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Using Subsequent Remedial Measures to Help Satisfy Problematic Causation Requirements in Toxic Torts Cases

Jason Drori
Suffolk University Law School

USING SUBSEQUENT REMEDIAL MEASURES TO HELP SATISFY PROBLEMATIC CAUSATION REQUIREMENTS IN TOXIC TORTS CASES

I. INTRODUCTION

[M]odern life, including good health as well as economic well-being, depends upon the use of artificial or manufactured substances, such as chemicals.[1]

American industry has generated and discarded hazardous wastes for decades, ranging from nuclear and petroleum byproducts and toxic metals, such as mercury or lead, to synthetic chemical compounds, such as DDT and PCBs.[2] Commercial waste facilities store or abandon such waste in vacant lots, lagoons, or landfills.[3] Over time, and at varying rates, storage methods fail and hazardous substances contaminate underground water supplies, soil, and air, and eventually come into contact with unprotected victims.[4] Exposure can cause cancer, genetic mutation, birth defects or miscarriages, and can trigger organ failure.[5] Congress addressed these risks with dramatically increased legal attention, passing regulatory statutes such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980 and the Superfund Amendments and Reauthorization Act (SARA) in 1986 to "facilitate prompt cleanup of hazardous waste sites and *to shift the cost of environmental response from taxpayers to parties who benefited from wastes that caused harm.*"[6]

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[1] General Electric Co. v. Joiner, 522 U.S. 136, 148 (1997) (Breyer, J., concurring) (discussing development of cancer several years after alleged exposure to hazardous chemicals).

[2] *See* Harvard Law Review Association, *Development in the Law – Toxic Waste Litigation: Introduction*, 99 HARV. L. REV. 1458, 1458 (1986) (analyzing legal response to toxic waste under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), passed in 1980).

[3] *Id.*

[4] *Id.*

[5] *Id.*

[6] OHM Remediation Servs. v. Evans Cooperage Co., 116 F.3d 1574, 1578 (5th Cir. 1997) (reflecting CERCLA's broad, remedial purpose) (emphasis added). Congress enacted CERCLA "to initiate and establish a comprehensive response and financing mechanism to abate and control the vast problems associated with abandoned and inactive hazard-

Throughout the 1960s, the field of products liability expanded to encompass toxic torts, an area now labeled a major source of personal injury litigation.[7] Victims of toxic chemical exposure seeking damages inundate courts with a growing number of tort actions.[8] A successful claim often hinges on proximate cause because toxic torts generally involve a period of latency between exposure and any demonstrable injury.[9] This latency, together with statutory time limitations and little scientific information regarding exposure, often creates insurmountable legal and practical barriers to recovery when courts apply traditional tort standards for causation.[10] Similarly, prevailing in a products liability action invariably turns on whether the plaintiff establishes that the named manufacturer's defective product proximately caused the harm alleged.[11]

To show product defects, parties pursuing these claims typically seek to introduce evidence that the manufacturer employed measures that, if taken previously, would have made the injury or harm less likely to occur; yet courts frequently reject the admissibility of such evidence under Rule 407 of the Federal Rules of Evidence to avoid unfairly prejudicing the defendant. To justify excluding evidence of subsequent remedial measures, Rule 407 purports to further a social policy of encouraging manufacturers to create safer products.[12] Notwithstanding Rule 407, some courts have held that plaintiffs in products liability cases are entitled to introduce evidence of subsequent remedial measures to prove the existence of duty;

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ous waste disposal sites." H. R. REP. NO. 96-1016(I) (1980), *reprinted in* 1980 U.S.C.C.A.N. 6119, 6125.

[7] 1 M. Searcy, A GUIDE TO TOXIC TORTS, § 1.01 (1987).

[8] *See* Daniel A. Farber, *Toxic Causation*, 71 MINN. L. REV. 1219, 1219-20 (1987) (discussing difficult cause-in-fact burden for toxic tort plaintiffs).

[9] *See In re* Diamond Shamrock Chem. Co., 725 F.2d 858, 861 (2d Cir. 1984) (limiting issue to whether Agent Orange could have conceivably caused harms alleged regardless of levels of exposure).

[10] *See* Indus. Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 607 (1980) (involving occupation safety regulation of carcinogen for which safe level of exposure is unknown); *see also* Reserve Mining Co. v. EPA, 514 F.2d 492, 508 (8th Cir. 1975) (assessing question of risk without scientific evidence on the danger of ingesting, rather than inhaling, asbestos); Robert F. Blomquist, *Emerging Themes and Dilemmas in American Toxic Tort Law, 1988-91: A Legal-Historical and Philosophical Exegesis*, 18 S. ILL. U. L. J. 1, 2-3 (1993) [hereinafter *Emerging Themes and Dilemmas*] (addressing major thematic concerns in toxic tort law).

[11] *See* Daleiden v. Carborundum Co., 438 F.2d 1017, 1022 (8th Cir. 1971) (placing burden on plaintiff "to prove that claimed defect was factual cause of injury").

[12] *See generally* FED. R. EVID. 407; Raymond v. Raymond Corp., 938 F.2d 1518, 1522 (1st Cir. 1991) (reflecting view that majority of circuits have interpreted Rule 407 to apply to products liability actions); Flamino v. Honda Motor Co., 733 F.2d 463, 467 (7th Cir. 1984) (explaining principal social policy argument made in favor of Rule 407).

to show the feasibility of precautionary measures, for impeachment purposes, or in strict liability cases.[13]

This note supports admitting evidence of subsequent remedial measures, otherwise barred by Rule 407, that a plaintiff class offers against a defendant to help prove causation in a toxic tort action. Part II analyzes traditional standards for proximate causation in tort actions and surveys Rule 407. This section also evaluates public policy arguments for excluding evidence of subsequent remedial measures in tort actions. Part III presents the elements that claimants in both toxic torts and products liability actions must prove to recover damages and applies proximate cause analysis to products liability and toxic torts litigation; it also demonstrates how this compounds plaintiffs' difficulties. Part IV explores the strict liability, impeachment, feasibility, ownership, and control exceptions to Rule 407, and it applies these exceptions to toxic torts cases. This note concludes that classes of victims should be allowed to introduce evidence of subsequent remedial measures against manufacturers to support their negligence case and to help offset their difficult cause-in-fact burden impeding toxic tort plaintiffs.

II. RULE 407 AND LEGAL CAUSATION UNDER TRADITIONAL TORT STANDARDS

A. Legal Causation

Toxic torts and products liability plaintiffs use a range of theories of liability, including negligence, warranty, and strict liability.[14] To prevail, a

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[13] *See, e.g.*, Petree v. Victor Fluid Power, Inc., 831 F.2d 1191, 1195 (3rd Cir. 1987) (admitting evidence offered for purpose of impeaching defendant's expert witness as to issues of feasibility of precautionary measures); Dollar v. Long Mfg., N.C., Inc., 561 F.2d 613, 617 (5th Cir. 1977), *cert. denied*, 435 U.S. 996 (admitting evidence that manufacturer added or changed product warnings for purpose of impeaching manufacturer's inconsistent testimony); Sterner v. U.S. Plywood-Champion Paper, Inc., 519 F.2d 1352, 1354 (8th Cir. 1975) (admitting evidence of subsequent alteration in warnings concerning proper use of product as probative of feasibility of more adequate warning of risk involved); Boeing Airplane Co. v. Brown, 291 F.2d 310, 310 (9th Cir. 1961) (upholding admission of evidence of subsequent design modification for purpose of showing that design changes were feasible); *see also* Roth v. Black & Decker, Inc., 737 F.2d 779, 780-81 (8th Cir. 1984) (holding Rule 407 did not preclude evidence of subsequent repairs in action based on strict liability in tort); *cf.* Fish v. Ga.-Pac. Corp., 779 F.2d 836, 840 (2nd Cir. 1985) (excluding evidence of post-accident remedial measures for purpose of proving feasibility because manufacturer had not denied such measures were feasible); Cann v. Ford Motor Co. 658 F.2d 54 (2nd Cir. 1981), *cert. denied*, 456 U.S. 960 (1982) (applying Rule 407 in strict products liability action because policy underlying Rule 407 relevant to defendants sued under such theory).

[14] Grant L. Foster, Comment, *A Case Study in Toxic Tort Causation: Scientific and*

plaintiff must demonstrate causation, irrespective of the complaint or theories for recovery pleaded therein.[15] Causation refers to the factual and legal relationships that plaintiffs must establish between tortious conduct and injury before courts will impose liability.[16] Proof of cause-in-fact and proximate cause is necessary to show causation.[17] Proximate cause requires proof that the defendant's conduct substantially contributed to bringing about the alleged harm.[18] A plaintiff traditionally established factual causation under the "but for" test; however, a "substantial factor" test has emerged in circumstances where causation is either difficult or impossible to determine.[19] Under the latter approach, the plaintiff bears the burden to "produce evidence that the conduct of the defendant has been a substantial factor in bringing about the harm ... and to sustain his burden of proof by a preponderance of the evidence."[20] Courts should apply the substantial factor test in cases involving multiple causes of a particular harm. The critical causation question in toxic torts cases is whether the defendant's toxic substances or conduct were independently sufficient causes of harm to the plaintiff class.[21]

B. Development of Rule 407

The Supreme Court ruled more than a century ago that evidence of post-accident remedial measures, standing alone, is inadmissible to prove culpable conduct.[22] The Court in *Columbia & Puget Sound Railroad, Co. v. Hawthorne*[23] reasoned that evidence of remedial measures is irrelevant because "taking ... precautions against the future is not to be construed as an admission of responsibility for the past."[24] The Court also rejected such

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Legal Standards Work Against Recovery for Victims, 19 ENVTL. L. 141, 145-46 (1988) (discussing toxic tort victims' difficulties in establishing causation in personal injury actions).

[15] *See* W. KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS, note 12, § 41 at 263 (5th ed. 1984) [hereinafter PROSSER & KEETON].

[16] *See* 1 M. SEARCY, A GUIDE TO TOXIC TORTS, § 10.01[2][a] (1987) (differentiating cause-in-fact from proximate cause).

[17] *Id.*

[18] RESTATEMENT (SECOND) OF TORTS § 431 (1965).

[19] Branstetter v. Kunzler, 274 S.W.2d 240, 245 (1955) (defining causal connection necessary for actionable negligence). The "but for" test asks whether the injury would not have occurred but for the defendant's conduct. *Id.*

[20] RESTATEMENT (SECOND) OF TORTS § 433B, Comment a (1965).

[21] *See* 1 M. SEARCY, *supra* note 16, and accompanying text.

[22] *See* Columbia & Puget Sound R.R., Co. v. Hawthorne, 144 U.S. 202, 208 (1892) (holding evidence of subsequently added safety features inadmissible to show fault where a worker suffered injury when a pulley became unscrewed from machine).

[23] 144 U.S. 202 (1892).

[24] *Id.* at 207.

evidence because it apparently confused the issues before the jury, and because it unfairly prejudiced the defendant.[25] Shortly after *Hawthorne*, courts continually excluded evidence of subsequent remedial measures in negligence actions.[26] Rule 407 embodied the post-*Hawthorne* common law doctrine, serving as an exclusionary umbrella that bars evidence such as subsequent installation of safety devices, a change in company regulations and practice, or discharge of employees.[27] Neither the language of Rule 407 nor the advisory committee's report, however, provide guidance about its applicability to toxic torts or products liability actions.[28]

C. Social Policy and Relevance Bases of Rule 407

In *Flamino v. Honda Motor Co.*,[29] the Seventh Circuit stated: "A major purpose of Rule 407 is to promote safety by removing the disincentive to make repairs (or take other safety measures) after an accident that would exist if the accident victim could use those measures as evidence of the defendant's liability."[30] The *Flamino* decision held that the absence of an exclusionary rule such as Rule 407 would put public safety at risk.[31] An alternative basis for Rule 407 is that subsequent remedial measures are irrelevant in assessing the defendant's liability.[32] The promulgators and

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[25] *See id.* at 208 (relying on Morse v. Minneapolis & St. Louis Ry., 30 Minn. 465 (1883)). In *Morse*, the Minnesota Supreme Court held that remedial evidence is irrelevant for demonstrating negligence and that allowing such evidence would "hold out an inducement for continued negligence." *Id.*

[26] *See, e.g.*, Chicago & E.R. Co. v. Ponn, 191 F.2d 682, 692 (6th Cir. 1911) (refusing to admit post-accident evidence that defendant installed new turntable sufficiently long enough to accommodate engines); Southern Pac. Co. v. Hall, 100 F.2d 760, 767-68 (9th Cir. 1900) (refusing to admit evidence of a post-accident repair because jury could improperly perceive such evidence as admission of past negligence); Barber Asphalt Paving Co. v. Odasz, 60 F. 71, 73 (2d Cir. 1894) (prohibiting testimony involving changes made to defendant's operations in response to accident "exerted injurious effect").

[27] *See* FED. R. EVID. 407. The rule states in relevant part:

> When, after an injury or harm allegedly caused by an event, measures are taken that ... would have made the injury or harm less likely to occur, evidence of the subsequent measures is not admissible to prove negligence, culpable conduct, a defect in a product, a defect in a product's design, or a need for a warning or instruction.

Id.

[28] *See id.* (Advisory Committee's Note).

[29] 733 F.2d 463, 467 (7th Cir. 1984) (affirming decision to exclude evidence of post-accident design changes in motorcycle component in strict products liability case).

[30] *Id.* at 469.

[31] Cann v. Ford Motor Co., 658 F.2d 54, 60 (2d Cir. 1981) (refusing to limit scope of Rule 407 to negligence cases). The court in *Cann* surmised that although negligence and strict products liability causes of action are distinguishable ... the failure of Rule 407 to refer explicitly to actions in strict liability does not prevent its application to such actions." *Id.*

[32] *See In re* Air Crash Disaster, 86 F.3d 498, 529 (6th Cir. 1996) (commenting on

proponents of the rule suggest that introducing a subsequent remedial measure may create a risk of jury confusion that substantially outweighs its "marginal relevance."[33] With these considerations in mind, courts generally impose a standing rule of exclusion rather than rely on a pro forma approach suggested by Rule 403 of the Federal Rules of Evidence.[34] Courts presume that Rule 407 "clings the jury's attention to the defendant's information and conduct at the relevant time ..."[35]

D. Modern Application of Rule 407

The most frequently cited case allowing evidence of remedial measures, *Ault v. International Harvester Co.*,[36] was decided several months prior to Rule 407's enactment. In *Ault*, the California Supreme Court held that the remedial evidence exclusion did not apply in actions against manufacturers based on strict liability.[37] The court reasoned that although the policy to encourage post-accident safety measures may apply in negligence actions, such policy reasoning has no comparable role within strict products liability.[38] In particular, the court in *Ault* doubted that mass

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limited relevance of evidence that Rule 407 excludes). "Independent of its effect on safety upgrades by alleged tortfeasors, the rule bars a class of evidence that is very poor proof of negligence or defectiveness." *Id.*

[33] *Id.*

[34] *See* FED. R. EVID. 403 (recognizing certain circumstances call for exclusion of unquestionably relevant evidence). Rule 403 states: "Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." *Id.*

[35] *See* Cook v. McDonough Power Equip., Inc., 720 F.2d 829, 831 (5th Cir. 1983) (determining function of Rule 407 is to "focus the evidence to that most relevant" to proving liability at time of accident).

[36] 528 P.2d 1148 (Cal. 1974).

[37] *See id.* at 1150 (analyzing application of § 1151 of California Evidence Code). Like Rule 407, section 1151 provides that: "remedial or precautionary measures ... taken ... after the occurrence of an event, which, if taken previously, would have tended to make the event less likely to occur ... are inadmissible to prove negligence or culpable conduct in connection with the event. CAL. EVID. CODE § 1151 (West 1966). Both section 1151 and Rule 407 call for similar policy analyses. *See also* Robbins v. Farmers Union Grain Terminal Ass'n, 552 F.2d 788, 790 (8th Cir. 1977) (admitting evidence because strict liability, by its nature, does not contain elements of negligence required for exclusion under Rule 407).

[38] Ault v. Int'l Harvester Co., 528 P.2d 1148, 1150 (Cal. 1974) (expressing doubt that "the rationale which impelled the Legislature to adopt [§ 1151] ... for cases involving negligence is applicable to suits founded upon strict liability, and ... therefore declin[ing] to judicially extend the application of the section to litigation founded upon that theory). The California Supreme Court further acknowledged that "evidence of subsequent repairs *is relevant to the issue of negligence*, for if the changes occur closely in time they may well illustrate the feasibility of the improvement at the time of the accident, one of the normal elements in the negligence calculus." *Id.* at 1151 (citing Johnson v. United States, 163 F.

producers of products would fail to implement safety features by design out of fear that such evidence may be used against them at trial.[39] The majority disagreed that even the risk of related claims and a tarnished public reputation could lead to this nonfeasance from a cost-benefit perspective.[40]

Since *Ault*, federal circuit courts have inconsistently applied the rule in products liability actions, despite the supposedly clear language of Rule 407. This inconsistency first occurred in *Knight v. Otis Elevator Co.*[41] In *Knight*, the Third Circuit decided that Rule 407, in fact, applies to strict liability claims.[42] The Court excluded the contested evidence without distinguishing strict liability and negligence actions, and it failed to address issues of fault or culpable conduct.[43] Five years later, in *Flamino v. Honda Motor Co.*, the Seventh Circuit attempted to promulgate a rationale for excluding subsequent remedial measures in strict liability claims;[44] yet, several federal circuits and state courts have abandoned the Seventh Circuit's interpretation of Rule 407 in deference to the rationale supporting the *Ault* decision.[45] In addition, Rule 407 is not construed to prohibit evidence of a party's analysis of its product or measures taken prior to the *event* causing injury or harm, even if measures occurred after the product's manufacture or design.[46] The fact that the analysis may often result in re-

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Supp. 388, 395 (D. Mont. 1958); Baldwin Contracting Co. v. Winston Steel Works, Inc., 236 Cal. App. 2d 565, 573 (1965); Varas v. Barco Mfg. Co., 205 Cal. App. 2d 246, 259 (1962)) (emphasis added).

[39] *See id.* at 1152. (rejecting public policy assumptions justifying evidentiary rule in modern products liability field). "It is manifestly unrealistic to suggest that ... [t]he contemporary corporate mass producer of goods ... will forego making improvements in its product, and risk innumerable additional lawsuits and the attendant adverse effect upon its public image, simply because evidence of adoption of such improvement may be admitted ... for recovery on an injury that preceded the improvement." *Id.* at 1152.

[40] *Id.*

[41] 596 F.2d 84, 89 (3d Cir. 1979) (barring post-accident evidence to prove specific defect in defendant's product).

[42] *Id.* at 91-92. On review, the court in Knight found no abuse of discretion for excluding evidence of a safety device installed after an employee was injured when struck by a malfunctioning elevator door. *Id.*

[43] *See id.*

[44] *See supra* note 29 and accompanying text.

[45] *See* Herndon v. Seven Bar Flying Service, 716 F.2d 1322, 1327 (10th Cir. 1983) (admitting into evidence service bulletin warning against faulty flight control switch). The court noted that "there is no evidence which shows that manufacturers even know about [Rule 407] or change their behavior because of it." *Id.* at 1328. *See also* ME. R. EVID. 407(a) (construed to allow the admission of subsequent remedial evidence for any purpose, including proving negligence); *see infra* notes 46-48.

[46] *See* Rocky Mountain Helicopters v. Bell Helicopters, 805 F.2d 907, 918 (10th Cir. 1986) (upholding admission of post-accident tests of allegedly defective product). The Tenth Circuit stated, "It would strain the spirit of the remedial measure prohibition in Rule 407 to extend its shield to evidence contained in post-event tests or reports." *Id. See also* Chase v. General Motors Corp., 856 F.2d 17, 21-22 (4th Cir. 1988) (remanding because change in brake design that occurred before the "event" mentioned in Rule 407 admissible).

medial measures being taken does not render evidence of the analysis inadmissible.[47]

E. Exceptions to Rule 407

1. Feasibility and Impeachment

Proving the feasibility of precautionary measures is an acceptable use of evidence of subsequent remedial measures.[48] To prevent the jury from shifting its attention to the time before the defendant's actions, some jurisdictions require that evidence of subsequent remedial measures must be probative of a permissible purpose that is actually *in controversy*.[49] Other jurisdictions presume feasibility is at issue if a manufacturer does not expressly stipulate to the feasibility of an alternative design.[50] Still, other courts routinely exclude such evidence under Rule 407 after a defendant manufacturer openly concedes feasibility.[51]

Rule 407 also includes impeachment as grounds for admitting subsequent remedial measures.[52] The plaintiff may introduce evidence of re-

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The Fourth Circuit held that a July 1980 modification to the lining material of the rear brakes to be made to the plaintiff's car constituted a "measure" "taken" before the January 1982 collision. *Id.* at 21. "On retrial, the plaintiffs are free to explore the July 1980 change ... and the reasons for it if such change might tend to be evidence of negligence, or ... is otherwise admissible." *Id.* at 22.

[47] *See* Benitez-Allende v. Alcan Aluminio do Brasil, S.A., 857 F.2d 26, 33 (1st Cir. 1988), *cert. denied,* 489 U.S. 1018 (1989) (upholding admission of test of allegedly defective product even though manufacturer used test to plan voluntary product recall following accident) (emphasis deleted).

[48] *See* Boeing Airplane Co. v. Brown, 291 F.2d 310, 315 (9th Cir. 1961) (admitting evidence of features added to an alternator device following accident to show feasibility of manufacturing features at the time questionable alternator was built).

[49] *See* Hull v. Chevron U.S.A., Inc., 812 F.2d 584, 584 (10th Cir. 1987) (rejecting evidence offered on issue of feasibility as irrelevant and cumulative because feasibility not controverted). The court in Hull did not admit a subsequent remedial measure to prove that defendant-manufacturer controlled a forklift. *Id.* at 585. Defendant acknowledged that its employees operated the forklift and accepted responsibility for hiring and firing employees working the forklift. *Id.*

[50] *See* Ross v. Black & Decker, Inc., 977 F.2d 1178, 1185 (7th Cir. 1992) (disagreeing that defendant admitted feasibility of the remedial measure). Defendant unsuccessfully contested admission of Underwriters Laboratory (UL) safety standards after failing to stipulate to feasibility or include an admission of feasibility as an uncontested fact during pretrial motions. *Id.*

[51] *Id.* at 1181 (admitting post-manufacture remedial measures for limited purpose after manufacturer disputes feasibility); *see also* Flamino v. Honda Motor Co., 733 F.2d 463, 468 (7th Cir. 1984).

[52] *See* FED. R. EVID. 407. "This rule does not require the exclusion of evidence of subsequent measures when offered for another purpose, such as proving ... impeachment."

medial safety measures specifically to impeach or contradict testimony from a defense witness or the defendant during its case-in-chief.[53]

2. Other Exceptions

Rule 407 expressly allows using remedial evidence to determine ownership or control.[54] Some courts that routinely exclude subsequent remedial measures nonetheless admit such evidence that encourages, and eventually leads to, the remedial measure.[55] Investigative safety reports, for example, have been published to juries because the research does not constitute a remedial measure.[56] Similarly, post-accident testing and related reports are admissible if not deemed "actions directly taken to remedy any flaws or failures."[57] Courts also admit evidence of post-accident remedial measures that parties *other than the manufacturer* have taken.[58] Evidence of *mandatory* remedial repairs is admitted under yet another exception to the general rule of exclusion.[59]

In effect, evidence admitted in these situations is largely indistinguishable to the jury from evidence of the remedial measure itself, and as a result, such evidence may be equally incriminating.[60] Given the several possibilities for plaintiffs to sidestep Rule 407's exclusions, manufacturers

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Id.

[53] *See* Wisconsin Pub. Service Corp. v. Ecodyne Corp., 702 F. Supp. 217, 218-19 (E.D. Wis. 1988) (allowing evidence of compromise or remedial measures to impeach defendant for knowingly making false representations as to adequacy of construction material).

[54] *See* FED. R. EVID. 407. Rule 407 "does not require the exclusion of evidence of remedial measure when offered for another purpose, such as proving ownership or control." *Id.*

[55] *See supra* note 45 and accompanying text.

[56] *See supra* note 45 and accompanying text; *see also* Prentiss & Carlisle Co., Inc. v. Koehring-Waterous Div. of Timberjack, Inc., 972 F.2d 6, 10 (1st Cir. 1992) (admitting contents of internal investigative report analyzing faulty failsafe device).

[57] Dow Chem. Corp. v. Weevil-Cide Co., 897 F.2d 481, 487 (10th Cir. 1990) (citing Rocky Mountain Helicopters, Inc. v. Bell Helicopters Textron, 805 F.2d 907, 918 (10th Cir. 1986)) (reasoning "acts which do nothing to make the harm less likely to occur should not be excluded under Rule 407").

[58] *See* O'Dell v. Hercules, Inc., 904 F.2d 1194, 1204 (8th Cir. 1990) (finding that tortfeasors are not discouraged from performing remedial measures when the government requires such changes).

[59] *See* Rozier v. Ford Motor Co., 573 F.2d 1332, 1343 (5th Cir. 1978) (affirming decision to admit "Trend Cost Estimate" because government agency mandated estimate). Responding to appellant manufacturer's argument that a "Confidential Cost Engineering Report" was inadmissible by virtue of Rule 407, the court in *Rozier* held that "invoking the policy to justify exclusion here is particularly inappropriate since the estimate was prepared not out of a sense of social responsibility, but because the remedial measure was to be required in any event by a superior authority, the National Highway Traffic Safety Administration." *Id.*

[60] *See* Farber, *supra* note 8, at 1224.

cannot presume that the rule applies in all instances, nor predict the effect of possible exclusion or admission of remedial measures at trial.[61]

III. THE CAUSATION PROBLEM IN TOXIC TORTS

In toxic tort actions, courts struggle to find responsibility and apportion liability.[62] Legal causation requirements are designed to ensure that liability is properly imposed, even though the scientific community may require a higher degree of proof before attributing a result to a distinct course of action.[63] Successful recovery requires "a reasonable degree of medical certainty" that a toxic substance caused an injury, even if "the medical community might require more ... before conclusively resolving the question."[64] Proving causation, however, remains the most significant problem for toxic tort litigants.[65]

The threshold requirement for establishing causation in toxic exposure litigation varies across jurisdictions, creating confusion over the degree to which causation must be shown.[66] Generally, a temporal connection, standing alone, is entitled to little weight in determining causation.[67] Most courts require scientific evidence and strong circumstantial evidence before giving greater weight to a temporal connection.[68] Meanwhile, other circuits have accepted that instances exist where the temporal connection between the exposure and the plaintiff's condition is so compelling as to render standard methods of toxicology unnecessary.[69] These rare instances notwithstanding, long latency periods separating exposure to toxic chemicals and disease, little adequate exposure data, and the possibility of multi-

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[61] *See* Farber, *supra* note 8, at 1228.

[62] *See* Blomquist, *supra* note 9, at 4.

[63] *See* Foster, *supra* note 14, at 151.

[64] *See* Wells v. Ortho Pharmaceutical Corp, 788 F.2d 741, 745 (11th Cir. 1986) (distinguishing legal sufficiency and scientific certainty when establishing plaintiffs' burden of proving manufacturer's spermicide caused congenital malformations).

[65] *See* Garner v. Hecla Mining Co., 431 P.2d 794 (1967) (refusing to award costs because plaintiff failed to establish uranium mining caused decedent's cancer, even though higher than average rate of cancer existed among uranium miners).

[66] *See* Foster, *supra* note 13, at 147.

[67] *See* Curtis v. M & S Petroleum, Inc., 174 F.3d 661, 669 (5th Cir. 1999) (affirming in part district court's determination that expert had adequate support for general causation opinion). The court recognized that, in addition to a temporal connection, an established scientific connection between exposure and illness or other circumstantial evidence must support the causal link. *Id.*

[68] *Curtis*, 174 F.3d at 661.

[69] *See* Cavallo v. Star Enter., 892 F. Supp. 756, 774 (E.D. Va. 1995) (granting motion in limine to exclude expert testimony after finding that experts failed to adhere to scientifically valid basis for conclusion that certain vapors caused the proposed syndromes that plaintiff suffered).

ple causations are some problems that attorneys face when attempting to prove causation.[70]

Evidence of a factual relationship between a particular cause and a delayed, non-specific effect, such as cancer or leukemia, regularly requires expert opinion.[71] Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony, and the Supreme Court most recently interpreted Rule 702 in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[72] In essence, the Court explained that Rule 702 assigns a gatekeeping role to the trial judge to ensure that scientific testimony is both reliable and relevant.[73] The Third and Fifth Circuits have emphasized that under *Daubert*, "any step that renders the analysis unreliable ... renders the expert's testimony inadmissible ... *even if the step merely misapplies that methodology.*"[74] Accordingly, the lack of unique effects, inadequate toxicological data, and scientific uncertainty often undercut or altogether preclude expert testimony as unreliable, given new approaches to and analysis of toxicological data.[75] Even if experts meet the *Daubert* standard for admissible opinion testimony, this uncertainty tends to cause a protracted "battle of the experts" and eventually requires an inexpert fact finder "to make credibility determinations to 'decide the victor.'"[76] The toxic tort plaintiff's difficulties are further compounded because the plaintiff must show that exposure to a substance is generally capable of resulting in a *certain type* of injury; more specifically, that exposure resulted in injury in the individual plaintiff's case.[77] Changes in policy taken after toxic exposure help to

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[70] *See* 1 M. SEARCY, A GUIDE TO TOXIC TORTS, § 10.02 (1987).

[71] *See Curtis*, 174 F.3d at 668 (reviewing admissibility of expert testimony).

[72] 509 U.S. 579, 588-89 (1993) (invalidating common law standard for determining reliability of scientific evidence where federal evidence rules superceded common law).

[73] *Id.* at 597 (defining gatekeeping function). The majority opinion stated:

> Faced with a proffer of expert scientific testimony ... the trial judge must determine at the outset ... whether the expert is proposing to testify to scientific knowledge that will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.

Id. at 592-593.

[74] *See Curtis*, 174 F.3d at 671 (quoting *In re* Paoli R.R. Yard PCB Lit., 35 F.3d 717, 745 (3rd Cir. 1994)) (admitting as expert causation opinion plaintiff's symptoms indicative of benzene exposure because exposure numerically certain) (emphasis added).

[75] *Id.*

[76] *See* Wells v. Ortho Pharmaceutical Corp, 788 F.2d 741, 745 (11th Cir. 1986) (citing Ferebee v. Chevron Chemical Co., 736 F.2d 1529, 1535 (D.C. Cir. 1984)) (referencing district court's reliance on conflicted oral testimony of expert witnesses to resolve conflicts in studies).

[77] Sterling v. Velsicol Chem. Corp., 855 F.2d 1188, 1198-99 (6th Cir. 1988) (differentiating generic and individual causation in mass tort actions). In *Sterling*, the court agreed that "the combination of the chemical contaminants and the plaintiffs' exposure to

establish an individualized "causal link" in cases involving injuries too causally indistinguishable because such changes account for contact with particular toxin.[78]

IV. THE IMPACT OF RULE 407 ON THE TOXIC TORT PLAINTIFF'S BURDEN

A. Social Policies Supporting a Toxic Torts Claim Call for the Admission of Post-Accident Evidence

Toxic tort and products liability litigation emerged and evolved to guarantee that liability for injuries resulting from toxic chemical exposure vested with manufacturers.[79] These public policy concerns necessarily require that procedural obstacles not burden toxic tort litigants any further. In reality, Rule 407's stated justifications contribute to problems of proof for victims vulnerable to asbestos, hazardous waste sites, radiation, and tobacco.[80] The rule excludes otherwise germane evidence that specifically helps to ease high evidentiary burdens regarding causation and defectiveness.[81] As mentioned in Parts II and III, causation is an indispensable element in negligence actions, but it consistently strains or is fatal to meritorious claims.[82]

Rule 407 mistakenly presupposes that manufacturers understand that no exclusionary rule for subsequent remedial measures exists in the relevant jurisdiction; the rule merely assumes that manufacturers might become encouraged to avoid post-accident repairs because such repairs could potentially constitute an admission regarding the dangerous condition of a product or substance.[83] The same defendant, however, would also

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them had the capacity to cause the harm alleged," affirming generic causation. *Id.* at 1199. The majority, however, determined that the "district court erred in attributing all of the representative plaintiffs' alleged injuries to drinking or otherwise using the contaminated water" because each plaintiff failed to "prove to a 'reasonable medical certainty' ... that their ingestion of the contaminated water caused each of their particular injuries." *Id.* at 1199-1200.

[78] *See* Harvard Law Review Association, *supra* note 2, at 1470.

[79] *See* Greenman v. Yuba Power Prods., Inc., 377 P.2d 897, 901 (Cal. Dist. Ct. App. 1963) (reiterating public policy underlying strict products liability). The court reasoned: "The purpose of such liability is to insure [sic] that the costs of injuries resulting from defective products are borne by the manufacturers that put such products on the market rather than by the injured persons who are powerless to protect themselves." *Id.*

[80] Wade, *infra* note 83, at 568.

[81] *See supra* note 79 and accompanying text (restating remedial function of strict products liability).

[82] *See supra* notes 15 and 19 (describing mandatory proof of causation).

[83] *See* John W. Wade, Note, *On Product "Design Defects" and Their Actionability,*

consider that the *failure* to undertake a remedial action creates a strong case of gross negligence or recklessness, and possible liability for punitive damages, should other related accidents occur.[84] Accordingly, even in the absence of Rule 407, such a defendant has a clear incentive to perform corrective measures to avoid more serious liability for future accidents.[85] It follows that the policy justification behind Rule 407 is flawed and inconsistent with the trends and underlying policies of toxic tort law that are designed to ease, rather than enhance, the plaintiff's burden of proof.[86] In sum, most courts exclude remedial evidence by invoking traditional policy arguments.[87] Blanket exclusion, however, should not rest on a court's anxiety over *possibly* discouraging manufacturers to create safer products.

V. CONCLUSION

Toxic tort liability is in flux, as "traditional tort doctrine and principles often create obstacles of recovery for putative toxic victims because of extraordinarily difficult problems such as proof, latent injuries, multiple defendants, and causation."[88] The articulated social policy does not justify Rule 407's exclusionary rule. Rigid, simplistic rules offer no solution to the problems of proving toxic tort causation to "a reasonable degree of medical certainty." Inconsistent laws result in uncertainty and uneven application of evidentiary rules designed to achieve uniformity. Arguments supporting exclusion bear little relation to the reality of mass product manufacturing. No evidence suggests that admitting remedial evidence in fact discourages manufacturers from implementing needed safety measures. Expansion of Rule 407 to exclude remedial evidence in toxic tort litigation is therefore unfounded and unwarranted.

Jason Drori

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33 VAND. L. REV. 551, 567 (1980) (criticizing as mistaken assumption in negligence cases manufacturer's knowledge of product's dangerous condition).

[84] *See supra* note 54 and accompanying text (Rule 407 does not apply to defendant manufacturers' analysis of defective product).

[85] Wade, *supra* note 78, at 560.

[86] Wade, *supra* note 78, at 570.

[87] *See supra* note 12.

[88] Blomquist, *supra* note 9, at 26.