

¹⁴⁰ *See generally Tyson Foods*, 565 F.3d at 773.

¹⁴¹ Poultry litter is the material leftover from the bedding in poultry operations, and consists primarily of poultry manure, but also includes other materials such as spilled feed and dried feathers. *See id.* at 774.

¹⁴² *See id.* at 773.

¹⁴³ *See Complaint, supra* note 2, at 1. Poultry litter contains fecal-indicator bacteria such as *E. coli*, which suggest the presence of other harmful bacteria that can cause disease outbreaks if the water is ingested by recreational users. *See WILLIAM J. ANDREWS ET AL., SUMMARY OF SURFACE-WATER QUALITY DATA FROM THE ILLINOIS RIVER BASIN IN NORTHEAST OKLAHOMA, 1970-2007*, at 14-24 (2009). Poultry litter is also high in nutrients, such as nitrogen and phosphorus, which create unnatural algae bloom if the levels are too high. *See id.* This heightened amount of algae can cause numerous adverse effects on the environment, such as decreasing the amount of oxygen in the water enough to suffocate some animals. *See id.* For purposes of this Note, all bacteria and nutrients contained in poultry litter will be referred to collectively as "bacteria."

¹⁴⁴ Although the injunction could have been decided on a number of grounds, it was expressly denied due to a lack of specific causation. *See Oklahoma ex. rel. Edmondson v. Tyson Foods, Inc.*, No. 05-CV-329-GKF-SAJ, 2008 WL 4453098, at *4 (N.D. Okla. Sept. 29, 2008).

ria from the poultry litter handled by the defendants.¹⁴⁵ The denial of preliminary injunction was confirmed in an interlocutory appeal.¹⁴⁶ The case eventually moved on to trial and was decided on different grounds—specifically that poultry litter is not solid waste as defined under RCRA.¹⁴⁷ Nonetheless, the denial of a preliminary injunction in *Tyson Foods* is a helpful illustration of the facts that lead to a new causation question for ubiquitous wastes under RCRA. This new causation question—how to link a ubiquitous waste to a specific defendant—is likely to repeat itself in the future.¹⁴⁸ From this point forward, this Note will refer to linking a ubiquitous waste to a specific defendant as “*Tyson’s* causation question.”

Before making its determination on the preliminary injunction, the court excluded two expert witnesses who attempted to establish a foolproof “link” between poultry litter bacteria and Illinois River bacteria.¹⁴⁹ Specifically, two scientists compared the DNA of bacteria in the Illinois River and bacteria in poultry litter, and argued that it was a match.¹⁵⁰ For this court, the decision to exclude evidence of the DNA link between poultry litter bacteria and the Illinois River bacteria effectively decides the causation question, because, without this evidence, no

¹⁴⁵ See *id.*

¹⁴⁶ See *Tyson Foods*, 565 F.3d at 774.

¹⁴⁷ See *Oklahoma v. Tyson Foods, Inc.*, No. 05-CV-0329-GFK-PJC, 2010 WL 653032, at *11–12 (N.D. Okla. Feb. 17, 2010). Because the trial court reached its conclusion based on the definition of solid waste and not causation, this Note does not advocate for a specific ruling in this case. However, the factual scenario presents an interesting question of causation that is bound to repeat itself if more citizen suits are directed at ubiquitous wastes. See discussion *infra* Part V.

¹⁴⁸ See *id.* Another case with a similar causation question was *Steilacoom Lake Improvement Club v. Washington*. See 138 F. App’x 929, 931 (9th Cir. 2005). In that case, the plaintiff environmental group sued various counties of Washington and the United States because the counties’ land allegedly was increasing the amount of phosphorus in Steilacoom Lake and causing water-quality problems. See *id.* Unlike *Tyson*, the court decided the case on causation grounds, even though the judge also declared that the phosphorus was not producing an imminent harm. *Id.* The judge was most concerned that the plaintiffs could not link any specific defendant, or specific source, to the heightened amount of phosphorus. See *id.* The plaintiffs did present expert testimony linking increased human activity over a period of fifty years to heightened phosphorus in the lake. See Brief for Appellant at 10–11, *Steilacoom Lake Improvement Club v. Washington*, No. 03–35888, 138 F. App’x 929 (9th Cir. July 22, 2004). However, as *Steilacoom* and *Tyson Foods* illustrate, it is very difficult to trace a ubiquitous and naturally occurring “waste” to its original source. See 138 F. App’x at 931–32; *Tyson Foods*, 2008 WL 4453098, at *4.

¹⁴⁹ See *Tyson Foods*, 2008 WL 4453098, at *3. The court applied the *Daubert* test to exclude the testimony of Dr. Olsen and Dr. Harwood. The court determined that this scientific research was excluded under *Daubert* because it had not been peer reviewed. *Id.*

¹⁵⁰ See *Att’y Gen. of Okla. v. Tyson Foods, Inc.*, 565 F.3d 769 (10th Cir. 2009); *Tyson Foods*, 2008 WL 4453098, at *3.

hard scientific proof connected the IRW bacteria and bacteria from the defendant's property.¹⁵¹

The court did, however, admit evidence that suggested a possible connection between poultry litter and the Illinois River bacteria.¹⁵² Specifically, evidence showed that poultry producers apply poultry litter directly to the land, and this portion of the IRW has karstic geology—fractured and partially dissolved, with fissures, sinkholes, underground streams, and caverns.¹⁵³ The karstic geology of the surrounding land is related to legitimate risk factors such as clear pathways of exposure and the sensitivity of the receiving population.¹⁵⁴ Moreover, Oklahoma presented the fact that state and federal authorities, and many independent organizations, all believed that bacteria from poultry litter was entering the Illinois River.¹⁵⁵

In sum, Oklahoma did not possess any concrete scientific proof that the bacteria in the Illinois River was actually the same bacteria that originated at the poultry processor's property, but rather only presented "soft" scientific theories and projections.¹⁵⁶ The court reasoned from prior case law that there must be "some level of causation between the contamination and a party to be held liable."¹⁵⁷ Moreover, "it is not enough [to contribute] to solid waste that was handled" because the "'contribution' must be causally connected to the possibility of an 'imminent and substantial endangerment.'"¹⁵⁸ A more difficult question, however, is what kinds of proof of this connection are sufficient to impose liability under section 7002?¹⁵⁹

V. OKLAHOMA V. TYSON FOODS, INC.'S CAUSATION QUESTION SHOULD HAVE A LOWER STANDARD OF PROOF THAN THE COMMON LAW

When linking a ubiquitous waste to a specific defendant ("Tyson's causation question"), this new causation question should be considered using the same low proximate cause standard used throughout the rest of the statute.¹⁶⁰ This analysis is supported by courts' interpretation of

¹⁵¹ See *Tyson Foods*, 565 F.3d at 769; *Tyson Foods*, 2008 WL 4453098, at *3.

¹⁵² See *Tyson Foods*, 565 F.3d at 786 (Ebel, J., dissenting).

¹⁵³ See *id.*

¹⁵⁴ See *id.*; EPA RCRA GUIDANCE, *supra* note 118, at 11.

¹⁵⁵ See Brief for Appellant at 6 n.4, *Att'y Gen. of Okla. v. Tyson Foods Inc.*, 565 F.3d 769 (10th Cir. 2009) (No. 08–5154).

¹⁵⁶ See *Tyson Foods*, 2008 WL 4453098, at *3–4.

¹⁵⁷ See *Cal. Dep't of Toxic Substances Control v. Interstate Non-Ferrous Corp.*, 298 F. Supp. 2d 930, 979 (E.D. Cal. 2003).

¹⁵⁸ *Id.*

¹⁵⁹ See *id.*

¹⁶⁰ See *supra* Parts II, III.

the statute, based on the legislative intent behind section 7002, and by the EPA's current position on this specific question.¹⁶¹

A. *Section 7002's Expansion of the Phrase "Contribute To" Should Also Guide Tyson's New Causation Question*

Tyson's causation question should be decided by a relaxed proximate cause standard in order to be consistent with other similarly relaxed standards of proximate cause used in section 7002.¹⁶² The causal question surrounding whether a defendant "contributed to" the handling of the waste is more expansive than its common law counterpart.¹⁶³ The "contribute to" element expanded the chain of actors that may be reached under proximate cause, both in terms of participation in the process and in the time period considered.¹⁶⁴ Since Congress wanted to broaden the scope of liable defendants, they clearly chose the environment over the risks created by low causation standards.¹⁶⁵ Thus, for *Tyson's* causation question, courts should infer that Congress did not want to prevent lawsuits from going forward for a lack of concrete scientific proof.¹⁶⁶

It is settled that the "contribute to" element requires "some causal connection between the defendant's action and the alleged harm."¹⁶⁷ Some defendants encourage, and the court in *Tyson Foods* agreed, that "contribute to" requires actual, and a higher degree of, proof of causation between a specific waste and a specific defendant.¹⁶⁸ However, while the "contribute to" element may indicate the need for a causal relationship, it should not require a level of proof of causation higher than that employed by the rest of the statute.¹⁶⁹ This is true because while "contribute to" may suggest a causal relationship between the defendant and the harm, that was not the true intention of the language.¹⁷⁰ The main reason for the inclusion of the "contribute to" element was to broaden the scope of actors who can be held liable.¹⁷¹ The

¹⁶¹ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); *Dague v. City of Burlington*, 935 F.2d 1343, 1356 (2d Cir. 1991); EPA RCRA GUIDANCE, *supra* note 118, at 11.

¹⁶² See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); S. REP. NO. 98-294, at 59 (1983).

¹⁶³ See S. REP. NO. 96-172, at 5 (1979).

¹⁶⁴ See *id.*; H.R. REP. NO. 98-1133, at 119 (1984) (Conf. Rep.).

¹⁶⁵ See H.R. REP. NO. 98-1133, at 119; S. REP. NO. 96-172, at 5.

¹⁶⁶ See H.R. REP. NO. 98-1133, at 119; S. REP. NO. 96-172, at 5.

¹⁶⁷ See *Cal. Dep't of Toxic Substances Control v. Interstate Non-Ferrous Corp.*, 298 F. Supp. 2d 930, 979 (E.D. Cal. 2003).

¹⁶⁸ See *Att'y Gen. of Okla. v. Tyson Foods Inc.*, 565 F.3d 769, 777 (10th Cir. 2009).

¹⁶⁹ See S. REP. NO. 96-172, at 5.

¹⁷⁰ See H.R. REP. NO. 98-1133, at 119.

¹⁷¹ See *id.*

same language that expands a defendant's liability in contributing to the waste should not also restrict a defendant's liability by increasing the level of proof needed to establish the causal link between harm and specific defendants required in another area.¹⁷²

B. *The Remaining Causation Elements Also Demonstrate that Section 7002 is Exclusively Governed By Relaxed Standards of Causation*

Further evidence that *Tyson's* causation question should be decided by the same relaxed proximate cause standard as other parts of the statute is the lower level of risk needed to obtain a preliminary injunction.¹⁷³ By switching to the "risk or harm" standard rather than "irreparable harm," Congress demonstrated its willingness to relinquish the traditional safeguards of the common law regarding impeding the actions of innocent defendants.¹⁷⁴ *Tyson's* causation question should also benefit from the same congressional reasoning.¹⁷⁵ While under the common law "irreparable harm" was required before imposing liability on defendants to protect them from unwarranted lawsuits, section 7002 deliberately weakens these safeguards in order to further the important cause of regulating solid wastes.¹⁷⁶ Allowing *Tyson's* causation question to be decided in the same fashion as the preliminary injunction standard would facilitate Congress's goals.¹⁷⁷

Also, the low level of risk that plaintiffs must prove demonstrates that *Tyson's* causation question should be considered under a relaxed proximate cause standard.¹⁷⁸ Instead of actual harm, section 7002 requires defendants to alter their practices if their waste disposal presents any risk of harm to the environment.¹⁷⁹ Thus, it would be contradictory to require concrete scientific proof to link specific defendants to ubiquitous wastes, because it is not required to establish the risk of harm.¹⁸⁰ *Tyson's* causation element should be resolved consistent with Congress's choice to protect the environment over the risk of imposing liability in cases with no actual harm.¹⁸¹

¹⁷² *See id.*

¹⁷³ *See* United States v. Price, 688 F.2d 204, 211 (3d Cir. 1982).

¹⁷⁴ *See id.*

¹⁷⁵ *See id.*

¹⁷⁶ *See id.*

¹⁷⁷ *See id.*

¹⁷⁸ *See* Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013, 1020 (10th Cir. 2007).

¹⁷⁹ *See id.*

¹⁸⁰ *See id.*

¹⁸¹ *See id.*

Additionally, the fact that section 7002 permits soft science to prove the above causal elements suggests that soft science should also be able to prove *Tyson's* new causation question.¹⁸² Again, section 7002 changes the common law standard of causation, making the deliberate choice to risk inaccuracy in favor of expanded liability and responsibility for defendants acting in the realm of solid and hazardous waste.¹⁸³ This desire to allow imperfect data to satisfy causal standards can be seen in the congressional history of the statute.¹⁸⁴ It can also be seen in cases where the court has not required concrete evidence of causation questions.¹⁸⁵ Allowing soft science to link ubiquitous wastes to specific defendants would adhere to the intentions of Congress and the courts.¹⁸⁶

C. EPA Actions Demonstrate That it Does Not Require Actual Proof to Link a Ubiquitous Waste to a Specific Defendant

Although Congress did not directly consider *Tyson's* question during RCRA's passage, the EPA has over time indicated that it feels ubiquitous wastes need not be linked through concrete scientific proof.¹⁸⁷ The EPA's 1997 document regarding section 7003 indicates that the EPA felt soft sciences could be used to prove questions of causation under this section.¹⁸⁸ They also have sued defendants responsible for ubiquitous wastes which could have come from other locations even when they did not have hard scientific proof of a link between the defendant and the waste.¹⁸⁹ EPA's complaint against Seaboard Foods, where the amount of nitrate in groundwater could have come from other sources, strongly suggests that the EPA does not read into section 7002 a requirement that ubiquitous wastes be linked to defendants through concrete proof.¹⁹⁰ EPA knows the best way to address issues of complex causation to ensure a fair balance between imposing liability on responsible actors, and protecting the environment in the spirit of RCRA; its interpretation of section 7002 should be given deference.¹⁹¹

¹⁸² See S. REP. NO. 98-284 at 59 (1983).

¹⁸³ See *id.*

¹⁸⁴ See *id.*

¹⁸⁵ See, e.g., *Interfaith Cmty. Org. v. Honeywell Int'l*, 399 F.3d 248, 259 (3d Cir. 2005).

¹⁸⁶ See *id.*; S. REP. NO. 98-284, at 59.

¹⁸⁷ See Complaint, *supra* note 2.

¹⁸⁸ See EPA RCRA GUIDANCE, *supra* note 118, at 11.

¹⁸⁹ See Complaint *supra* note 2.

¹⁹⁰ See *id.*

¹⁹¹ See *id.*

D. *Tyson's Reasoning on this Issue Presents an Example of an Incorrect Interpretation of the New Causation Question Under Section 7002*

With this principle in mind regarding *Tyson's* causation question, the opinion of the district court provides a useful illustration of the wrong way to answer the question, and the consequences that stem from that error.¹⁹² Throughout its opinion, the district court uses language which reveals that it erroneously required absolute proof that *Tyson Foods* contributed to the alleged harm.¹⁹³ The opinion begins by stating, “[t]he State has not yet met its burden of proving that bacteria in the waters of the IRW are caused by the application of poultry litter rather than by other sources.”¹⁹⁴ A statement that accurately reflects the “may present” causal standard would read: “The State has not yet met its burden of showing that poultry litter may present an imminent and substantial endangerment to human health or the environment.”¹⁹⁵ The court then concluded its opinion with: “[T]he State has failed to meet the applicable standard of showing that the bacteria levels in the IRW can be traced to the application of poultry litter.”¹⁹⁶ The most revealing word in that sentence is “traced,” since it suggests that the district court required dispositive scientific proof that the bacteria in the river came from the poultry litter.¹⁹⁷

Further evidence that the district court mistakenly required the plaintiffs to establish concrete scientific proof is that a substantial portion of the opinion is dedicated to the exclusion of two expert witnesses who attempted to establish this foolproof “link” between poultry litter bacteria and Illinois River bacteria.¹⁹⁸ This demonstrates that the court incorrectly held plaintiffs to a standard of scientific certainty by declaring that there was no proof that defendants “contributed to” the bacteria causing the harm.¹⁹⁹

Contrary to the opinion of the Tenth Circuit, the court did not use the correct causal standard since, if it had, it would have been obligated to address the admitted evidence that suggested a possible connection between poultry litter and the Illinois River bacteria.²⁰⁰ Never-

¹⁹² See *Oklahoma ex. rel. Edmondson v. Tyson Foods, Inc.*, No. 05-CV-329-GKF-SAJ, 2008 WL 4453098, at *3 (N.D. Okla. Sept. 29, 2008).

¹⁹³ See *id.* at *1, *3.

¹⁹⁴ See *id.* at *1.

¹⁹⁵ See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); *Att’y Gen. of Okla. v. Tyson Foods, Inc.*, 565 F.3d 769, 784 (10th Cir. 2009) (Ebel, J., dissenting).

¹⁹⁶ See *Tyson Foods*, 2008 WL 4453098, at *3.

¹⁹⁷ See *Tyson Foods*, 565 F.3d at 784; *Tyson Foods*, 2008 WL 4453098, at *3.

¹⁹⁸ See *Tyson Foods*, 2008 WL 4453098, at *1–3.

¹⁹⁹ See *id.*

²⁰⁰ See *Tyson Foods*, 565 F.3d at 786 (Ebel, J., dissenting).

theless, as the dissent notes, although two expert opinions were excluded, the court did admit evidence that poultry producers apply poultry litter directly to the land, that this portion of the IRW is karstic, and that state and federal authorities, and many independent organizations, all believed that bacteria from poultry litter was entering the Illinois River.²⁰¹ This is not to say that this evidence is dispositive on the issue. However, at the very least, if the court was using the correct causal standard of probability, it should have addressed this evidence and explained why it felt that this evidence did not establish that poultry litter may present an endangerment to human health or the environment.²⁰²

The other side of this argument, of course, is the charge that by not requiring scientific links between harms and defendants, courts will be imposing liability on possibly innocent defendants, and thus imposing a disproportional burden of waste cleanup on them.²⁰³ Certainly this argument is true. By lowering standards of proximate cause and levels of scientific proof, it opens the door to more defendants being mistakenly held liable.²⁰⁴ On the other hand, it also opens the door for better environmental protection for real harms when no scientific proof of their causes exists.²⁰⁵ When deciding *Tyson's* causation question, like the other questions of causation answered by the courts under section 7002, a choice needs to be made between accurate liability and unaddressed or unproven harms.²⁰⁶ In addition to the broad construction of other causation questions, courts should remember the broad policy decisions behind the initial passage of RCRA, understanding that while steps have been made, RCRA's original purpose is just as strong today.²⁰⁷ The general purpose of the act was to protect the environment through a statute with a low threshold of liability.²⁰⁸ RCRA came at a time when Congress was reacting to the solid and hazardous waste problem that it believed was reaching crisis level proportions.²⁰⁹ RCRA represented a substantial overhaul of the way the United States treats solid waste and a refusal to turn a blind eye to problems just because they are not in plain sight.²¹⁰ Congress intentionally chose to reform

²⁰¹ See *id.* at 786–87 (Ebel, J., dissenting).

²⁰² See *Tyson Foods*, 565 F.3d at 788 (Ebel, J., dissenting).

²⁰³ See *Cal. Dep't of Toxic Substances Control v. Interstate Non-Ferrous Corp.*, 298 F. Supp. 2d 930, 979 (E.D. Cal. 2003).

²⁰⁴ See *id.*

²⁰⁵ See S. REP. NO. 98–284, at 59 (1983).

²⁰⁶ See *Interstate Non-Ferrous Corp.*, 298 F. Supp. 2d at 979.

²⁰⁷ See Riesel, *supra* note 30, at 232.

²⁰⁸ See *id.*

²⁰⁹ See S. REP. NO. 98–284, at 59; Chambers & McCullough, *supra* note 4, at 22.

²¹⁰ See S. REP. NO. 98–284, at 59.

the way the country handled solid waste in response to an increasingly complicated, technological, and chemically filled world without guarantees of scientific certainty.²¹¹ Congress's choice of the environment over the risk of assigning some defendants unwarranted liability is as relevant and important today as it was in 1976.²¹²

CONCLUSION

The Resource Conservation and Recovery Act presented a watershed moment in American waste regulation by overhauling the existing regulatory program and implementing one of the EPA's most complex regulatory schemes.²¹³ The Hazardous and Solid Waste Amendments of 1984 represented Congress's impatience with EPA's progress, and its desire that citizens play a larger role in waste regulation.²¹⁴ Based on Congress's clear, laudable, and even dramatic intentions, courts have liberally construed RCRA's citizen suit provision, making it easier for environmental plaintiffs to both get into court, and win once there.²¹⁵ Specifically, standards of proximate cause under the common law—which had been frustrating plaintiffs in highly technical cases—were replaced with standards of substantive liability decidedly pro-plaintiff and anti-waste industry.²¹⁶

It is easy to forget these lofty goals when we move away from the dangerous sounding materials at the center of incidents like Love Canal, and focus on less dangerous sounding, but equally harmful, “natural wastes.” However, focusing on the proper management of natural wastes may just be the next step in ridding America's land and water from the harmful effects of waste disposal. Additionally, citizen suits may lead the way in this new area of section 7002. Using section 7002 to stop defendants from improperly disposing natural waste will indeed include new questions of science and causation, and will test the court's limits as to how far “soft science” may be allowed to go in order to impose liability on defendants.²¹⁷ However, courts should not forget the United States has faced these decisions before. Congress and the courts

²¹¹ See *id.*; Riesel, *supra* note 30, at 232.

²¹² See S. REP. NO. 98-284, at 59; Riesel, *supra* note 30, at 232.

²¹³ See Chambers & McCullough, *supra* note 4.

²¹⁴ See RCRA, 42 U.S.C. §§ 6917-6992k (2006).

²¹⁵ See *Dague v. City of Burlington*, 935 F.2d 1343, 1356 (2d Cir. 1991); S. REP. NO. 98-284, at 59.

²¹⁶ See *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1020-21 (10th Cir. 2007); S. REP. NO. 98-284 at 59.

²¹⁷ See *Oklahoma ex. rel. Edmondson v. Tyson Foods, Inc.*, No. 05-CV-329-GKF-SAJ, 2008 WL 4453098, at *3 (N.D. Okla. Sept. 29, 2008).

have expanded traditional defendant liability and allowed relaxed causal standards to govern in every conceivable question of causation yet litigated under this section.²¹⁸ The causation decision regarding natural wastes and their link to a specific defendant should be decided the same way. While defendants will not be liable when no evidence is offered against them, the environment should not suffer because science cannot yet establish the level of certainty required by common law notions of causation.²¹⁹

²¹⁸ See S. REP. NO. 98-284, at 59.

²¹⁹ See *id.*