2001

Environmental Insurance: Does it Defy the Rules

Amanda Leiter

American University Washington College of Law, leiter@wcl.american.edu

ENVIRONMENTAL INSURANCE: DOES IT DEFY THE RULES?

*Amanda Cohen Leiter**

I. INTRODUCTION

Cleaning up environmental contamination is a costly business. Recent estimates indicate the total remaining costs of decontaminating polluted U.S. sites could range from $150 to $250 billion,[1] and the property-and-casualty insurance industry could ultimately be responsible for one- to two-thirds of this amount.[2] Further, these figures do not account for environmental tort claims (or "toxic torts"), which an author estimated in the early 1990s could "add tens if not hundreds of billions of dollars more to the total environmental liability faced by American businesses over the next two decades."[3]

Unsurprisingly, allocating these enormous—and uncertain—costs among polluters, insurers, and taxpayers is itself an expensive enterprise. Among other difficulties, pollution is frequently first discovered miles away from—and years after—the original spill, making it nearly impossible to determine who bears responsibility for cleaning up a contaminated site. As a result, polluters, insurers, government agencies, and other affected parties spend billions of dollars per year in litigation over the cleanup of polluted sites.[4]

---

* Law clerk to the Honorable Judge Nancy Gertner, U.S. District Court for the District of Massachusetts; J.D., Harvard Law School, 2000; M.S., University of Washington, 1996; M.S., Stanford University, 1992; B.S., Stanford University, 1991. The Author would like to thank Mike Leiter, Eli Cohen, and Professors Christine Jolls, Richard Lazarus, and J.B. Ruhl for their comments on various drafts of this Note.

[1] Melody A. Hamel, *The 1970 Pollution Exclusion in Comprehensive General Liability Policies: Reasons for Interpretations in Favor of Coverage in 1996 and Beyond*, 34 DUQ. L. REV. 1083, 1089–90 (1996).

[2] *See Ultimate A&E Costs: The Range Narrows*, BESTWEEK PROPERTY/CASUALTY SUPPLEMENT, Sept. 8, 1997, at P/C 6 (estimating, as of year-end 1996, that the environmental costs of U.S. insurers would ultimately range from $45 to $73 billion).

[3] KENNETH S. ABRAHAM, ENVIRONMENTAL LIABILITY INSURANCE LAW: AN ANALYSIS OF TOXIC TORT AND HAZARDOUS WASTE INSURANCE COVERAGE ISSUES 1 (1991) [hereinafter ABRAHAM, ENVIRONMENTAL INSURANCE].

[4] For example, surveys suggest that as of 1995, insurers and private polluters alone spent almost $1 billion annually in litigation relating to cleanup of the country's most contaminated hazardous waste sites. *See* Insurance Services Office, *Superfund and the Insurance Issues Surrounding Abandoned Hazardous Waste Sites* (Dec. 1995), at http:// www.iso.com/docs/stud003.htm (last visited Dec. 1, 2000) (on file with the *Harvard Environmental Law Review*). This Insurance Services Office ("ISO") survey only discusses the costs of cleaning up those hazardous waste sites identified by the Environmental Protection Agency ("EPA") in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601–9675 (1994), suggesting that the annual transaction costs involved in allocating liability for cleanup of other contaminated sites—as well as for personal injury and property damage to third parties—are

The inherent complexity of these environmental cost-allocation disputes, as well as the vast amounts of money at stake, suggest the need for a simple theoretical model with which to analyze the implications of various assignments of environmental cleanup costs. Such a model would enable analysts to evaluate algorithms for assigning costs to polluters, liability insurers, victims or their personal insurers, and society to determine which distribution best advances the (possibly conflicting) goals of compensating victims, deterring future pollution events, and cleaning up the mess.

One such theoretical model is the oft-cited model of insurance developed by Steven Shavell.[5] Building on a few simple assumptions, the model enables Shavell to reach surprisingly broad conclusions about liability insurance. For example, the model suggests that although liability insurance usually benefits society, there are some situations in which society should limit the availability of such insurance to ensure that potential injurers have adequate incentives to behave cautiously to reduce the risks posed by their activities. The Shavell model was developed to address questions of third-party liability for personal injuries, however, so it is not immediately clear that the model's conclusions are directly applicable to disputes involving environmental insurance.

This Note evaluates the suitability of the Shavell model for analysis of environmental insurance coverage disputes, first applying the model to several recurring, real-world environmental cost-allocation disputes, and then using the results of this analysis to critique the model itself. Part II of the Note outlines the fundamentals of Shavell's model. Part III then introduces the real-world disputes that will be used to evaluate the model: six contentious issues concerning coverage of pollution events under various versions of the ubiquitous Comprehensive General Liability ("CGL") insurance policy.[6] In Part IV, the model is applied to these disputes, and the model's recommendations are considered from the points of view of polluters, liability insurers, victims, and the public.[7]

Ultimately, the analysis in Part IV indicates that many of the disputes outlined in Part III should be resolved in favor of liability insurers (that is, against coverage). Such a recommendation, however, would allow some insolvent polluters to escape liability for personal injuries and property damage caused by their actions—not to mention the costs of cleanup. This outcome may be correct; that is, it may be true that in some

---

even higher. *See id.*

[5] *See, e.g.,* STEVEN SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW, chs. 8–10 (1987) [hereinafter SHAVELL, ECONOMIC ANALYSIS]; Steven Shavell, On the Social Function and the Regulation of Liability Insurance (2000) (working paper, on file with the *Harvard Environmental Law Review*) [hereinafter Shavell, Regulation of Insurance].

[6] In 1986, the insurance industry changed the title of the standard CGL policy to "Commercial General Liability." *See* Hamel, *supra* note 1, at 1087 n.25.

[7] "The public" is used here to represent taxpayers, who may have to bear the costs of compensating victims in cases in which injurers are insolvent and insurance is unavailable.

circumstances, to maximize deterrence of future pollution events, society should allow insolvent polluters to escape the consequences of their actions.[8] On the other hand, this uncomfortable outcome may instead reflect certain shortcomings of Shavell's model as applied to environmental losses. Part V of the Note suggests such a shortcoming: the model, which focuses on injuries to individuals, overemphasizes the deterrence and risk-spreading functions of insurance, and underemphasizes the compensation function. This deliberate underemphasis of the compensation function of liability insurance may not be justified in the environmental context, for two basic reasons: first, many environmental accidents involve losses to the commons rather than to private individuals, and no suitable analog to first-party insurance exists for such public losses; second, even in situations involving only private victims, first-party insurance may prove an inefficient and ineffective source of compensation for victims of environmental losses. This finding, in turn, calls into question the use—without modification—of standard economic models of insurance for evaluation of environmental insurance disputes.

The Note concludes by advocating a partial solution to the discordance between the Shavell model and reality in the environmental context. This solution—incorporating in the model a recommendation that society require proof-of-solvency before a firm can engage in an activity that poses a significant environmental risk[9]—is not a panacea, but it would make the Shavell model a more useful tool for analysis of future environmental insurance disputes.[10]

II. THE SHAVELL INSURANCE MODEL

The basic conclusions of the Shavell model can be stated quite simply. The model suggests broadly that "liability insurance is socially desirable" because it protects parties from the risk of liability without "unduly" interfering with the deterrence functions of that liability.[11] Further,

---

[8] This statement may not make immediate sense, but Shavell's model does suggest that there are circumstances in which society should prevent judgment-proof potential polluters from purchasing liability insurance to maximize the polluters' incentives to exercise care. *See infra* Part II.C.7.

[9] Several prominent environmental statutes already include such a requirement. *See. e.g.*, CERCLA § 108, 42 U.S.C. § 9608 (1994) (imposing financial responsibility requirements for vessel owners and operators and for hazardous waste facilities); Oil Pollution Act of 1990 ("OPA") § 1016, 33 U.S.C. § 2716 (1994) (imposing financial responsibility requirements for oil transport vessel owners and operators).

[10] Of course, one way in which a firm may choose to prove solvency is through the purchase of liability insurance. As discussed below, this solution may still be available (in modified form) even in a regime in which society has chosen to limit the availability of such coverage. *See infra* Part V.B.

[11] Shavell, Regulation of Insurance, *supra* note 5, at 2. As this assertion suggests, Shavell emphasizes the risk-spreading and deterrence functions of liability insurance from the outset.

the model indicates that in most circumstances, regulation of liability insurance is unnecessary because parties themselves choose the socially optimal level of insurance.[12] In some situations, however, the model advocates societal regulation of the liability insurance market to optimize parties' incentives to reduce risk. In particular, the model recommends mandating coverage in situations in which an insurer is able to monitor an insured's behavior, but "forbidding coverage[ ] . . . when insurers are not able to monitor insured behavior."[13]

To analyze the applicability of these conclusions to questions of environmental liability, one must first be familiar with the structure of the model. This Part begins by explaining the assumptions of the model, classifying them as simplifying assumptions (those that simplify analysis but do not necessarily alter the model's conclusions) or as fundamental assumptions (those that are central to the predictions of the model).[14] The model's prescriptive conclusions about liability insurance are then described from the ex ante points of view of the insurer, the insured, victims, and the public.[15] Finally, this Part details several factors that complicate use of the model and briefly discusses some of the real-world situations in which the model's simplifying and fundamental assumptions may not hold.

A. Assumptions of the Model

The two fundamental assumptions of the Shavell model relate to insurers' and insureds' attitudes toward risk. The premise of all insurance is

---

[12] *See id.*

[13] *Id.*

[14] Clearly, some assumptions that are merely "simplifying" in theory may prove "fundamental" in practice. For example, in developing a model of insurance it is helpful to ignore the costs an insurer will encounter in its attempts to calculate an insured's expected losses. This assumption is merely "simplifying" in most situations as such costs are often small relative to the expected losses involved. If the costs of gathering information about insureds' expected losses are high relative to the size of the expected losses themselves, however, the entire model may unravel as there may no longer be any price at which both insurers and insureds are willing to share or transfer risk. *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 197.

This Note refers to all such assumptions as "simplifying," but the reader should be aware that they may in some instances prove fundamental to the conclusions of the model.

[15] Again, "the public" represents taxpayers, who may be called upon to compensate victims when no other funds are available. Thus, for purposes of this analysis, the public's perspective may differ from that of "society," as society's point of view encompasses the costs incurred by and benefits accruing to *all* involved parties—the insurer, the insured, victims, *and* taxpayers.

On a different note, it is important to point out that in many situations, liability insurance and government tax coffers are not the only sources of funds to compensate victims. For example, a victim's injuries may be covered by her first-party medical insurance. When alternate sources of funds are available, the compensation function of tort liability (and, in turn, consideration of the taxpayer's point of view) becomes less relevant. This issue is discussed in detail below. *See infra* Parts II.C.6, V.B.

that "it is always possible for the more risk averse to pay the less risk averse or the risk neutral to assume risk, so as to leave both better off."[16] In fact, beneficial sharing of risk is even possible among equally risk-averse parties, as each party (by definition) prefers to face a higher possibility of a subdivided loss than to face the lower possibility of the entire loss.[17] If all companies and individuals were risk-neutral, however, insurance would be unavailable and unnecessary because parties would be unwilling to spend any money to transfer or share risk. Thus, one fundamental assumption in applying any insurance model in any context is that some parties facing potential liability are likely to be risk-averse, or willing to pay others to take on some of the risk of that liability.[18] The second fundamental assumption is that there exists a sufficient number of such risk-averse parties to enable an insurer to cover the costs of losses that do occur simply by charging each insured an amount that approximates the expected value of the insured's losses.[19]

In addition to these fundamental assumptions, several of the Shavell model's simplifying assumptions are also relevant in applying the model to the pollution context. For example, Shavell assumes that the risks faced by risk-averse insureds are identical and independent to avoid the problems caused by adverse selection (which occurs "when low-risk members of a pool drop out because the premium is greater than the risk they bring to the pool"[20]) and by large correlated risks (such as those

---

[16] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 190.

For those unfamiliar with the terms "risk-neutral" and "risk-averse," the following definitions may be helpful. "Risk-neutral" parties are, by definition, indifferent between a large possibility of a small future loss (for example, a 10% chance of losing $10,000) and a smaller possibility of a larger future loss (for example, a 5% chance of losing $20,000), as long as both situations involve an identical expected loss (here, $1,000). *See id.* at 186. In contrast, "risk-averse" parties prefer the former scenario, and in fact prefer a *certain* loss of $1,000 to either scenario. *See id.*

An individual is likely to be risk-neutral in some situations and varyingly risk-averse in others, depending in part on the amount of money at stake relative to her assets. For instance, someone who has assets worth $10,000 is likely to be risk-neutral with respect to a potential loss of $10, but may be "quite averse to a risk of a $5,000 loss," and may be even more risk-averse in the face of a non-pecuniary loss, such as death or serious bodily injury, for which no amount of money would adequately compensate. *Id.* at 189.

A firm's attitude toward risk is more difficult to predict accurately, and it is likely to depend not only on the firm's assets and the amount of money at stake but also on the degree of control exercised by shareholders (who are likely to be risk-neutral in relation to any specific situation, as they often structure their investments to reduce their overall exposure) relative to that exercised by managers and employees (who may be more risk-averse, particularly if salaries and benefits are tied to the firm's profits). *See id.*

[17] *See id.* at 190–91.

[18] Of course, if society mandates that certain individuals or corporations purchase liability insurance, then the assumption that those parties are risk-averse is no longer necessary because they will be required to purchase insurance regardless of their attitudes toward risk.

[19] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 192.

[20] George L. Priest, *Puzzles of the Tort Crisis*, 48 OHIO ST. L.J. 497, 500 (1987).

posed by a natural disaster).[21] In addition, Shavell assumes, at least for development of the initial model, that there are "no administrative expenses associated with the insurer's operations"[22] and that insurers and insureds are able to calculate accurately the possibility and magnitude of potential losses.[23] Under these assumptions, an insurer "can be virtually sure of covering its costs by collecting from each insured the expected value of the amount it will have to pay him."[24]

As noted earlier, the conclusions of the Shavell model may hold true even if these simplifying assumptions are not met, but complete analysis of the real-world complexity of these situations is beyond the scope of this Note. In subsequent discussion, therefore, the Note simply identifies situations in which the model's simplifying assumptions may not hold—particularly those situations common in the environmental context—and suggests ways in which the complexity of the real world might alter the conclusions of the analysis.

B. Conclusions of the Basic Model

Initial development of the Shavell model is most straightforward if one imagines a simplified universe in which (1) victims' behavior affects neither the likelihood nor the extent of accidents;[25] (2) all accidents involve purely pecuniary losses; (3) risk levels are known; (4) insurers are risk-neutral; (5) injurers are risk-averse and face strict liability for their actions;[26] (6) no injurers are judgment proof;[27] and (7) victims are risk-averse but carry no first-party insurance. The discussion in this section is therefore limited to this simple situation. These conditions are not, however, assumptions of the model, and Part II.C discusses the model's prescriptions when these conditions are not met.

---

[21] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 198.

[22] *Id.* at 192. This assumption defies belief, but as long as the relevant administrative costs are not exorbitant relative to the expected losses in question, insurers can make up for such costs by charging slightly higher premiums, reducing the maximum level of coverage available, or writing policies that include deductibles. The last option reduces insurers' administrative costs by eliminating all claims for losses below the amount of the deductible. *See id.* at 198.

[23] *See id.* at 198 (discussing the changes to the model necessary when these assumptions are not met). *See also infra* Part II.C.3.

[24] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 192. Suppose, for example, that each insured in an infinitely large population (1) faces a 5% possibility of losing $10,000, and (2) contracts with the insurer to receive that amount in the event of a loss. Under the above assumptions (ignoring inflation), the insurer can cover its costs by collecting premiums of $500. *See id.*

[25] That is, the accidents are "unilateral." *See id.* at 208 n.1.

[26] A necessary component of this condition is that injurers must always be sued by victims for their actions. *See* Shavell, Regulation of Insurance, *supra* note 5, at 2.

[27] That is, all injurers have sufficient assets to compensate anyone injured by their activities.

In the simplified universe described above, one can immediately draw two important preliminary conclusions: first, liability insurance should be available to all potential injurers, for risk-averse parties are always willing to pay to transfer or to share some or all of their risk. If all potential injurers are risk-averse, and the provision of insurance involves no transaction costs, injurers are better off if liability insurance is available.[28]

The second conclusion also derives directly from the above assumptions: under these conditions, neither victims nor taxpayers have any reason to be concerned about the availability of liability insurance. Even if no insurance is available, victims are assured of complete and adequate compensation for their injuries, and taxpayers run no risk that they will be forced to bear some of the costs of that compensation. That is, the presence or absence of liability insurance affects only the source of compensation. In fact, in this simple universe, victims and taxpayers need not worry that the availability of liability insurance might alter insureds' incentives to exercise care[29] because neither has any reason to be concerned about the frequency of loss. All losses are entirely pecuniary, and victims will be fully compensated either by injurers or by liability insurers, so both groups should be entirely indifferent between ex ante reduction of risk and ex post compensation.[30]

1. Irreducible Risks

To reach additional conclusions about the benefits and repercussions of liability insurance, Shavell divides the potential risks an insured may face into two categories, which this Note terms "irreducible" and "reducible" risks. The term "irreducible risks" refers to those risks the insured cannot influence through its actions, whereas "reducible risks" are those risks the insured can abate (or magnify) by increasing (or decreasing) its level of care.[31] Applying the Shavell model to irreducible risks

---

[28] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 191. Note also that society as a whole may be better off if liability insurance is available because such insurance may "mak[e] the risk averse willing to engage in socially desirable, risky activities." *Id.*

[29] A well-known side-effect of insurance is that it immunizes insureds from liability, thus reducing their economic incentives to exercise care. This effect, known as "moral hazard," is discussed at length below. *See infra* notes 39–48 and accompanying text.

[30] As Shavell observes, in this situation, "it should not be socially advantageous for the state to interfere with any contract that injurers happen to make, and in particular with a contract involving liability insurers." Shavell, Regulation of Insurance, *supra* note 5, at 5.

[31] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 193–97.

In the pollution context, a single action is likely to involve both types of risk. For example, on the one hand, a landfill operator has little control over the frequency of natural disasters such as floods or earthquakes; the risk that such a disaster will cause leakage from the landfill is thus at least partially irreducible. On the other hand, the landfill operator can reduce the likelihood of ill effects due to leakage by lining the landfill with impermeable material and strictly controlling the types of substances deposited, suggesting that the leakage risk is partially reducible.

suggests that society is better off if all potential injurers are able to purchase full coverage of such risks. This conclusion clearly follows from an analysis of the options open to an insured. On the one hand, if an insured purchases insurance with a low coverage ceiling (and pays a correspondingly lower premium), she will find herself paying some money in the event of a large loss.[32] Because she is risk-averse, she should be willing to pay a higher premium in the first instance to avoid this outcome. On the other hand, if she purchases more than full coverage (and pays a correspondingly higher premium), she is essentially paying in the present to gamble that a loss will occur. Again, a risk-averse insured should not be willing to face the sure loss of a higher premium in the present to obtain the mere possibility of a future gain in the form of a higher insurance award in the future.[33] Clearly, then, risk-averse insureds and insurers[34] should prefer full coverage for irreducible risks.[35] As discussed above,[36] however, victims and taxpayers should be entirely indifferent (under present limiting conditions[37]) about the amount of coverage purchased for irreducible risks. Thus, society as a whole is best served if potential injurers are able to purchase full coverage for such risks. Further, as long as the insurance industry is competitive,[38] this socially ideal outcome can be reached by negotiation between insurers and insureds, entirely without regulation.

2. Reducible Risks

Applying the Shavell model to reducible risks is more difficult because the behavior of the insured becomes relevant. One must consider not only whether insurance is socially beneficial in the presence of a fixed risk of loss (as discussed above for irreducible risks), but also whether the purchase of insurance itself affects the behavior of insureds in a way that alters the likelihood of loss through the phenomenon of moral hazard.[39]

Note that an insured can also cause some types of loss directly. As this situation is simply the extreme case of a reducible risk (that is, any loss deliberately *caused* by an insured could, by definition, have been avoided through exercise of greater care), this Note includes such situations under the heading "reducible risks."

[32] *See id.* at 193.

[33] *See id.*

[34] The conclusion that insurers' preferences should align with those of insureds relies on both the (assumed) absence of uncertainty or transaction costs and the contractual nature of insurance.

[35] *See* STEVEN SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 193.

[36] *See supra* notes 29–30 and accompanying text.

[37] For a list of the present conditions, see *supra* Part II.B. For discussion of the changes to the model that result when these conditions are relaxed, see *infra* Part II.C.

[38] *See* Shavell, Regulation of Insurance, *supra* note 5, at 2.

[39] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 194–95. Liability is imposed, in part, to induce an injurer to take account of the costs of her behavior and to exercise increased care, so it is reasonable to suppose that in some instances the transfer of liability

To determine the importance of moral hazard to Shavell's liability insurance model, one must consider whether an insured will act in ways that affect the possibility of loss. The answer to this question depends in part on an insurer's ability to monitor an insured's behavior.[39] If the insurer can accurately determine whether an insured has taken adequate precautions against loss, then the insurer is likely to draft its liability policies in ways that reduce the problem of moral hazard. For instance, the insurer may exclude coverage for losses caused by the insured, or reduce premiums for insureds who take additional precautions against loss.[41] On the other hand, if the insurer cannot determine an insured's level of care, the insurer may simply increase policy premiums to reflect this uncertainty.[42] That is, recognizing that the likelihood of a loss could increase simply as a result of the purchase of insurance, an insurer may charge a higher premium at the outset to reflect the resulting increase in the expected loss.

So what level of liability insurance is optimal for reducible risks in cases in which insurers can easily monitor an insured's level of care? As Shavell explains, this scenario is essentially identical to that of an irreducible risk, and the problem of moral hazard becomes irrelevant.[43] Few insureds will reduce their level of care or deliberately cause a loss if they know their premiums will rise or coverage will be denied as a result. Similarly, under the conditions discussed above,[44] the fact that a risk is reducible will not change the preferences of insurers, victims, and the public, as long as insurers are able to structure policies to reduce the problem of moral hazard. Thus, for the same reasons discussed above, full coverage is optimal for reducible risks in situations in which the insurer can monitor the actions of the insured—and again, insurers will choose this level of coverage without government intervention.[45]

In situations in which the insurer cannot determine the insured's level of care, however, insureds will not choose full coverage for reducible risks. Consider the options of a potential polluter—say, a landfill operator—seeking liability coverage for a reducible risk. She can choose to purchase more-than-full, full, or partial coverage of the risks posed by

---

through the purchase of insurance might reduce the insured's incentive to take care. This possibility, that "ownership of insurance might ... dull [an insured's] incentives" to take actions that would reduce the likelihood of loss, is known as moral hazard and is an important consideration in the development of insurance policy for reducible risks. Note that moral hazard is a consideration both in situations in which an insured can herself cause a loss and in situations in which the insured can simply increase the risk of loss by decreasing her level of care.

[40] *See id.* at 195.
[41] *See id.*
[42] *See id.* at 195–96
[43] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 195.
[44] *See supra* text accompanying notes 25–27.
[45] *See* Shavell, Regulation of Insurance, *supra* note 5, at 3–4.

operation of the landfill.[46] As noted above, though, an insurer unable to monitor the landfill operator's level of care will simply raise the premium charged for more-than-full or full coverage of potential pollution events, to counter the effects of moral hazard.[47] Rather than pay this increased premium, the landfill operator will choose instead to purchase partial coverage—that is, coverage with a low ceiling or a significant deductible. With only partial coverage, the landfill operator will bear some of the costs of any loss; this exposure, in turn, will increase her incentive to take care; and insurers, recognizing the partial alleviation of the moral hazard, will charge premiums that more accurately reflect the ex ante probability of loss.[48] Insurers, too, will prefer to offer only partial coverage for this type of risk (or to set rates based on past accident risk) because they have a strong financial interest in calculating accurately the probability of loss, and this calculation is made more difficult by the presence of moral hazard. Finally, victims and taxpayers will remain entirely unconcerned about the availability and form of liability insurance.[49] Thus, partial coverage is socially optimal for reducible risks in the presence of moral hazard.[50] Further, this optimal level of coverage can again be reached entirely through the insurance market without the need for government regulation.[51]

An interesting final aspect of reducible risks is that, as the above discussion demonstrates, insureds are better off if insurers are able to

---

[46] Of course, she can also choose not to purchase insurance at all, but assuming she is risk-averse, she will prefer a solution that involves some sharing of risks.

[47] Moral hazard is particularly problematic when an insured has purchased more-than-full coverage of losses, for such coverage provides the insured with an incentive to cause additional accidents.

[48] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 196. Note that "[i]nsureds will have a similar motive to avoid losses if," instead of purchasing coverage with a low ceiling or a deductible, they instead purchase policies that "specify that their future premiums or insurability depend on loss history." *Id.*

[49] Of course, most pecuniary losses involve such significant hassles that a rational victim may not in fact be indifferent between avoiding injury and receiving compensation, suggesting that even in case of pecuniary losses resulting from reducible risks, victims may prefer forms of insurance—such as partial coverage—that minimize the likelihood of loss. For discussion of victims' preferences when losses are not entirely pecuniary, see *infra* Part II.C.2.

[50] *See* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 195.

[51] *See* Shavell, Regulation of Insurance, *supra* note 5, at 5.

Even if an insured's policy includes a low ceiling or a deductible, the insured's level of care will still fall below the cost-justified level of care (defined as the highest level at which the cost of a precaution "is less than the expected reduction in harm that it engenders," *id.* at 3), as "injurers will [still] be protected from part of the risk of losses." SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 211–12. In spite of this problem, however, it remains unnecessary for the government to regulate the sale of liability insurance because "if liability coverage is forbidden, injurers will be made worse off, as they will be denied the positive coverage that they would wish to buy. . . . At the same time, victims would not be benefited by denying coverage to injurers" as victims "should be indifferent whether or not injurers purchase coverage and about their level of care, for victims are, by hypothesis, fully compensated for loss." Shavell, Regulation of Insurance, *supra* note 5, at 5.

monitor their level of care because "full coverage can be provided while at the same time insureds can be supplied incentives to reduce risks."[52] This observation suggests that insureds should be willing either to provide information about their level of care to insurers or to pay insurers to collect such information themselves, for example through regular inspections.[53]

3. Summary of the Basic Model

In conclusion, the basic model (with all of its limiting conditions) suggests that liability insurance is a social good, not only because it allows risk-averse parties to transfer or share some of their risk of liability without decreasing the deterrent effects of that liability, but also because it encourages parties to pursue socially beneficial but risky ventures.[54] In addition, the model indicates that full coverage is ideal for all irreducible risks, and for reducible risks if insurers can monitor insureds' level of care, whereas partial coverage is preferable for reducible risks if insurers cannot monitor insureds' actions. Finally, the basic model indicates that if various limiting conditions are met, regulation of liability insurance is unnecessary because insurers and insureds will reach agreement as to their preferred level of coverage without regulatory interference, and victims and taxpayers have no reason to care what level of coverage is chosen.

C. Complicating Factors

The foregoing description of the Shavell model centered around pecuniary losses in a simplified world in which all accidents were unilateral, risk levels were known, insurers were risk-neutral, injurers were risk-averse and faced strict liability for their actions, no injurers were judgment proof, and victims were risk-averse and carried no first-party insurance. None of these conditions, however, is central to the Shavell model. The following discussion considers the changes to the model's prescriptions that result when these conditions are relaxed, and highlights situations (particularly those relevant to environmental liability) in which some regulation of the liability insurance market may be socially desirable. Much of the following discussion focuses on reducible risks.

---

[52] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 197.
[53] *Id.*
[54] *Id.* at 191.

1. Bilateral Accidents

Consideration of situations in which both the injurer and the victim can affect the possibility of loss is beyond the scope of this Note. However, many pollution events are bilateral; victims of pollution are often employees or third-party contractors exposed to pollutants in the course of their routine work activity. In these situations, the victim's level of care clearly affects the probability of an accident.[55]

2. Non-Pecuniary Losses

The term "non-pecuniary loss" refers to those losses for which a victim cannot be made whole by payment of monetary compensation. A common example of non-pecuniary loss is serious personal injury; few people would feel adequately compensated for loss of life or a limb by payment of any sum of money. In the environmental context, extinction events and damage to unique natural areas are also widely recognized as involving non-pecuniary losses.[56] In addition, environmental catastrophes may involve some strictly pecuniary losses that must nevertheless be analyzed as non-pecuniary because of the enormous difficulties involved in valuing the loss and compensating victims.[57]

---

[55] *See, e.g.*, Kent Farms, Inc. v. Zurich Ins. Co., 969 P.2d 109 (Wash. Ct. App. 1998) (discussing "pollution-related" injury to a fuel deliveryman that occurred when the victim accidentally ingested some of the fuel he was delivering to the insured).

[56] *See, e.g.*, Charles B. Anderson, *Damage to Natural Resources and the Costs of Restoration*, 72 TUL. L. REV. 417, 426 (1997). Anderson observes that:

> Many experts in the United States contend that natural resources have value beyond their use value. These nonuse values include existence value, which one commentator has divided into three distinct components: (1) the value of preserving a resource for future use, or "option value"; (2) the value of knowing that a resource is protected, or "vicarious value"; and (3) the value of preserving a resource for future generations, or "intertemporal" value. Another nonuse value is intrinsic value, the inherent worth of natural objects independent of human use.

Id. Although some of these values are technically pecuniary, in that people would willingly accept some amount of money as compensation for loss of the value, others (such as worth independent of human uses) are inherently non-pecuniary.

[57] *See generally* Murray B. Rutherford et al., *Assessing Environmental Losses: Judgments of Importance and Damage Schedules*, 22 HARV. ENVTL. L. REV. 51 (1998) (discussing various ways of valuing "non-pecuniary environmental losses"); Note, *"Ask a Silly Question . . .": Contingent Valuation of Natural Resource Damages*, 105 HARV. L. REV. 1981 (1992) (discussing the use of the "contingent valuation" method to estimate the non-market values people "derive from publicly owned natural resources"). Suppose, for example, a toxic substance leaks into a river, killing all wildlife. The polluter might be able to compensate all human victims for their direct losses (by paying fishermen for their loss of livelihood and property owners for their reduction in property value), but it would be extraordinarily difficult to determine how much money was due to neighboring villagers—or even citizens of other countries—who were simply saddened by the pollution of the river.

Incorporating such non-pecuniary losses in the Shavell model has an important effect on analysis of loss events. Potential victims of non-pecuniary losses are likely to prefer ex ante reduction of risk to ex post— and necessarily inadequate—compensation, so they have reason to care about the form of liability insurance purchased by injurers.[58] Specifically, such victims should strongly prefer measures that reduce the likelihood of loss by inducing insureds to increase their level of care, such as monitoring by insurers, or inclusion of low ceilings or deductibles in case of reducible risks.[59]

Significantly, though, Shavell argues that even in the presence of non-monetary losses, it remains unnecessary for regulators "to intervene with the sale of liability insurance"[60] because again, insurers and insureds will arrive at a system of insurance that optimally preserves the deterrence function of legally imposed liability without the aid of regulators.[61]

3. Uncertain Risk Levels

The above discussion presumes that risk levels can easily be determined. Unlike the other presumptions discussed above, this condition proves central to the conclusions of the basic model. In fact, if this condition is relaxed, insureds no longer have any incentive to purchase the socially optimal level of insurance.[62]

---

[58] *See* Shavell, Regulation of Insurance, *supra* note 5, at 9 n.19 (noting that "when losses are non-monetary, victims generally will not be indifferent about the occurrence of accidents even though the level of liability is optimal").

[59] Neither monitoring nor reductions in coverage entirely solve the problem posed by non-pecuniary losses to third-party victims because "if injurers' payments equal only optimal compensation" and do not reflect the non-pecuniary components of losses, then "injurers' incentives to take care will be inadequate." SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 232. The only real solution to this problem is the imposition of fines or other measures that force an insured to internalize the non-pecuniary effects of her actions. This Note does not, however, attempt to analyze the effects of changing liability schemes on an insured's behavioral incentives, but only analyzes various insurance regimes given a particular level of liability.

[60] Shavell, Regulation of Insurance, *supra* note 5, at 9 n.19. This conclusion holds even if a state chooses to impose fines to force injurers to account for some of the non-monetary losses caused by their actions. That is, "[i]t would ordinarily be best for the fines used as a supplement to liability to be insurable," and insuring against these fines does not reduce deterrence because as long as insurers can determine insureds' level of care, insurers will set premiums that reflect both expected losses and expected supplemental fines, and will draft policies that include "provisions inducing [insureds] to take optimal care." SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 211, 233.

[61] Of course, if a state chooses a sub-optimal level of liability—for example, by failing to charge sufficient fines to account for non-monetary losses—it cannot correct that error by requiring (or proscribing) liability insurance, as the incentives of insurers and insureds are necessarily capped by the total amount of monetary liability imposed by law.

[62] As noted further below, see *infra* Part V.C, problems of uncertainty are particularly profound in the environmental context. This immediately suggests that the assumptions of the Shavell model may not hold true in the environmental context, and, in turn, that the model may not be a satisfactory tool for analyzing environmental insurance questions.

As Shavell describes the situation,

> Insureds who overestimate risks will tend to buy too much cov-
> erage (because premiums will appear low to them), and those
> who underestimate risks will buy too little. Similarly, insurers
> who underestimate risks will charge too little for coverage so
> insureds will tend to buy too much, and those who overestimate
> risks will charge too much so insureds will buy too little.[63]

And of course, at the extreme, if risks are too hard for insurers to esti-
mate, determination of accurate premiums is impossible, and insurance
may not be sold at all.[64]

Uncertainty about risk levels may also increase the moral hazard as-
sociated with liability insurance. Specifically, in cases in which insurers
underestimate risk, insureds will purchase too much insurance and will,
in turn, have too little incentive to take care; insurers will not adequately
account for the resulting moral hazard by altering policy terms (because
they have not accurately determined the accurate ex ante expected loss);
and as a result, the purchase of insurance will undermine the intended
deterrent effect of the liability. This result is particularly problematic in
situations that involve non-pecuniary risks, in which victims are not "in-
different about the occurrence of accidents."[65]

4. Alternative Levels of Risk Aversion

The foregoing discussion assumed that potential injurers were risk-
averse so it is important to ask whether this assumption holds in the envi-
ronmental context. Shavell notes that "[i]n thinking about the attitudes
toward risk of injurers and of victims," one must "consider the size of
losses in relation to parties' assets,"[66] and one should keep in mind four
basic situations: (1) the stereotypical situation in which a large risk-
neutral firm injures a risk-averse individual victim; (2) situations in

---

[63] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 198.

[64] *Id.* In addition to the basic problem of inability to set accurate premiums when risks
are uncertain, insurers who are unable accurately to estimate the risks facing individual
insureds may also face the problem of "adverse selection." *See, e.g.,* Industrial Economics,
Inc., *Improving Access-to-Capital, Site Transition, and Brownfield Redevelopment Pro-
grams Through More Effective Environmental Risk Management, at* http://www.epa.gov/
ooaujeag/csi/finalrp5.htm (Feb. 1998) (on file with the *Harvard Environmental Law Re-
view*). This problem occurs when only those insureds who know they face an above-
average likelihood of losses purchase policies because "with premiums set based on aver-
age expected losses, the policies are 'underpriced'" for those insureds, but overpriced for
insureds who know they face a below-average likelihood of loss. *Id.* "To cover the losses to
the increasing number of high-risk policy-holders in the pool, insurers may have to raise
their prices, further discouraging the lower risk policy-holders. This situation can quickly
spiral for insurers, leading to big losses." *Id.*

[65] Shavell, Regulation of Insurance, *supra* note 5, at 9 n.19.

[66] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 207.

which risk-averse individuals or firms cause losses to less risk-averse individuals or firms;[67] (3) situations in which risk-averse individuals or firms harm other risk-averse parties; and (4) situations in which large, relatively risk-neutral firms harm other large firms.[68] For purposes of determining the socially optimal level of liability insurance, the key difference among these various scenarios is the injurer's level of risk aversion.

To apply the Shavell model to the pollution context, therefore, one must decide which of the above scenarios best describes a "typical" pollution event. One might at first assume that a typical pollution event most resembles situation (1) above, and therefore that polluters are likely to be risk-neutral. Actually, though, many pollution events cause "losses that are high relative to [a firm's] assets yet that are the aggregation of only relatively modest losses for each victim."[69] Thus, in most circumstances of interest here, it is more reasonable to presume that potential polluters are risk-averse (because the potential losses are quite high relative to their assets), and therefore that they would benefit from transferring or sharing some of their pollution risk, as in situation (2) or (3) above.[70]

5. Alternative Levels of Liability

This Note developed Shavell's basic model under the condition that all injurers faced strict liability for their actions. Such is often the case in the pollution context, particularly after passage of CERCLA in 1980.[71] Nevertheless, it is interesting to consider how different forms of liability affect the conclusions of the Shavell model.

a. No Liability

First, suppose that an injurer faces no liability for her actions.[72] As Shavell notes, one of the significant advantages "of the liability system is

---

[67] For example, suppose a single individual illegally deposits a toxic substance at a large landfill and the toxin ultimately leaks out, creating liability for the landfill operator.

[68] *Id.*

[69] *Id.* at 208.

[70] This Note also assumes that insurers are entirely risk-neutral. This assumption suggests that insurers will be willing to assume liability for any *known* and quantifiable risk, *not* that they will be willing to assume liability for all risks. Insurers may also be willing to assume liability for some uncertain risks as long as the degree of uncertainty is somehow quantifiable.

[71] 42 U.S.C. §§ 9601–9675 (1994). For a discussion of the implications of CERCLA's liability regime for environmental liability insurance, see, e.g., Kenneth S. Abraham, *Cleaning Up the Environmental Liability Insurance Mess*, 27 VAL. U. L. REV. 601, 623–25 (1993) [hereinafter Abraham, *Cleaning Up*]; Kenneth S. Abraham, *Environmental Liability and the Limits of Insurance*, 88 COLUM. L. REV. 942, 957–60 (1988) [hereinafter Abraham, *Limits of Insurance*].

[72] A no-liability situation could result (1) because there is neither statutory nor common law liability for the injury in question or (2) because the victims fail to sue their injurer.

that it provides injurers incentives to reduce risk."[73] A zero-liability regime therefore has drawbacks, including the problem that injurers "have no [financial] motive to take care."[74] This Note does not attempt to prescribe the optimal form of liability, however, but the optimal form of liability insurance in the presence of a particular type of liability, and one cannot escape the conclusions that in a zero-liability regime, only insurers are made better off by the purchase of liability insurance.

b. Negligence Regime

Next consider the situation of insurers, insureds, victims, and the public under a negligence rule.[75] Whether liability insurance is socially desirable under a negligence regime depends in part on whether courts are able accurately to determine both the cost-justified level of care and the injurer's actual level of care.[76] First, assume courts are uniformly able to determine whether an injurer exercised the optimal level of care and to impose liability only in those instances in which the injurer's behavior fell short of this standard. In this situation, injurers have no incentive to purchase liability insurance for irreducible risks, as they will never be held liable for losses that result from such risks. Similarly, for reducible risks, injurers again have no incentive to purchase insurance whether or not insurers can monitor insureds' level of care because courts will monitor injurers' level of care for the insurers and will impose liability only in those situations in which the insurers would deny coverage— namely, those situations in which the insured exercised less than due care.[77] Thus, under a negligence rule, if there is no "uncertainty over the determination of negligence," potential injurers will choose not to purchase insurance, and insurers, in turn, will not offer it.[78] Further, victims and the public will remain indifferent as to whether injurers are insured in this situation even if the assumption that all losses are

---

[73] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 208. Shavell in fact concludes that this effect on incentives is "the main advantage of the liability system," at least "where victims can secure accident insurance coverage" to compensate them for their losses. *Id.* Note, however, that individuals may have difficulty obtaining first-party insurance coverage for some of the losses associated with pollution events, such as reduction in property value due to indirect pollution effects.

[74] *Id.*

[75] Recall that the point of this analysis is not to determine whether or when a negligence rule is socially optimal, but simply to decide which form of liability *insurance* is socially optimal when such a rule is imposed.

[76] *See generally* SHAVELL, ECONOMIC ANALYSIS, *supra* note 5.

[77] Even if an insured were interested in purchasing coverage of losses "produced by negligent behavior," the premium for this coverage would be "too high to make it worth purchasing," as insureds would have to pay far more than the ex ante value of their expected losses to cover the costs of the moral hazard. *Id.* at 212. "Injurers would therefore be better off not buying the insurance and taking due care." *Id. See also* Shavell, Regulation of Insurance, *supra* note 5, at 6.

[78] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 212.

pecuniary is relaxed because the negligence rule itself will lead potential injurers to take the socially optimal level of care.[79]

If determination of negligence is uncertain, however, "injurers might be found negligent even if they try to take due care. Thus risk-averse injurers will decide to purchase liability insurance."[80] Importantly, though, such liability insurance will be carefully structured so as to exclude losses caused by irreducible risks such as natural disasters, for which courts are unlikely to hold injurers liable under a negligence rule even in the presence of uncertainty. Similarly, if insurers cannot monitor insureds' level of care, they will write policies that include low ceilings or high deductibles either to reduce insureds' moral hazard, as discussed above for strict liability,[81] or to "exclude coverage against findings of negligence that are very likely to have resulted from factors that parties could control, . . . such as, perhaps, a considered corporate policy decision not to obey a safety regulation."[82] Finally, in this situation, victims will *not* be indifferent about the structure of liability insurance even if losses are purely pecuniary because victims will have no assurance that they will be compensated, given that injurers who fail to exercise the socially optimal level of care may nevertheless escape liability. Thus, in the presence of uncertainty about negligence, victims *will* have a preference about the structure of liability insurance even for pecuniary losses; they will prefer policies that offer only partial coverage, or that otherwise provide insureds with incentives to exercise greater care. Because insurers, too, will prefer such policies, though, no regulation of the market is necessary.

c. *Escape from Liability*

Finally, consider the situation of injurers who partially or completely escape liability (under either a negligence or strict liability regime), whether because a victim cannot identify the injurer as the cause of the loss, or because the victim chooses not to sue for other reasons (such as

---

[79] *See id.* This conclusion still presumes that no injurers are judgment proof.

[80] *Id.* Shavell observes that there are several reasons why courts may find injurers negligent "despite [injurers'] intention not to be negligent." Shavell, Regulation of Insurance, *supra* note 5, at 7. Courts may simply "err in assessing a party's actual level of care," they may focus on a party's momentary rather than prudential level of care, or they may find a firm liable for the negligence of an employee "despite [the firm's] efforts to prevent employee negligence." *Id.*

[81] *See supra* note 48 and accompanying text.

[82] Shavell, Regulation of Insurance, *supra* note 5, at 7. For similar reasons, in situations in which a negligence standard is imposed, courts interpreting ambiguous insurance policy terms "should attend [to] the degree of control that the insured possessed over the behavior giving rise to the type of negligence," finding for the insurer in cases in which "the insured enjoyed substantial control over the behavior associated with the type of negligence," such as when "the insured knowingly purchased a cheap, substandard device to avoid safety requirements." *Id.* at 8.

high litigation costs).[83] In the absence of insurance, this situation results in inadequate deterrence of harm because injurers make decisions about their level of care based on their expected liability, which in this circumstance falls below the total expected losses caused by their actions.[84]

This is the first situation yet encountered in which societal regulation of the insurance market could be beneficial. Consider two contrasting possibilities: (1) insurers can monitor insureds' level of care or (2) insurers cannot monitor that level of care.[85]

(1) If insurers can monitor insureds' level of care, then regulation of the market will not increase insureds' incentives to reduce risk. Forbidding coverage will not be socially beneficial in this situation because without insurance, injurers will simply choose a suboptimal level of care that reflects their expected liability rather than the expected losses associated with their activities.[86] Yet requiring full insurance is no more desirable, and is in fact unnecessary. Left to their own devices, insureds in this situation will themselves *choose* to purchase full coverage of their expected liability,[87] but their level of care will remain suboptimal because insurers will set premiums and draft policy terms based on expected liability rather than expected loss.

(2) If insurers cannot monitor insureds' level of care, however, forbidding liability insurance may be socially beneficial, as "any insurance coverage that injurers purchase will reduce their incentives [to reduce risk] when insurers do not link premiums to [injurers'] level of care."[88] This situation is thus similar to that in the basic model in which insurers could not monitor insureds' level of care.[89] In this case, though, victims are no longer indifferent to insureds' activity level or level of care be-

---

[83] As discussed below, this situation is quite common in the environmental context, particularly in the case of exposure to toxic pollutants. Among other problems, such exposure may not immediately cause obvious injury, and by the time an exposure victim falls ill, causation can be difficult if not impossible to determine and prove. *See generally* Frank P. Grad, *Remedies for Injuries Caused by Hazardous Waste: The Report and Recommendations of the Superfund 301(E) Study Group*, 14 ENVTL. L. REP. 10105 (1984).

In the environmental context, injurers may also escape liability because their victims are unable to establish standing to sue, particularly in cases involving indirect loss. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 563–64 (1992) (holding that to establish standing to sue under the Endangered Species Act, plaintiffs have "to submit affidavits or other evidence showing, through specific facts, not only that [endangered] species were in fact being threatened by funded activities abroad, but also that one or more of [plaintiffs'] members would thereby be 'directly' affected apart from their 'special interest in the subject'") (internal quotations omitted).

[84] *See* Shavell, Regulation of Insurance, *supra* note 5, at 7.

[85] Any actual situation is likely to fall between these two extremes—an insurer is likely to be able to determine whether an insured's action was deliberate or grossly negligent but may not be able to determine whether the insured's behavior was "optimally" careful.

[86] *See* Shavell, Regulation of Insurance, *supra* note 5, at 11.

[87] *See supra* notes 43–45 and accompanying text.

[88] Shavell, Regulation of Insurance, *supra* note 5, at 11.

[89] *See supra* note 51 and accompanying text.

cause victims are no longer assured compensation for their losses (since insureds, by assumption, may escape liability). As a result, partial coverage that includes low ceilings or high deductibles—the likely ex ante choice of both insureds and insurers, as predicted by the basic model—is no longer sufficient to induce insureds to take adequate care. Thus, in this circumstance, one might choose to forbid liability coverage entirely to "ameliorate the problem of inadequate incentives caused by ... escape from liability."[90]

6. Presence of First-Party Insurance

In the above discussions, injurers and their insurers provided the only source of compensation for victims of loss. Often, though, victims purchase personal, or first-party, insurance policies that promise compensation in case of personal injury or property damage. In situations in which victims own policies, "the main advantage of the liability system is that it provides injurers incentives to reduce risk."[91]

Importantly, availability of liability insurance does not eliminate this advantage. As discussed above, if an insurer can monitor the insured's level of care, the insurer will structure the liability policy to provide adequate incentives for the insured to exercise care.[92] If an insurer cannot monitor the insured's level of care, the insurer may offer only partial coverage of the risk, thus reducing the problem of moral hazard.[93] The primary significance of first-party insurance for this analysis, therefore, is that (when available) such coverage further obviates the need to consider the taxpayer's and victim's points of view in crafting the ideal liability insurance regime, even in cases in which injurers may be insolvent.[94]

7. Insolvent, or Judgment-Proof, Injurers

The assumption that injurers' assets are sufficient to cover all potential losses proves key to the various basic conclusions of the Shavell

---

[90] Shavell, Regulation of Insurance, *supra* note 5, at 12. Even in the absence of any coverage, however, injurers will still consider the likelihood that they may escape liability when making decisions about level of care. Thus, forbidding insurance does not entirely alleviate the problem of inadequate incentives. In addition, forbidding the purchase of coverage "lowers the expected utility of injurers by increasing the risk they bear." *Id.*

[91] SHAVELL, ECONOMIC ANALYSIS, *supra* note 5, at 208.

[92] *See supra* note 22.

[93] *See supra* note 48 and accompanying text.

[94] Shavell further argues that first-party accident insurance is often a far more efficient source of compensation to victims than the tort system, particularly given the high costs of litigating third-party insurance claims. *See, e.g.*, Shavell, Regulation of Insurance, *supra* note 5, at 14; Priest, *supra* note 20, at 499–500 ("[L]oading or administrative costs are much greater of third-party than of first-party insurance by an estimated magnitude of 2.75 to 5.75 times.").

model discussed above. Relaxing this condition affects many of the predictions and prescriptions discussed above.

First, consider the choices facing an uninsured potential injurer whose assets are less than the costs of the harm she may cause. Like the injurer who escapes liability, this judgment-proof injurer will never face full liability for the losses she causes. As a result, she will make her decisions about level of care without "tak[ing] into account that part of the possible loss that victims would have to bear,"[95] which will "dilute [her] incentives to reduce risk."[96] In addition, the injurer's judgment-proof status will reduce her incentive to purchase liability insurance in the first place since "insuring against liability that one would not otherwise fully bear, because one's assets would be exhausted, is in a sense a private waste for a potentially judgment-proof party."[97] Thus, the judgment-proof injurer will likely choose "to purchase less than complete coverage, or no coverage at all," depending on her assets relative to the expected value of the losses she may cause and her level of risk aversion.[98]

Now consider the same situation from the points of view of victims and taxpayers. If there is a chance that injurers may be judgment proof, victims are not assured adequate compensation, and (in the absence of first-party insurance) taxpayers may be forced to bear some portion of such losses. As a result, if injurers may be judgment proof, victims and taxpayers have reason to care both about injurers' level of care and about the availability of first-party or liability coverage.

Clearly, the preferences of judgment-proof injurers differ from those of their victims (and those of taxpayers, who may bear some of the costs of the injurers' actions). This scenario is another in which regulation of the insurance market may benefit society. In this case, however, the optimal form of regulation differs somewhat from that discussed earlier for injurers who escape liability. Again, consider two possibilities: (1) insurers can monitor insureds' level of care or (2) insurers cannot monitor that level of care.

(1) In the case of judgment-proof insurers, unlike that of injurers who escape liability, if insurers are able to monitor judgment-proof insureds' actions, then mandating full coverage is both beneficial and necessary. Full coverage is beneficial because it will guarantee adequate compensation for victims of pecuniary losses and will achieve optimal deterrence (as premiums will be set based on insureds' activity level and

---

[95] Mattias K. Polborn, *Mandatory Insurance and the Judgment-Proof Problem*, 18 INT'L REV. L. & ECON. 141, 141 (1998).

[96] Shavell, Regulation of Insurance, *supra* note 5, at 10. *See also* Jeffrey Kehne, *Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Waste*, 96 YALE L.J. 403, 405 (1986) ("[A]n undercapitalized firm engaged in a risky activity can be expected to cut corners on safety expenditures with the expectation that any damages exceeding the firm's net worth will be borne by third parties.").

[97] Shavell, Regulation of Insurance, *supra* note 5, at 10.

[98] *Id.*

level of care), yet such coverage must be mandated because judgment-proof injurers will never independently choose full coverage (as premiums will reflect some costs of loss that judgment-proof insureds would, by assumption, otherwise avoid paying).[99]

(2) By contrast, if insurers are unable to monitor insureds' level of care, then the situation is similar to that for injurers who escape liability; "forbidding the purchase of coverage will tend to increase incentives to reduce risk."[100] In this instance, though, requiring the insured to purchase coverage that includes a high deductible but no ceiling will also increase the injurer's incentives to exercise care[101]—and victims of pecuniary losses in this scenario remain indifferent to the insured's level of care, as long as the insured's assets are sufficient to cover the deductible.[102] This solution has two further advantages over forbidding coverage: forbidding coverage "lowers the expected utility of injurers by increasing the risk they bear" and fails to solve the compensation problem posed by judgment-proof injurers, whereas full coverage with a high deductible somewhat reduces the risk born by insureds and entirely solves the compensation problem.[103]

These observations suggest that in many cases in which injurers are judgment proof and insurers cannot monitor insureds' level of care, liability coverage that includes a high deductible (but no ceiling) may provide sufficient incentives for injurers to take care. Therefore, regulators should only entirely forbid coverage to potentially judgment-proof injurers in those situations in which the resulting increase in injurers' incen-

---

[99] *See id.* at 13.

[100] *Id.* at 11.

[101] By contrast, requiring potential injurers to purchase insurance with a high deductible does *not* cure the incentives problem if there is a risk that injurers will escape liability, because insureds' financial incentives to exercise care cannot exceed their expected liability. Shavell seems to ignore this difference between situations in which injurers are judgment proof, and situations in which they escape liability for other reasons. He therefore concludes that society should forbid insurance in either situation, unless insurers can monitor insureds' level of care.

[102] That is, in this situation, as long as there is no escape from liability, victims of pecuniary losses caused by judgment-proof injurers have no reason to care about the frequency of loss as long as they are guaranteed compensation.

[103] *See* Shavell, Regulation of Insurance, *supra* note 5, at 14. Clearly, if society forbids insurance, and injurers are insolvent, victims will be inadequately compensated for loss. Shavell neatly sidesteps this problem by observing that the common "justification . . . for requirements to purchase liability insurance"—that such requirements provide "an implicit form of insurance protection for victims"—is "mistaken" because usually "it is more expensive to insure victims via the legal system than directly by first-party insurance coverage." *Id.* As noted below, however, this solution is inadequate in some cases of environmental damage, in which it is more efficient (at least with respect to restoration costs) for an insured to pay the total costs of remediation than for individual victims to collect individually for their losses and then attempt collectively to organize a cleanup of the contaminated site. *See infra* Part V.B.

tives to take care outweighs the twin harms of unwanted risks borne by injurers and uncompensated losses borne by victims.[104]

Overall, then, Shavell's model suggests that in cases in which injurers may be judgment proof, society should require full coverage if insurers can monitor insureds' actions, but should either forbid liability insurance entirely or require incorporation of high deductibles if insurers cannot monitor insureds' activity level.

D. Summary of the Assumptions and Conclusions of the Model

As discussed above, the Shavell model incorporates several assumptions and leads to a range of basic conclusions. It suggests that in most situations, no regulation of liability insurance markets is necessary, but that in situations in which insureds may be judgment proof or may escape liability entirely, some regulation is helpful to ensure that potential injurers have adequate incentives to exercise care. The model further indicates that the optimal form of regulation in the latter instances depends on the insurer's ability to monitor the insured's activities. If the insurer can monitor the insured, regulators should require full coverage, whereas if the insurer cannot monitor the insured, regulators should forbid coverage or require a high deductible.

Having outlined the basic framework of the Shavell model, this Note now details six recurring, real-world environmental insurance disputes, all of which involve a version of the widely used CGL insurance policy. Part IV then applies the Shavell model to each of these disputes and analyzes the results from the points of view of polluters, liability insurers, pollution victims, and the public. Finally, in Part V, the results of this analysis are used to critique the model itself, as applied in the environmental context.

III. CGL POLICY ISSUES RELATING TO COVERAGE OF POLLUTION LOSSES

Popular with most business enterprises, CGL policies provide coverage of all "sums that the insured becomes legally obligated to pay as damages because of 'bodily injury' or 'property damage' . . . which occurs during the policy period."[105] In the early 1970s, with passage of the federal Clean Air[106] and Clean Water[107] Acts and increased public outcry over environmental pollution, providers of CGL policies began to worry

---

[104] Note also that if injurers have no assets, forbidding liability coverage (or requiring a high deductible) will do little to increase their incentives to take care.

[105] *See* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 274 (citing the CGL policy issued by the ISO in 1986).

[106] 42 U.S.C. §§ 7401–7642 (1994) (enacted in 1970).

[107] 33 U.S.C. §§ 1251–1387 (1994) (enacted in 1972).

about their potential exposure to liability for pollution-related losses.[108] In response to this concern, the predecessors of the ISO[109] incorporated a pollution exclusion clause in the 1973 standard-form CGL policy. The scope of this clause and its successors, which purport to limit an insurer's potential liability for personal injuries or property damage caused by pollution events, has been heavily litigated ever since.[110]

The form of the pollution exclusion used most frequently by insurers from 1973 until 1986 provides that the insurance does not apply to losses resulting from "the discharge, dispersal, release or escape" of certain types of pollutants unless the discharge is "sudden and accidental."[111] The seemingly straightforward language of this "'qualified'"[112] pollution exclusion has proven quite controversial, with parties debating both the meaning of the exclusion itself and the reach of the "sudden and accidental" exception, which operates to exempt certain unexpected pollution events from the general pollution exclusion.

Due in part to these controversies, CGL policies issued since 1986 have included a considerably expanded pollution exclusion clause that contains no exception for "sudden and accidental" events. The debate over the correct interpretation of the 1973 exclusion remains relevant, however, as most CGL policies are so-called "long-tail" policies that cover all claims (whenever filed) resulting from bodily injury or property damage that occurred "during the policy period."[113] As a result, interpretation of the qualified exclusion is pertinent to present-day coverage claims arising out of events that took place between 1973 and 1986.[114]

---

[108] *See* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 156.

[109] The ISO is a service organization whose membership comprises property and casualty insurers. The ISO prepares most standard-form policies used in the industry. These forms "are designed to provide . . . a benchmark for comparison by the more than 1500 insurers in the property/casualty insurance market," which helps to standardize the industry. 1 ERIC MILLS HOLMES & MARK S. RHODES, HOLMES'S APPLEMAN ON INSURANCE § 2.2.D, at 200 (2d ed. 1996). In turn, standardization better enables purchasers of insurance "to comparison shop for coverage, service and price. Without standardization of coverages, consumers would be inundated with a vast, unintelligible array of different forms of insurance coverages." *Id.*

[110] *See, e.g.,* Hamel, *supra* note 1, at 1084; Michelle I. Schaffer, *The Evolution of the Pollution Exclusion: From "Sudden and Accidental" to Absolute and Unambiguous, in* REFERENCE HANDBOOK ON THE COMPREHENSIVE GENERAL LIABILITY POLICY: COVERAGE PROVISIONS, EXCLUSIONS, AND OTHER LITIGATION ISSUES 209, 209 (Peter J. Neeson ed., 1995).

[111] *Id.*

[112] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 145.

[113] *Id.* at 23 (internal quotations omitted); Schaffer, *supra* note 110, at 287-88 (citing the definitions of "bodily injury" and "property damage" included in the CGL policy issued by the ISO in 1973).

[114] *See* Craig R. Brown & Julie B. Pollack, *Overview of Environmental Coverage Litigation for Comprehensive General Liability Policies, in* 1 ENVIRONMENTAL INSURANCE COVERAGE CLAIMS AND LITIGATION 7, 19 (PLI Commercial Law & Practice Course, Handbook Series No. A-718, 1995).

Because CGL coverage is triggered by occurrences "during the policy period," CGL policies are known as "occurrence policies," as distinct from "claims-made policies," under

Harvard Environmental Law Review   [Vol. 25

The dispute over interpretation of the "sudden and accidental" exclusion also continues to be instructive for insurance policy analysts, both because the controversies led directly to the ISO's expansion of the pollution exclusion clause in 1986 and because they contributed to insurers' continuing reluctance to provide coverage for environmental liability.[115]

The meaning and scope of the revised 1986 pollution exclusion clause are much clearer than those of the qualified exclusion. The most significant difference between the clauses is that the later version lacks a "sudden and accidental" exception. As a result, courts have widely interpreted the 1986 or "absolute"[116] exclusion to bar all coverage of environmental claims.[117] In spite of the absolute exclusion's optimistically definite nickname, however, courts have disagreed over the meaning of certain terms in the exclusion so "litigation over the . . . scope of the [absolute] exclusion [and] . . . the meaning of its terms . . . [is] likely to continue for some time before the proper application of the provision becomes settled."[118]

---

which coverage is provided "against liability arising out of claims made during the policy period only." ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 23–24; *see also* Hamel, *supra* note 1, at 1088–89. As Hamel notes, "because the standard CGL policy is an occurrence-based policy, the pollution exclusion contained in CGL policies written from 1970 through 1986 still has great relevance to today's coverage claims for environmental damages arising out of occurrences which happened in that decade and a half." *Id.* In fact, a quick count of published cases indicates that at least 150 disputes relating to "sudden and accidental" pollution exclusion clauses have been litigated in a court of record in the last five years alone. Search of WESTLAW, Allcases Database (Apr. 10, 2000) (search for cases decided after 1995 containing the terms "pollution exclusion" and ("qualified" or ("sudden" within five words of "accidental")), but not "absolute").

As the above quotation and her title suggest, Hamel asserts that the qualified pollution exclusion was developed in 1970. *See id.* at 1088. The exclusion was not, however, incorporated in the standard-form CGL policy until 1973. *See, e.g.,* Schaffer, *supra* note 110, at 209; ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 145.

[115] *See* Kenneth S. Abraham, *A Theory of Insurance Policy Interpretation,* 95 MICH. L. REV. 531, 556 n.55 (1996) [hereinafter Abraham, *Insurance Policy Interpretation*]. In this recent article, Abraham partially reaffirms his earlier conclusion that courts' narrow reading of the sudden and accidental exclusion "resulted in the insurance industry's revision of the standard-form policy to remove virtually *all* pollution coverage from all CGL policies written beginning in 1986," and further that "insurers seem to have concluded that if they could not rely on policy provisions that they believed limited coverage . . . they would not insure against pollution liability at all." *Id.* For a statement of Abraham's earlier, somewhat more expansive conclusion, see Abraham, *Limits of Insurance, supra* note 71, at 961–66.

[116] *See, e.g.,* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 161.

[117] Hamel, *supra* note 1, at 1088.

[118] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 162–63.

In addition to new interpretation issues, inclusion of the absolute exclusion in the standard-form CGL policy has generated another difficult new problem for potential polluters and society. Due to the relative success of the absolute exclusion in limiting insurer exposure to pollution liability, "[f]irms interested in protecting against liability for pollution must now purchase specialized insurance, which, to the extent it is available at all, carries high premiums, high deductibles, high coinsurance rates, and low caps." Richard L. Revesz & Richard B. Stewart, *The Superfund Debate, in* ANALYZING SUPERFUND: ECONOMICS, SCIENCE, AND LAW 3, 9 (Richard L. Revesz & Richard B. Stewart eds., 1995) [hereinafter Revesz & Stewart, *The Superfund Debate*]. Further, such pollution-specific insurance is often entirely unavailable so many firms have "little option but to self-insure,

A full description of the many innovative ways in which both insurers and insureds have parsed CGL policy language during environmental coverage disputes is beyond the scope of this Note.[119] It is sufficient to note that the "abundance of federal- and state-court decisions addressing the pollution-exclusion clause confirms that an enormous outpouring of judicial energy ... has been expended in attempting to fathom how this exclusion should be interpreted."[120] This Part describes just six interpretive disputes in detail: four closely related disputes regarding the mean-

---

sometimes risking bankruptcy in the event of an environmental accident." *Id. See also* Randall S. Thomas, *The Impact of Environmental Liabilities on Privatization in Central and Eastern Europe: A Case Study of Poland,* 28 U.C. DAVIS L. REV. 165, 210 (1994) (noting that specific Environmental Impairment Liability policies that covered gradual pollution events excluded by CGL policies "were readily available only until the mid-1980s. Today they are hard to find, prohibitively expensive, or offer only very limited coverage in the United States.").

Thomas's case study of environmental liabilities in Poland suggests a further interesting consideration relevant to analysis of environmental insurance issues and models. As Thomas notes, one of "the most serious problems faced by the newly emerging economies [in Central and Eastern Europe] in privatizing their industrial sectors is financing the cleanup and disposal of the hazardous wastes generated by these industries during the Cold War era." *Id.* at 167. As might be expected, "undefined and potentially escalating environmental liabilities" in these countries "make private investors hesitant to undertake major investments in privatization projects." *Id.* at 169. To make matters worse, there is no reason to expect that the environmental insurance markets in Central and Eastern European countries will magically evade the "problems that have plagued the American environmental liability insurance market." *Id.* at 212. As a result, investors familiar with the troubled history of the U.S. environmental insurance market—many of whom may already be wary of investing in emerging economies—may well be further discouraged by concerns over the cost and continuing availability of environmental insurance.

But see Ann M. Waeger & Farer Fersko, *Current Insurance Products for Insuring Against Environmental Risks,* SE23 A.L.I.-A.B.A. 577 (1999) (discussing the new market for "liability policies offering protection against specified environmental risks"). These authors describe the current market for environmental insurance as follows:

> While the new environmental insurance coverage being offered today is by no means a panacea, it may be a device deserving consideration in crafting a solution [to the environmental insurance crisis] that will enable a particular commercial transaction to close. Three years ago these three types of insurance products were rarely explored. Now, they are being heavily marketed and the insurance companies are facing stiff competition, resulting in a substantial reduction in premiums. It may be that an insurance product that was once prohibitively expensive will now fit within the financial parameters of a transaction, particularly if a cost-sharing arrangement can be negotiated between the parties involved.

Id. at 616.

[119] For a more complete summary of the issues relating to interpretation of the qualified and absolute pollution exclusion clauses, see, e.g., Schaffer, *supra* note 110; Stevan A. Miller & Julianne L. Swilley, *The Absolute Pollution Exclusion in General Liability Insurance Policies, in* REFERENCE HANDBOOK ON THE COMPREHENSIVE GENERAL LIABILITY POLICY, *supra* note 110, at 145.

[120] Morton Int'l, Inc. v. Gen. Accident Ins. Co. of Am., 629 A.2d 831, 855–65 (N.J. 1993). A cursory survey of published cases suggests that more than 800 disputes relating to pollution exclusion clauses in CGL policies have been litigated since 1970. Search of WESTLAW, Allcases Database (Mar. 9, 2000) (search for cases containing the terms "pollution exclusion" and ("general liability" or CGL) in the same paragraph).

ing of the qualified pollution exclusion, one important controversy pertaining to the language of the 1973 standard-form CGL policy's coverage provision itself, and finally, one issue concerning the scope of the absolute exclusion. Part IV then revisits each of these six issues and reconsiders them in light of Shavell's insurance model.

A. The Qualified Pollution Exclusion Clause

"One of the most contested and important issues in the entire field of environmental liability insurance is the meaning of the [qualified] 'pollution exclusion' that was . . . included in the 1973 revision of the standard-form CGL policy" and was widely incorporated in CGL policies issued between 1973 and 1985.[121] This qualified exclusion is the only provision in the 1973 standard-form policy that expressly refers to environmental liability. Several decades of litigation over the meaning of this provision, however, have "done little to clarify the scope of coverage for environmental incidents."[122]

The controversy surrounding the qualified pollution exclusion is somewhat surprising given the unremarkable language of the clause itself. The 1973 standard-form exclusion provides:

> This insurance does not apply . . . to bodily injury or property damage arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, the atmosphere or any water course or body of water; but this exclusion does not apply if such discharge, dispersal, release or escape is sudden and accidental.[123]

The clause thus consists of two parts: a general exclusion of coverage for losses resulting from most pollution events, followed by an exception that restores coverage for events in which the pollutant was discharged suddenly and accidentally. The vast majority of coverage disputes relating to the qualified pollution exclusion center not on the exclusion itself but on this exception.[124]

Most debates over the meaning and scope of the "sudden and accidental" exception correspond to one or more of the following four questions: (1) Does the phrase "sudden and accidental"—and, in particular,

---

[121] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 145.

[122] Nancy Ballard & Peter M. Manus, *Clearing Muddy Waters: Anatomy of the Comprehensive General Liability Pollution Exclusion*, 75 CORNELL L. REV. 610, 612 (1990).

[123] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 291 (citing the CGL policy issued by the ISO in 1973).

[124] *See id.* at 145 (introducing the pollution exclusion).

the term "sudden"—necessarily "possess[ ] a temporal element"?[125] (2) Which event must be "sudden and accidental," the discharge itself or the resulting loss?[126] (3) Assuming the discharge itself must be "sudden and accidental" to qualify for the exception, which discharge is relevant, the initial disposal of a pollutant or the subsequent leakage of the pollutant from the disposal site?[127] (4) And finally, again assuming the discharge itself must be "sudden and accidental," whose point of view is relevant to this determination, that of the polluter or that of some third party (such as a predecessor in interest, a third-party contractor, or even a vandal)?[128] Courts at all levels have given widely divergent answers to each of these questions.

1. Does the "Sudden and Accidental" Exception Include a Temporal Element?

The broadest and most contentious question relating to the "sudden and accidental" exception is the precise meaning of the phrase "sudden and accidental," and particularly the term "sudden." As might be expected, insurers typically argue that an event must occur abruptly and be short-lived—a "so-called 'boom' event"—for coverage to be restored under the "sudden and accidental" exception.[129] By contrast, insureds insist that "sudden and accidental" implies merely an unintended and unexpected event, and that coverage should be available for any pollution event about which the insured was unaware, regardless of the duration of the event or the abruptness of its onset.[130]

---

[125] *Morton*, 629 A.2d at 847; *see generally* Schaffer, *supra* note 110, at 212–20; Hamel, *supra* note 1, at 1092–98; Ballard & Manus, *supra* note 122, at 613–20; E. David Hoskins, *Striking a Balance: A Proposal for Interpreting the Pollution Exclusion Clause in Comprehensive General Liability Insurance Policies*, 19 ENVTL. L. REP. 10,351 (1989).

[126] *See, e.g.*, ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 147–48; Hamel, *supra* note 1, at 1099.

[127] *See, e.g.*, Hamel, *supra* note 1, at 1099–1100.

[128] *See, e.g.*, *id.* at 1100–01; *Morton*, 629 A.2d at 848.

[129] *Morton*, 629 A.2d at 852. *See also id.* at 856–70 (surveying the federal and state case law on both sides of the debate over the meaning of the term "sudden").

[130] *See id.* at 856–70.

One can make a strong argument that the ISO did not originally intend for the sudden and accidental exception to be limited to pollution events of short duration. *See, e.g.*, Broadwell Realty Servs. v. Fidelity & Casualty Co. of N.Y., 528 A.2d 76 (N.J. Super. Ct. App. Div. 1987) (noting that "[t]here is substantial authority supporting the thesis that the pollution exclusion was intended to be coextensive with the scope of the definition of occurrence" in the CGL policy). That is, when it was first drafted, the exception may have been intended to apply generally to unexpected pollution events, not solely to unexpected and rapid events. Among other evidence for this proposition, a predecessor of the ISO initially explained the 1973 pollution exclusion as a clarification rather than an alteration of the then-existing CGL coverage situation, with the result that "[c]overage is continued for pollution or contamination caused injuries where the pollution or contamination results from an accident," but is precluded in situations in which "the damages can be said to be expected or intended and thus are excluded by the definition of occurrence." *Id.* at 85 n.1.

This evidence of the insurance industry's original intent in drafting the "sudden and

Harvard Environmental Law Review [Vol. 25]

Judicial responses to this issue vary widely. Some courts rely on familiar interpretations of the phrase "sudden and accidental" in other insurance contexts to hold that the term "sudden" has "no temporal meaning in this setting" and therefore a "sudden and accidental" event means simply an "unexpected" event.[131] Many other courts invoke dictionary definitions of "sudden," as well as an anti-redundancy canon of interpretation, to find that when the term "sudden" is used in conjunction with "accidental" it must have some meaning other than "unexpected," and therefore a "sudden and accidental" event must be not only "unexpected" but also abrupt,[132] or perhaps even brief.[133] Finally, some courts take note of these conflicting interpretations and choose not to resolve the meaning of the term "sudden" at all, but to rule in favor of the insured on the grounds that the policy term is ambiguous.[134]

---

accidental" exception has convinced at least one formerly skeptical commentator. Abraham "once argued" that activist judges who ruled in favor of insureds on questions relating to the scope of the "sudden and accidental" exception had driven the insurance industry to revise the pollution exclusion in 1986 and remove the "sudden and accidental" exception. Recently, however, Abraham concluded (in part based on "the representations that the insurance industry made to state insurance commissioners when it sought approval of the exclusion in the early 1970s") that "proper interpretation of the pre-1986 pollution exclusion is a more complicated question." Abraham, *Insurance Policy Interpretation, supra* note 115, at 556 n.55.

This Note, however, disregards estoppel arguments for interpreting the "sudden and accidental" exception in favor of insureds. Instead, the Note considers the exception only in terms of the Shavell model.

[131] *See* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 148, 148 n.34 (citing Just v. Land Reclamation, Ltd., 456 N.W.2d 570 (Wis. 1990)).

[132] *See id.* at 148, 148 n.35 (citing Powers Chemco Inc. v. Fed. Ins. Co., 548 N.E.2d 1301 (1989) and United States Fid. & Guar. Co. v. Star Fire Coals, Inc., 856 F.2d 31 (6th Cir. 1988)); Barbara Hopkinson Kelly & Colin P. Hackett, *Trends and Emerging Coverage Issues, in* 1 ENVIRONMENTAL INSURANCE COVERAGE CLAIMS AND LITIGATION, *supra* note 114, at 99, 111; *Morton,* 629 A.2d at 847.

The court in *Morton* felt that the term "sudden" necessarily included a temporal element, but it nevertheless chose not to require that the event be of short duration.

> Although the word "sudden" is hardly susceptible of precise definition, and is undefined in those CGL policies that include the standard pollution-exclusion clause, we are persuaded that 'sudden' possesses a temporal element, generally connoting an event that begins abruptly or without prior notice or warning, but the duration of the event—whether it lasts an instant, a week, or a month—is not necessarily relevant to whether the inception of the event is sudden.

Id.

[133] *See* Hoskins, *supra* note 125, at 10,351 (In "a string of victories for insurance companies" beginning in 1984, many courts held that "the term 'sudden and accidental' in the pollution exclusion clause only restores coverage for pollution that is virtually instantaneous").

[134] *See* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 148, 148 n.34 (citing *Just,* 456 N.W.2d at 570). The doctrine that ambiguous contract language should be interpreted against the drafter—here, the insurance company—is known as "contra proferentem" and is often "'more rigorously applied in insurance than in other contracts, in recognition of the difference between the parties in their acquaintance with the subject matter.'" *Id.* at 28 n.55 (citing Gaunt v. John Hancock Mut. Life Ins. Co., 160 F.2d 599 (2d Cir. 1947) (Learned Hand, J.)).

This judicial disagreement over whether the "sudden and accidental" exception imposes a requirement that pollution events be short-lived or abrupt, or simply unexpected, suggests that the outcome in litigation involving a slow and prolonged, yet unexpected pollution event (that occurred, in part, between 1973 and 1986) depends largely on choice of law. That is, in a case involving a qualified pollution exclusion, whether a plaintiff facing significant liability for losses and environmental cleanup after a protracted pollution event[135] receives insurance coverage depends less on the plaintiff's actions, the policy language, or the ex ante intent of the parties, than on which state's insurance law applies.

2. What Must Be "Sudden and Accidental," the Discharge or the Resulting Loss?

If one interprets the "sudden and accidental" exception to mean, at least, unexpected and unintended, a second, closely related question arises: which event must be "sudden and accidental" to qualify for coverage, the polluter's discharge or the resulting personal injury or property damage? The policy language relevant to this question seems quite clear: losses are covered as long as the "discharge, dispersal, release or escape is sudden and accidental."[136] Nevertheless, some courts rely on certain insurance industry representations to states' insurance commissioners during the process of drafting the pollution exclusion to conclude that "at the time the exclusion was introduced," it was "intended merely to confirm" certain limitations in the coverage provision of the CGL policy that limit coverage to "bodily injury and property damage that is 'neither expected nor intended.'"[137] Accordingly, these courts interpret the pollution exclusion to exclude coverage only for pollution events in which the resulting loss is intentional; all unexpected losses—including those resulting from intentional, long-term disposal of pollutants—are therefore covered.

To clarify the distinctions at issue here and in question (1) above, it is helpful to consider the facts of a particular case in which a polluter facing cleanup liability sought coverage from its insurer. In *Morton In-*

---

[135] Suppose, for example, a landfill or buried oil or gas tank slowly leaks over a period of years, eventually contaminating groundwater sources.

[136] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 291 (citing the CGL policy issued by the ISO in 1973).

[137] Abraham, *Cleaning Up, supra* note 71, at 624–25 (citing Joy Techs., Inc. v. Liberty Mut. Ins. Co., 421 S.E.2d 493 (W.Va. 1992)); *see also* Hoskins, *supra* note 125, at 10,351 (citing City of Northglenn v. Chevron U.S.A., Inc., 634 F. Supp. 217 (D. Colo. 1986), in which the court found the conflict between the policy's trigger provision (which allowed coverage for unexpected damages) and the "sudden and accidental" exception (which limited coverage to unexpected discharges) to be ambiguous, and therefore interpreted the policy in favor of the insured).

ternational, Inc. v. General Accident Insurance Co. of America,[138] the plaintiff faced liability (inherited from its corporate predecessor) for the costs "involved in remediating pollution of Berry's Creek, an estuary of the Hackensack River, that had been caused by discharges from a mercury-processing plant operated for over forty-years."[139] The court described the devastating results of this pollution as follows:

> Beneath its surface, the tract is saturated by an estimated 268 tons of toxic waste, primarily mercury. For a stretch of several thousand feet, the concentration of mercury in Berry's Creek is the highest found in fresh water sediments in the world. The waters of the creek are contaminated by the compound methyl mercury, which continues to be released as the mercury interacts with other elements. Due to depleted oxygen levels, fish no longer inhabit Berry's Creek, but are present only when swept in by the tide and, thus, irreversibly toxified.[140]

Given the almost half-century of discharges at issue in *Morton,* the plaintiff clearly could not aver that the pollution event was abrupt or short-lived. Nor could the plaintiff insist that its predecessor's actions constituted "unexpected" discharges. Instead, the plaintiff argued that its insurance policies did not bar coverage for the cleanup costs because "no intent 'to pollute the waters of the State' had been proved."[141] That is, the plaintiff argued that the resulting pollution was unexpected and unintended and thus excepted from the qualified pollution exclusion clauses contained in several of its insurance policies.[142]

Ultimately, the *Morton* court took an intermediate position in interpreting the "sudden and accidental" exception, choosing to apply the clause to the discharges rather than the resulting losses, but to overlook the temporal aspects of the term "sudden."[143] Essentially on grounds of estoppel, the court decided only to enforce the pollution exclusion "to the extent of precluding coverage for an insured's intentional discharge of known pollutants."[144] Nevertheless, the court found in favor of those insurers whose policies included pollution exclusion clauses because the

[138] 629 A.2d 831 (N.J. 1993).

[139] *Id.* at 834.

[140] *Id.* (citing the same court's earlier opinion in N.J. Dep't of Envtl. Prot. v. Ventron Corp., 468 A.2d 150, 150 (N.J. 1983)).

[141] *Id.* at 835.

[142] *See id.*

[143] *Morton,* 629 A.2d at 880.

[144] *Id.* The *Morton* court reached this verdict in spite of its determination that the term "sudden" possesses a temporal element because it found that construing the term in a way that favored insurers would "violate this State's strong public policy requiring regulation of the insurance business in the public interest, and would reward the industry for its misrepresentation and nondisclosure to state regulatory authorities" at the time the qualified pollution exclusion was first introduced. *Id.* at 871–73.

court felt that the "conclusion [was] unavoidable that [the plaintiff's] predecessors had *intentionally* discharged known pollutants over a long and continuing period."[145]

One commentator summarized the confusing state of the law exemplified by the *Morton* decision as follows:

> [I]n some states the pollution exclusion precludes coverage of liability for harm caused by gradual pollution; in some states the exclusion does not preclude coverage of liability for harm caused by gradual pollution if the discharge of the pollutant was unexpected and unintended ("sudden and accidental"); and in some states the exclusion does not preclude coverage of liability for harm caused by gradual pollution, even if the discharge of the pollutant was expected or intended, if the harm caused by the discharge was not expected or intended.[146]

Only Lewis Carroll could have devised a more convoluted coverage scheme.[147]

3. Which Discharge Is Relevant, Initial Disposal or Subsequent Leakage?

Unfortunately, resolution of questions (1) and (2) above is not the end of the matter. Regardless of how courts rule on the meaning of the "sudden and accidental" exception, if they apply the exception to the insured's discharge rather than the resulting damage, they must then consider a further question: which discharge must be unexpected to qualify for coverage, the polluter's initial disposal of the pollutant or the subsequent leakage of the pollutant from the disposal area into the environment?[148] This dispute is relevant in many familiar circumstances in which the initial placement or disposal is intentional—for example, the insured may deliberately bury fuel storage tanks under her gas station or dispose of waste at a landfill—but the subsequent release of the pollutant into the broader environment occurs unexpectedly.

On this question, insureds frequently argue that the relevant release is not the original disposal of wastes but the subsequent leakage of the wastes from the disposal site.[149] To support this "secondary discharge

---

[145] *Id.* at 880.

[146] Abraham, *Cleaning Up, supra* note 71, at 625.

[147] "'Contrariwise,' continued Tweedledee, 'if it was so, it might be; and if it were so, it would be; but as it isn't, it ain't. That's logic.'" LEWIS CARROLL, THROUGH THE LOOK- ING GLASS 52 (1946), *quoted in* Thomas C. Gilchrist, *Insurance Coverage for Pollution Liability in the United States and the United Kingdom: Covering Troubled Waters,* 23 CASE W. RES. J. INT'L L. 109, 109 (1991).

[148] *See, e.g.,* Hamel, *supra* note 1, at 1099–1100.

[149] Kelly & Hackett, *supra* note 132, at 112.

argument," insureds claim "that the dictionary definition of the terms 'discharge, dispersal, release or escape' requires that there be a liberation from containment and . . . this does not occur until the substances leach into the environment."[150] Insurers commonly respond by observing that a reasonable interpretation of the phrase "discharge . . . into or upon land" in the pollution exclusion clause[151] encompasses intentional discharge of a pollutant into a landfill or holding pond.[152]

As might be anticipated in light of the extensive judicial disagreement over questions (1) and (2) above, resolution of the secondary discharge argument also depends on choice of law. In the majority of jurisdictions, the qualified pollution exclusion clause proscribes coverage of losses resulting from intentional disposal of pollutants,[153] but in some jurisdictions, losses resulting from intentional disposal followed by unforeseen leakage are covered under the "sudden and accidental" exception.[154]

4. "Sudden and Accidental" from Whose Point of View?

A final significant question that arises in those jurisdictions in which the "sudden and accidental" exception encompasses unexpected and unintended pollution events is whose point of view should be considered in determining whether a discharge was unexpected. True to form, courts disagree on this question, and in this instance, the terms of the qualified exclusion offer little guidance.

Due to the lack of relevant language in the qualified pollution exclusion itself, at least one court has relied on the language of the CGL policy's coverage provision, which explicitly refers to "bodily injury or property damage neither expected nor intended from the standpoint of the insured,"[155] to hold that knowledge or intent on the part of a third party does not preclude coverage of a pollution event.[156] This court thus granted coverage of losses resulting from an oil spill caused by vandals who intentionally "opened an above-ground oil storage tank valve, al-

---

[150] *Id.*

[151] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 291 (citing the CGL Policy issued by the ISO in 1973).

[152] *See, e.g.,* Broderick Inv. Co. v. Hartford Accident & Indem. Co., 954 F.2d 601, 607 (10th Cir. 1992) (finding that the district court's order that the pollution exclusion clause applied only to secondary discharge of chemicals into groundwater was reversible error).

[153] *See, e.g., id.*

[154] *See* Kelly & Hackett, *supra* note 132, at 113–19 (surveying cases in which courts have considered the secondary discharge argument and reached varying conclusions); Brown & Pollack, *supra* note 114, at 25–26; Hamel, *supra* note 1, at 1099.

[155] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 291 (citing the definition of "occurrence" included in the CGL policy issued by the ISO in 1973).

[156] *See* Ballard & Manus, *supra* note 122, at 634 (discussing Lansco Inc. v. Dep't of Envtl. Prot., 350 A.2d 520 (N.J. Ch. Div. 1975), *aff'd,* 368 A.2d 363 (N.J. Super. Ct. App. Div. 1976)).

lowing 14,000 gallons of oil to flow" onto the insured's property and into a nearby river because the insured neither expected nor intended the release.[157]

Other courts, by contrast, side with insurers in the debate over point of view, finding that "an insured's protection [can] be eliminated by the intentional activities of an unrelated third party."[158] Thus, in one case, a state supreme court affirmed an appeals court ruling that hazardous materials that had been buried on the insured's land "years earlier by a former landowner" did not constitute "sudden and accidental" discharges within the meaning of the qualified pollution exclusion because "the former owner had intended to bury the waste on the property."[159] The state appeals court explained that in its view, "[t]he relevant factor is not whether the policyholders anticipated or intended the resultant injury or damage, but whether the toxic material was discharged into the environment unexpectedly and unintentionally or knowingly and intentionally."[160]

Confusion surrounding the 1973 qualified pollution exclusion is therefore complete. The meaning of the "sudden and accidental" exception is indeterminate; it is unclear to which set of events the phrase should be applied; and finally, there is no consensus as to whether the exception sets out a subjective or an objective standard.

B. The "As Damages" Issue

The above discussion may leave the impression that, to receive insurance coverage for a pollution event under a 1973 CGL policy, one need only convince a court that the event falls outside the policy's pollution exclusion. In fact, several other aspects of standard-form CGL policies also limit coverage of expenses related to pollution events. For example, to qualify for coverage under the 1973 policy, insureds must be "legally obligated to pay" the expenses in question; the expenses must be payable "as damages"; the expenses must result from "bodily injury" or "property damage"; and the injury or damage must "be caused by an 'occurrence.'"[161] Discussion of the extensive controversy surrounding each

---

[157] *Id.*

[158] *Id.* at 641.

[159] *Id.* (discussing Powers Chemco, Inc. v. Fed. Ins. Co., 144 A.D.2d 445 (N.Y. App. Div. 1988) *aff'd*, 548 N.E.2d 1301 (1989)). *See also* Hamel, *supra* note 1, at 1101 n.100 (citing *Powers Chemco* as an example of an instance in which the pollution exclusion clause was held to "preclude coverage for intentional conduct of an insured's predecessor in interest").

[160] *Powers Chemco*, 144 A.D.2d at 447 (internal citations omitted).

[161] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 44, 50, 72, 91. Abraham provides an extensive discussion of these and other issues relating to interpretation of the CGL policy in the pollution context. *See generally id.* at 43–194.

of these issues is not relevant here, but brief consideration of the "as damages" issue is informative.[162]

In the absence of claims of bodily injury, the 1973 standard-form CGL policy requires that expenses be payable "as damages . . . because of . . . 'property damage'" to qualify for coverage.[163] The central issue that arises in interpreting this requirement relates to the question of environmental cleanup costs. As Abraham notes, common law tort liability does not usually encompass environmental cleanup costs; instead, such costs normally arise under a federal or state statutory regime such as that imposed by CERCLA.[164] "Consequently, whether cleanup costs constitute 'damages'" within the meaning of the 1973 CGL policy "must be determined by comparing the nature of the liabilities and obligations that these statutory regimes create with the meaning of the term 'damages' in the . . . policy."[165]

Both federal and state courts disagree about the outcome of this comparison. Many federal district and circuit courts, as well as at least one state supreme court, agree with insurers that equitable environmental remedies mandated by statute or compelled by court order do not constitute "damages" under the CGL policy. The Eighth Circuit, for instance, evaluated the meaning of the term "damages" as it is understood in the insurance industry and concluded that although the term is "ambiguous" if "[v]iewed outside the insurance context," within that context, "the term . . . is not ambiguous, and the plain meaning . . . refers to legal damages and does not include equitable monetary relief."[166]

As the Supreme Court of New Jersey observed in *Morton*, however, "[t]he clear weight of authority . . . among both federal and state courts adopts the view that the undefined term 'damages' in CGL policies should be accorded its plain non-technical meaning, . . . encompassing response costs imposed to remediate environmental damages."[167] To explain its reasoning, the court cited with approval an argument made by the Washington Supreme Court in a similar situation involving contamination of groundwater:

---

[162] The "as damages" issue is chosen for analysis not only because it is an "area of enormous controversy," *id.* at 50, but also because it squarely raises the question of the relative costs and benefits of covering environmental cleanup costs under comprehensive general liability insurance (rather than, for instance, pollution-specific liability insurance).

[163] *Id.* at 291 (citing the CGL policy issued by the ISO in 1973).

[164] *See id.* at 50.

[165] *Id.*

[166] Cont'l Ins. Cos. v. Northeastern Pharm. & Chem. Co., 842 F.2d 977, 985 (8th Cir. 1988) (en banc) (applying Missouri law). This court was also quite concerned about the moral hazard that could arise in situations in which cleanup costs imposed on the insured exceeded the value of the insured property. *See id.* at 986–87. For further discussion of the relationship between the "as damages" debate and moral hazard, see *infra* Part IV.B.

[167] Morton Int'l, Inc. v. Gen. Accident Ins. Co. of Am., 629 A.2d 831, 845 (N.J. 1993).

> If the state were to sue in court to recover in traditional "dam-
> ages," including the state's costs incurred in cleaning up the
> contamination, for the injury to the groundwater, [the insurer's]
> obligation to defend against the lawsuit and to pay damages
> would be clear. It is merely fortuitous from the standpoint of
> either [the insured] or [the insurer] that the state has chosen to
> have [the insured] remedy the contamination problem, rather
> than choosing to incur the costs of clean-up itself and then suing
> [the insured] to recover those costs. The damage to the natural
> resources is simply measured in the cost to restore the water to
> its original state.[168]

In light of this argument, the *Morton* court chose to apply a broad
definition of "damages" that encompasses environmental response costs
and remediation expenses.[169]

As this debate demonstrates, clearing the hurdles posed by the
qualified pollution exclusion is only half the battle for insureds seeking
compensation for costs associated with environmental liability. The lan-
guage of the 1973 CGL policy's coverage provision may also impede
recovery of environmental cleanup costs in many jurisdictions.

C. The Absolute Pollution Exclusion Clause

The final, real-world insurance dispute considered here relates to the
"absolute" pollution exclusion adopted by the ISO in 1986 in response
both to the profusion of "inconsistent judicial interpretations"[170] of the
qualified pollution exclusion and to insurer concern over the 1980 enact-
ment of CERCLA.[171] The degree of detail in the new exclusion evidences
the ISO's hope that this revision would effect "a major expansion in the
scope of the pollution exclusion."[172] The 1986 exclusion provides:

> This insurance does not apply to . . .

---

[168] *Id.* at 846 (quoting Boeing Co. v. Aetna Cas. & Sur. Co., 784 P.2d 507, 511–12
(Wash. 1990)). *See also* ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 64
("Suppose that a pollutant discharged by a CGL policyholder contaminates neighboring
property. The owner of that property . . . takes steps to remedy the contamination and later
sues the policyholder . . . . In that situation there is a strong argument that any liability
imposed on the insured is for 'damages.'")

[169] *See* 629 A.2d at 846–47.

[170] Miller & Swilley, *supra* note 119, at 145.

[171] Insurer concern stemmed largely from CERCLA's imposition of strict, retroactive,
and joint and several liability for cleanup on parties responsible for contaminating hazard-
ous waste sites. *See, e.g.,* ISO, *supra* note 4; Abraham, *Cleaning Up, supra* note 71, at
602–07; Abraham, *Limits of Insurance, supra* note 71, at 957–60.

[172] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 160–61.

(1) "Bodily injury" or "property damage" arising out of the actual, alleged or threatened discharge, dispersal, release or escape of pollutants:

(a) At or from premises you own, rent or occupy;

(b) At or from any site or location used by or for you or others for the handling, storage, disposal, processing or treatment of waste;

(c) Which are at any time transported, handled, stored, treated, disposed of, or processed as waste by or for you or any person or organization for whom you may be legally responsible, or

(d) At or from any site or location on which you or any contractors working directly or indirectly on your behalf are performing operations . . .

(2) [Or to a]ny loss, cost, or expense, arising out of any governmental direction or request that you test for, monitor, clean up, remove, contain, treat, detoxify, or neutralize pollutants.

Pollutants means any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.[173]

Most insurers now include in general liability policies either this seemingly "absolute" pollution exclusion or a similarly worded version that "contemplate[s] the elimination of coverage for most pollution-related claims."[174]

The comprehensiveness of the absolute pollution exclusion almost defies belief. In particular, by eliminating the "sudden and accidental" exception, the ISO eliminated all of the interpretation issues discussed earlier, including all questions of "'fault, responsibility or causation on

---

[173] *Id.* at 274–75 (citing the CGL policy issued by the ISO in 1986). The ISO revised this language again in 1988, 1990, 1993, 1996, and 1998, "each time apparently attempting to narrow coverage." William J. Mitchell, *CGL Pollution Exclusion Provisions and the Sick Building Syndrome: Despite Valiant Rewriting Efforts, Pollution Exclusions, Absolute or Not, Do Not Always Preclude Liability for a Variety of Ills,* 66 DEF. COUNS. J. 124, 130 (1999) (mentioning the 1990, 1993 and 1996 revisions); *see also* Schaffer, *supra* note 110, at 226 (noting the 1988 revision); Barney J. Mason, *New in the Law: Is the 'Absolute' Pollution Exclusion Really Absolute? Time Will Tell,* (last visited Dec. 1, 2000), *at* http://www.cusack-knowles.com/exclusion.htm (on file with the *Harvard Environmental Law Review*) (noting the 1998 revision).

Significant parts of the 1986 absolute pollution exclusion, and in particular the definition of "pollutants" cited here, remain unaltered in subsequent versions of the exclusion. *See* Mason, *supra* (citing the 1996 pollution exclusion, including the definition of pollutants, and noting that the 1996 language is "not materially different from the 1998 revision").

[174] Schaffer, *supra* note 110, at 225.

the part of or by the insured. Coverage is excluded for all pollution claims no matter how caused.'"[175] Further, the absolute exclusion clearly eliminates coverage for cleanup liability imposed on the insured by CERCLA or any other pollution statute. Nevertheless, the revised pollution exclusion is not as absolute as the insurance industry no doubt hoped.[176] Several terms remain ambiguous, including the all-important terms "discharge, dispersal, release or escape," and "pollutants."[177]

The most interesting current controversy over the meaning of these terms involves circumstances in which an individual is injured by exposure to a toxic substance in a non-environmental setting. Clearly, most circumstances in which a known pollutant discharged into the environment results in injury to exposed individuals fall squarely under the absolute exclusion. When an individual is injured in a more routine exposure to a toxic substance, however, some courts find that the resulting losses fall outside the scope of the exclusion.[178]

Courts' rationales for granting coverage in some instances for personal injuries that result from routine exposure to toxic substances fall into two general categories. First, in some instances, courts rely on the sheer breadth of the absolute exclusion's definition of "pollutants" to reason that some "limiting principle" is necessary to constrain application of the clause.[179] Thus, in a case involving an employee who was exposed to hazardous fumes discharged by a third-party contractor hired to repair

---

[175] *Id.* at 227–28 (citing Vantage Dev. Corp. v. Am. Env't Techs. Corp., 598 A.2d 948, 954 (N.J. Super. 1991)).

[176] A survey of published federal and state court cases indicates that about 260 disputes relating to the absolute pollution exclusion have been filed since 1986. Search of WESTLAW, Allcases Database (Apr. 15, 2000) (search for all cases containing the term "absolute pollution exclusion").

[177] *See, e.g.*, Nautilus Ins. Co. v Jabar, 188 F.3d 27 (1st Cir. 1999) (ruling in favor of the insured on the grounds that the pollution exclusion in the relevant insurance policy was ambiguous); ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 162 (discussing some of the issues that have arisen in application of the absolute pollution exclusion).

[178] For a general discussion of various cases granting or denying coverage under the absolute exclusion, see Kelly & Hackett, *supra* note 132, at 104–10.

[179] *Nautilus Ins. Co*, 188 F.3d at 30–31 (internal citations omitted) (listing a variety of cases in which the absolute exclusion's definition of pollutant was held to be ambiguous). As the *Nautilus* court notes, *id.* at 31, the Seventh Circuit has also discussed the issue of ambiguity in the absolute exclusion's definition of pollutant:

> Without some limiting principle, the pollution exclusion clause would extend far beyond its intended scope, and lead to some absurd results. To take but two simple examples, reading the clause broadly would bar coverage for bodily injuries suffered by one who slips and falls on the spilled contents of a bottle of Drano, and for bodily injury caused by an allergic reaction to chlorine in a public pool. Although Drano and chlorine are both irritants or contaminants that cause, under certain conditions, bodily injury or property damage, one would not ordinarily characterize these events as pollution.

Pipefitters Welfare Educ. Fund v. Westchester Fire Ins. Co., 976 F.2d 1037, 1043 (7th Cir. 1993).

the employer's roof, the court held that the absolute exclusion in the contractor's insurance policy was "ambiguous as a matter of law as applied to [the employee's] claim."[180] The court accordingly "restrict[ed] the exclusion's scope to only those hazards traditionally associated with environmental pollution" and denied the insurer's request for summary judgment barring liability coverage.[181] Similarly, the Washington State Court of Appeals found the absolute exclusion inapplicable to the case of a deliveryman who was injured when he was doused with diesel fuel while delivering the fuel to the insured.[182] Because the court felt "the pollution exclusion could be construed [either] to limit claims only for traditional environmental damages" or to "preclud[e] the type of claim presented here," it deemed the clause "ambiguous" and ruled in favor of the insured.[183]

The second reason some courts disregard the absolute pollution exclusion in cases of bodily injury resulting from routine exposure to toxic substances is that "the terms used in the exclusion clause, such as 'discharge,' 'dispersal,' 'release' and 'escape,' are terms of art in environmental law and are generally used to refer to damage or injury resulting from environmental pollution."[184] Courts following this line of reasoning argue that a reasonable insured "would understand this provision to exclude coverage only for injuries caused by traditional environmental pollution."[185] That is, an insured operating a business that did not pose a traditional pollution risk might reasonably assume her insurance policy covered the routine use of the various chemicals necessary for her business operations.[186] As a result, because "'an ordinary person in the shoes of an insured would not understand that the policy did not cover claims such as those brought,'" these courts find the absolute pollution exclusion to be ambiguous and find for the insured.[187]

The many cases in which courts find the absolute pollution exclusion to be clear and unambiguous far outnumber the few in which courts choose to constrain the meaning and scope of the exclusion and to grant coverage for the insured.[188] Nevertheless, the burgeoning controversy

---

[180] *Nautilus Ins. Co*, 188 F.3d at 31.

[181] *Id.*

[182] *See* Kent Farms, Inc. v. Zurich Ins. Co., 969 P.2d 109 (Wash. Ct. App. 1998).

[183] *Id.* at 112.

[184] *Nautilus Ins. Co.*, 188 F.3d at 30.

[185] *Id.*

[186] *See id.* In support of its ruling, the *Nautilus* court quoted W. Am. Ins. Co. v. Tufco Flooring E., Inc., 409 S.E.2d 692, 699 (N.C. Ct. App. 1992), in which the court held that "'[t]o allow West American to deny coverage for claims arising out of Tufco's central business activity would render the policy virtually useless to Tufco.'" *Nautilus Ins. Co.*, 188 F.3d at 30.

[187] *Nautilus Ins. Co.*, 188 F.3d at 30 (quoting Peerless Ins. Co. v. Brennon, 564 A.2d 383 (Me. 1989)).

[188] *See, e.g.*, Brown & Pollack, *supra* note 114, at 28 ("[M]ost courts reviewing the issue have held that the absolute pollution exclusions [sic] bars coverage for all damage

over the application of the absolute exclusion to personal injuries that result from routine exposure to "pollutants" suggests that the insurance industry has not yet succeeded in entirely eliminating its exposure to liability for *some* pollution losses.

IV. APPLICATION OF SHAVELL'S INSURANCE MODEL TO THE CGL INTERPRETATION DISPUTES

This Part uses Shavell's liability insurance model to analyze the CGL policy interpretation disputes outlined in Part III. Note that the results of this analysis are not intended as recommendations to courts addressing these disputes; fair resolution of any individual coverage controversy obviously requires application of familiar doctrines of contract interpretation, and this Note largely disregards such doctrines. Consideration of the general CGL pollution exclusion disputes in light of the Shavell model, however, serves to elucidate some of the broader implications of these disputes for insurers, insureds, victims, and the public and suggests some potential shortcomings of the model itself as applied to environmental insurance disputes.

A. The Qualified Pollution Exclusion

1. Does the "Sudden and Accidental" Exception Include a Temporal Element?

As discussed above, the language of the "sudden and accidental" exception to the 1973 pollution exclusion is highly ambiguous. Among other disputes, insurers argue that the exception restores coverage only for those events that are both unexpected ("accidental") and abrupt or rapid ("sudden"), whereas insureds aver that the exception restores coverage for all unexpected pollution events, even if they do not occur abruptly or rapidly. Courts have failed to reach a consensus on the question.[189]

Applying the Shavell model to this question suggests that all parties would be better off if the CGL policy had originally been drafted explicitly to exclude pollution events that are either expected or gradual. To see this, consider the following three scenarios, each of which involves a gas station (the insured) that buries a large gasoline tank under its gas pumps:[190]

---

resulting from the discharge or release of hazardous substances."); Kelly & Hackett, *supra* note 132, at 103 ("The exclusion has been held to bar coverage by most courts, if not all, throughout the United States for claims arising out of environmental contamination or pollution.").

[189] *See, e.g.*, Hamel, *supra* note 1.

[190] These examples are slightly out of date, as new technologies and safety regulations

Scenario A—an unexpected, gradual, and long-lived event: The tank rusts and then leaks over a period of years, eventually contaminating the groundwater in the area.

Scenario B—an unexpected, abrupt, and long-lived event: The tank is damaged abruptly (for example, by minor construction activity in the vicinity of the gas station) and then leaks over a period of years, eventually contaminating the groundwater in the area.

Scenario C—a "boom" event: A fire at the gas station causes the tank to explode, releasing gasoline that contaminates a nearby lake.

These events have several important similarities. First, all three scenarios involve some reducible risks because the insured could have lessened the likelihood of the leakage event in each scenario.[191] For example, in all three scenarios, the gas station could have installed a more durable gas tank. Similarly, in Scenario B, the gas station could have supervised more closely the nearby construction activity to be sure that no heavy machinery damaged the gas tank. Finally, in Scenario C, the station could have implemented strict fire safety precautions.

In addition to the reducible nature of many of the risks involved in each scenario, other similarities include each gas station's assets and its (and its victims') likely level of risk aversion. These traits are not likely to depend on the precise cause of the pollution event. Further, all three scenarios involve comparable accidents and losses. Finally, due to the similarity of accident type and scope, the same liability regime may well govern in each case.[192]

In spite of these similarities, however, the scenarios differ in two significant ways. First, Scenario C involves risks that are readily monitored by an insurance company. That is, an insurer could easily send an inspector to the insured gas station to observe fire safety precautions. The insurer could then respond to the inspector's observations, either by raising (or lowering) the gas station's premiums or by requiring that the insured take appropriate precautions to minimize any observed reducible risks. In contrast, in Scenario A, there is less an insurer could do to monitor the condition of the underground storage tank—the insurer could require that the gas station install the safest type of tank initially, but

---

have considerably reduced the risk of spills from underground storage tanks. *See, e.g.,* Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks ("UST"), 40 C.F.R. pt. 280 (1999). In spite of the examples' somewhat unrealistic simplicity, however, they well illustrate the workings of the Shavell model in the environmental context.

[191] *See supra* Part II.B.1–2.

[192] Of course, the liability regime may vary if, for example, an unrelated third party caused the damage to the tank in Scenario B. As the discussion in Part II.C.5 indicates, however, the Shavell model recommends the same form of liability insurance whether the prevailing liability standard is negligence or strict liability as long as there is some uncertainty in determining negligence. For purposes of this discussion, a strict liability regime is assumed.

would have more difficulty monitoring subsequent changes in the condition of the tanks (resulting, for example, from changes in rainfall and soil moisture). Scenario B falls between Scenarios A and C. The insurer could monitor construction activity in the vicinity of the gas station but might have difficulty accurately adjusting station *B*'s premium to account for changes in risk levels.

The second important difference among the scenarios relates to the probability that each gas station will become insolvent or otherwise escape liability for the pollution losses. Scenario A involves a long slow leak with no obvious cause. The leak could continue for years before it is discovered, at which point gas station *A* may well be insolvent.[193] By contrast, in Scenario C, the cause of the damage to the gas tank is an abrupt, observable event, which reduces the likelihood that the leak will remain undetected indefinitely. Again, Scenario B is somewhere in the middle. If the construction crew reports the damage to the tank, then the leak will not continue undetected for long. On the other hand, if the damage remains unreported, the leak could continue undiscovered as in Scenario A.

The long delay between onset and discovery of pollution in Scenario A (and possibly also Scenario B) also poses a "causation problem" for victims who try to sue the gas station.[194] That is, it may be difficult for the victims to identify and prove the source of the leak after the contamination is discovered.[195] The pollution in Scenario C, by contrast, is easily traceable to the gas station and the explosion event.[196]

---

[193] *See, e.g.*, Alison Watts, *Insolvency and Division of Cleanup Costs*, 18 INT'L REV. L. & ECON. 61, 61 (1998) (discussing ways to recover cleanup costs "assigned to . . . insolvent dumpers" of hazardous waste). This particular long-term leakage problem is less likely in the wake of the EPA's promulgation of standards for USTs, which require gas stations to test at least monthly for leaks from USTs. *See* Requirements for Petroleum UST Systems, 40 C.F.R. § 280.41 (1999). Nevertheless, leakage of petroleum from USTs remains a significant problem. *See* Mark D. Oshinskie, *Tanks for Nothing: Oil Company Liability for Discharges of Gasoline from Underground Storage Tanks Divested to Station Owners*, 18 VA. ENVTL. L.J. 1, 3–4 (1999) (discussing the ongoing problem of leaking USTs in New Jersey, and noting that the state has "numerous abandoned [gasoline] stations, many of which may have corroded USTs").

[194] *See generally* Grad, *supra* note 83, at 10,105–07 (discussing the causation problem in toxic torts).

[195] Sophisticated hydrogeological modeling techniques make identifying and proving the source(s) of underground leaks far easier than they once were, but the process remains difficult and expensive. For a colorful account of the inherent difficulties of tracing a contaminant to its source(s), see JONATHAN HARR, A CIVIL ACTION (1995).

[196] All three scenarios may also pose some of the classic, toxic-tort causation problems. For example, if some ill plaintiffs claim that the pollution caused their illnesses, they will have to be able to prove not only that there is an increased risk of illness in the area but also that the increased risk may be causally connected to the pollution. *See, e.g.*, Brock v. Merrell Dow Pharms., Inc., 874 F.2d 307 (5th Cir. 1989), *modified*, 884 F.2d 166, 166 (5th Cir. 1989) (holding that the plaintiffs failed to "present statistically significant epidemiological proof" that the chemical in question—Bendectin—caused the victim's birth defects); Koehn v. Ayers, 26 F. Supp. 2d 953, 956 (S.D. Tex. 1998) (remarking on the plaintiffs' failure to produce "any substantiated conclusions about the medical probability

Applying the Shavell model to these three scenarios suggests the following conclusions: (1) because the risks involved in Scenario C are reducible and the insurer can easily monitor station C's level of care, the insurer should provide, and the gas station should purchase, full coverage of the resulting pollution losses;[197] and (2) because the risks involved in Scenarios A and B are also reducible, but the insurer cannot as easily monitor stations A and B, the stations should opt for less than full coverage to reduce the problem of moral hazard and their premium payments;[198] but (3) because stations A and B are more likely to become insolvent or otherwise escape liability, society should consider forbidding insurance of events like those described in Scenarios A and B to reduce the problem of moral hazard and, in turn, the likelihood of loss.[199]

Restating these conclusions in terms of the pollution exclusion clause, then, the Shavell model suggests that the CGL policy should cover "boom" events, such as that in Scenario C, but should exclude long-lasting events (even if abrupt in onset), such as that in Scenario A, and probably also that in Scenario B. That is, the Shavell model indicates that the "sudden and accidental" exception to the pollution exclusion should be limited to unexpected events of abrupt onset and short duration.

2. What Must Be "Sudden and Accidental," the Discharge or the Resulting Loss?

The above analysis indicates that the "sudden and accidental" exception should only restore coverage for short-lived and unexpected events. Assuming, however, that a court instead finds that the exception covers all unexpected events regardless of duration, a second question arises: which event must be unexpected to qualify for coverage, the initial discharge of pollutants or the resulting personal injury or property damage?[200] Again, the Shavell model offers insights into the ramifications of this question for insurers, insureds, victims, and the public.

For purposes of this analysis, consider the following hypothetical situation. A company produces a substance XYZ as a byproduct of its operations. XYZ is not a known toxin at the time it is produced. The company regularly dumps XYZ in the stream that runs past its plant. Several decades later, XYZ is discovered to be a severe carcinogen.

Under the Shavell model, this scenario can be characterized in two ways. On the one hand, one can focus narrowly on the discharge of XYZ

---

that [their] injuries were caused in whole or even in part by exposure to environmental toxins"). These causation problems would affect equally the plaintiffs in any of the three scenarios, however, so these causation problems are not relevant to the current analysis.

[197] *See supra* notes 43–45 and accompanying text.
[198] *See supra* notes 46–51 and accompanying text.
[199] *See supra* Part II.C.5.c.
[200] *See supra* Part III.A.2.

and the fact that the pollutant's toxic effects are unknown at the time it is discharged into the stream. Using this reasoning, one can characterize the ex ante risks of discharging *XYZ* as irreducible; because the risks of *XYZ* are entirely unknown at the time the compound is produced, there is little the company can voluntarily do to reduce those risks. This characterization seems particularly reasonable if one imagines that when the company first begins producing *XYZ*, no organic chemicals are known to be carcinogens, so the company is ignorant not only about the specific hazards of *XYZ*, but about the hazards of any organic byproduct.[201]

On the other hand, if one assumes that the company begins producing *XYZ* at a time when the risks of *XYZ* are unknown, but the risks posed by other carcinogenic byproducts are widely known, then the risks of discharging *XYZ* appear eminently reducible. Recognizing that discharging any organic compound with unknown properties poses a non-zero risk, the company could choose not to dispose of *XYZ* at all, or not to dispose of it without first testing its health effects.

To determine the optimal liability insurance regime under this second characterization of the risks of discharging *XYZ*, one must evaluate the extent to which an insurer can monitor the company's discharge activities. The hypothetical supposes that the company deliberately and openly discharges *XYZ*, suggesting that an insurer can easily monitor the company's activities. Because these discharges, by assumption, take place at a time when the general risks posed by discharging organic chemicals are known, most insurers will probably choose to monitor the company's activities, and to draft a coverage policy that explicitly excludes coverage of losses resulting from willful discharge of organic chemicals with unknown properties.

Thus, applying the Shavell model to this hypothetical generates two divergent recommendations. If little is known about carcinogenic compounds at the time the discharge occurs, then the risks posed by the company's activities are effectively irreducible. Ex ante, both insurer and insured should opt for full coverage of the losses resulting from this sort of willful (but uninformed) discharge. On the other hand, if the carcinogenic properties of some organic chemicals are well known at the time of discharge, then the risks posed by the company's activities are reducible. Ex ante, both insurer and insured should opt for a policy that explicitly denies coverage of losses resulting from this sort of willful discharge, to provide the company with an incentive to investigate the properties of *XYZ* before discharging it.

---

[201] To take a simple example, prior to the discovery of the hazards of smoking, one might have characterized the risk of lung cancer as irreducible. Similarly, prior to the discovery of the role that chlorofluorocarbons play in depletion of the ozone layer, one might have described the risks of localized atmospheric ozone depletion as irreducible.

Restating these conclusions in terms of the qualified pollution exclusion, the Shavell model suggests that if a discharge occurs at a time when a "reasonable" polluter (or insurer) would recognize that its actions posed some risks, then later, when the resulting losses are discovered, the "sudden and accidental" exception should be interpreted to exclude coverage unless the pollution event itself (and not just the losses) occurred unexpectedly.

3. Which Discharge Is Relevant, Initial Disposal or Subsequent Leakage?

If a court applies the "sudden and accidental" requirement to a polluter's initial discharge, rather than to any resulting losses, it must also decide which discharge is relevant, the initial disposal of the pollutant or the subsequent leakage of the pollutant from the disposal site.[202] To evaluate this question under the Shavell model, consider the following two scenarios, both of which involve a company that produces significant quantities of a known carcinogen, *XYZ*:

Scenario A—"sudden and accidental" discharge: The company stores *XYZ* on the premises. A fire at the factory causes significant quantities of the compound to leak, contaminating a nearby stream.

Scenario B—"sudden and accidental" leakage from a disposal site: The company legally dumps *XYZ* at a landfill. The landfill suddenly and unexpectedly begins to leak. The compound contaminates a nearby stream.

The similarities between these scenarios are much as in Part IV.A.1 above. The risks involved in both scenarios are reducible, as the company in Scenario A could probably have taken greater precautions against fire, and the company in Scenario B could have done more to ensure that the landfill was adequately sealed against leakage. In addition, in both scenarios the company and its victims are presumably equally risk-averse, and there is no reason to suppose that the company is more likely to be judgment proof in one scenario than the other. Finally, both scenarios involve analogous accidents that result in losses of similar nature and scope, and both scenarios probably therefore involve similar liability regimes.[203]

There are, however, two relevant differences between these scenarios. First, Scenario A is more likely to involve a situation that the company's insurer could monitor adequately. In Scenario B, the fact that the level of care at issue is that of a contractor one step removed from the insured significantly reduces the insurer's ability to affect that level of care.[204] In addition, company *B* is more likely to escape liability than is

---

[202] *See supra* Part III.A.3.

[203] The liability regime might be different in Scenario B if the discharge involves negligence on the part of the landfill operator. For purposes of this discussion, however, similar liability regimes will be assumed. *See supra* note 192.

[204] The insurer in Scenario B could, of course, structure the corporation's liability pol-

company *A*, particularly if the landfill in Scenario B contains toxic effluent from several nearby industries. That is, assuming the company in Scenario B is not the only landfill supplier, a spill victim will have trouble determining and proving the source of the offending chemicals.

Applying the Shavell model to these scenarios suggests that full insurance may be appropriate in Scenario A, but some type of partial insurance (for example, coverage that includes a high deductible, a low ceiling, or a provision denying insurance in case of negligence on the part of third-party contractors) is more appropriate in Scenario B to reduce the moral hazard problem.[205] Further, if there is a significant possibility that the company in Scenario B may escape liability, this may be a situation in which society should consider forbidding liability insurance.[206] Rephrasing these conclusions in terms of the "sudden and accidental" exception to the 1973 pollution exclusion, the Shavell model indicates that the exception should cover only "sudden and accidental" primary discharges, not unexpected secondary discharges from a disposal site.

4. "Sudden and Accidental" from Whose Point of View?

The final question relating to interpretation of the "sudden and accidental" exception asks whose point of view is relevant in determining whether a pollution event was unexpected and unintended.[207] That is, should the "sudden and accidental" exception allow coverage of events deliberately caused by some third party as long as those events were both unexpected and unintended from the point of view of the insured? Again, application of the Shavell model suggests one possible answer.

Consider the following scenarios, each of which involves industrial production of a known carcinogen, *XYZ*:

Scenario A—a "boom event": Company *Q* produces *XYZ* and stores it on the premises. A fire causes an explosion, releasing significant quantities of *XYZ* that contaminate a nearby stream.

Scenario B—deliberate pollution by a vandal: Company *Q* produces *XYZ* and stores it on the premises. A vandal breaks into *Q*'s factory and releases significant quantities of *XYZ*. The compound contaminates a nearby stream.

Scenario C—deliberate pollution by a predecessor in interest: Predecessor Company produces *XYZ* and deliberately disposes of it in a nearby stream. Company *Q* takes over the business from Predecessor prior to public discovery of the contamination of the stream.

---

icy to strengthen the corporation's incentives to pick a reliable and safe landfill, but this is a far clumsier method of ensuring an adequate level of care on the part of the landfill than is direct monitoring.

[205] *See supra* notes 46–51 and accompanying text.

[206] *See supra* Part II.C.5.c.

[207] *See supra* Part III.A.4.

As in Parts IV.A.1 and IV.A.3, these scenarios all involve reducible risks, in that company Q could have taken precautions against explosions in Scenario A, protected its property against vandals in Scenario B, and investigated the premises prior to purchasing the property in Scenario C. In addition, there is no reason why company Q's assets, or the attitudes toward risk of Q or its victims, should vary between scenarios. Further, all three scenarios involve accidents of similar type and scope, and Scenarios A and B may also involve similar liability regimes.[208] Finally, in contrast to the situations discussed in Parts IV.A.1 and IV.A.3 above, Q is unlikely to escape liability in any of these scenarios due to bankruptcy or questions of causation.

Again, however, one difference among the scenarios is highly relevant to analysis under the Shavell model: an insurer could monitor company Q's actions in Scenario A more easily than in Scenario B or C. In Scenario A, company Q's insurer could observe Q's fire safety precautions and fine-tune Q's liability policy to grant coverage only for those fires against which Q took adequate precautions. By contrast, an insurer would have more difficulty monitoring Q's precautions against vandals or Q's care in investigating Predecessor. Thus, in Scenarios B and C, it would be difficult for the insurer to fine-tune Q's liability policy in response to Q's level of care. As a result, in Scenarios B and C, both company Q and its insurer may choose ex ante to structure Q's liability policy to deny coverage in cases in which Q's dealings with third parties result in a pollution event; this structure would provide Q with sufficient incentive to exercise care in those dealings and would, in turn, reduce Q's premiums. In terms of the qualified pollution exclusion clause, then, this conclusion suggests that ex ante, the parties would prefer the "sudden and accidental" exception to cover only those events that are unexpected and unintended from all points of view. That is, the exception should not restore coverage for pollution events that are deliberately caused by third parties.

B. The "As Damages" Issue

As mentioned above,[209] the qualified pollution exclusion is not the only barrier to recovering environmental liability expenses under the 1973 standard-form CGL policy. In many cases, the standard-form policy's coverage language itself limits recovery of environmental losses.

---

[208] In fact, under current law the liability regime in Scenario C may also resemble that in Scenarios A and B because CERCLA provides that successor corporations are "liable for the cleanup costs of substances disposed of on the site prior to the time that the successor company purchased the site." Thomas, *supra* note 118, at 189. Of course, the liability regimes may still differ because of the involvement of third parties in Scenarios B and C. Nevertheless, similar liability regimes will be assumed for purposes of this analysis. *See supra* note 192.

[209] *See supra* Part III.B.

One particularly contentious issue regarding this language is whether the policy's requirement that expenses be payable "as damages" should preclude recovery of statutory and court-ordered cleanup costs.[210] "Case law on this issue is sharply divided."[211]

To explore this question under the Shavell model, consider a situation in which an indisputably "sudden and accidental" pollution event[212] results in significant contamination of soil under a factory. Mitigating this damage requires washing and treating large quantities of soil, and then properly disposing of the runoff from the washing process. The costs of this decontamination process could easily exceed the total amount of property damage and personal injury losses caused by the contamination.

In this situation, the Shavell model indicates that full insurance is inefficient and might even create a significant moral hazard because the cleanup costs are both uncertain[213] and uncapped[214] ex ante. As discussed earlier, the Shavell model suggests that if insurers cannot accurately estimate expected losses, they cannot set premiums correctly and may choose not to offer coverage at all.[215] In turn, because premiums do not accurately reflect expected losses, insureds purchase either too much or

---

[210] ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 291 (citing the CGL policies issued by the ISO in 1973).

[211] Cont'l Ins. Cos. v. Northeastern Pharm. & Chem. Co., 842 F.2d 977, 985 (8th Cir. 1988) (en banc) (applying Missouri law).

[212] For example, suppose the pollution event is caused by a natural disaster. The ex ante risks of this disaster are largely irreducible, so the Shavell model suggests that full coverage should be available for the direct consequences of the disaster, including personal injury and property damage. The question that remains, therefore, is whether coverage should be available for more indirect costs, such as mitigation.

[213] This uncertainty is particularly problematic for insurers and insureds in light of CERCLA's open-ended liability scheme because "liability is not limited to the diminution in the value of the property contaminated, nor even to the total value of that property prior to contamination," and further, "[s]ince CERCLA liability is retroactive, strict, and . . . joint and several, the liability imposed on an insurer of even a non-negligent offsite generator of waste could be enormous." ABRAHAM, ENVIRONMENTAL INSURANCE, *supra* note 3, at 70; *but see* Jonathan R. Nash, *Environmental Law: An Economic Approach to the Availability of Hazardous Waste Insurance*, 1991 ANN. SURV. AM. L. 455, 490 (positing that in fact, "the majority of companies that generate hazardous waste deal with it themselves" rather than disposing of it in large landfills with the wastes generated by other companies, in part to avoid the problems associated with CERCLA's joint and several liability regime).

Professors Shavell and A. Mitchell Polinsky argue on economic grounds that polluters should not face CERCLA-like liability for steep cleanup costs because "imposing liability exactly equal to the harm that remains from a discharge after appropriate cleanup has been undertaken, not the (higher) cost of fully restoring the natural resource" will lead to the "socially optimal outcome: firms will appropriately clean up and take proper precautions, and consumers will purchase the correct amount of the goods whose production leads to discharges." A. Mitchell Polinsky & Steven Shavell, *A Note on Optimal Cleanup and Liability after Environmentally Harmful Discharges*, 16 RES. IN L. & ECON. 17, 22, 18 (1994). As discussed earlier, however, this Note considers not the optimal liability scheme for pollution events, but rather the optimal form of insurance in the presence of an existing liability scheme.

[214] That is, the costs are not limited by the diminution in value of the property, nor even by the fair market value of the property.

[215] *See supra* Part II.C.3.

too little coverage.[216] Further, uncertainty in calculating expected losses reduces insurers' ability to differentiate among insureds on the grounds of the risks they pose[217] and to structure policies that provide insureds with appropriate incentives to minimize risks.[218] As a result, insurers have limited ability to confront the problem of moral hazard.

According to Shavell's model, then, insurers, insureds, victims, and the public should all prefer that polluters not receive coverage of highly uncertain cleanup costs: insurers because they cannot set premiums accurately to be sure of covering their costs; insureds because premiums do not accurately reflect expected losses; and victims and the public because of the significant moral hazard problem.[219] Thus, in terms of the 1973 CGL policy, the Shavell model suggests that the "as damages" requirement should be interpreted to exclude cleanup costs in those situations in which the costs are both uncertain and uncapped ex ante.

C. *The Absolute Pollution Exclusion*

In response to the numerous coverage issues raised by the 1973 CGL policy's coverage provision and qualified pollution exclusion, the insurance industry revised the pollution exclusion clause in 1986 and eliminated the exception that allowed coverage for "sudden and accidental" discharges. The 1986 exclusion (and subsequent revisions thereof) thus represents the industry's attempt clearly and unambiguously to eliminate coverage of any pollution events under general liability policies. Despite

---

[216] See *id.*

[217] This inability to differentiate among insureds based on the degree of risk each poses not only decreases insurers' motivation to structure policies that increase insureds' incentives to take care, *see infra* note 218 and accompanying text, but also exacerbates the problem of adverse selection, *see supra* note 64.

[218] *See infra* note 226.

This problem is particularly evident in cases governed by CERCLA, as non-negligent waste generators can be held liable for significant cleanup costs. *See supra* note 213. In such cases, insurers lack adequate inducement to tie availability of coverage to an insured's level of care, and without the incentive provided by a carefully structured insurance policy, insureds lack inspiration to exercise due care because they could well face significant cleanup liability no matter how careful they have been. *See* Kehne, *supra* note 96, at 409 ("If differences in loss-prevention measures have little bearing on expected liability, insurers will find it unprofitable to discriminate among insureds on the basis of safety practices.").

[219] Consider, for example, CERCLA's strict, retroactive, and joint-and-several liability regime governing cleanup costs, and the consequent moral hazard problem created by insurers' inability to "discriminate among insureds on the basis of safety practices." Kehne, *supra* note 96, at 409. Forbidding insurance coverage of this liability (or requiring a significant deductible) would reduce the problem of moral hazard because potential polluters would be forced to internalize *some* of the costs of any unsafe practices (although they remain insulated from the *full* costs of those practices by the joint-and-several liability regime). By contrast, if all potential polluters purchase full insurance, and insurers can do nothing to encourage insureds to exercise care, insureds are *fully* insulated from the costs of any unsafe practices and thus have markedly reduced incentives to improve their safety practices.

the broad language of the new exclusion, however, many coverage disputes still arise, and insureds are occasionally successful in obtaining coverage of pollution losses, particularly when the pollution events in question involve routine, on-the-job exposure to hazardous substances.[220]

As in the discussion of the "as damages" issue above, the Shavell model does not provide a direct answer to the question of whether insureds should receive compensation for personal injury losses caused by routine exposures to toxic chemicals under general liability insurance policies. The model does, however, provide a framework for analysis of individual coverage disputes. Suppose, for example, a dispute involves a landlord in a low-rent neighborhood who owns only a few apartments, some of which are painted with lead-based paint. Should this landlord's CGL policy cover personal injury losses due to lead poisoning? Describing this situation in terms of the Shavell model, (1) the losses are clearly reducible; and (2) the activity (renting apartments) is relatively easy for the insurer to monitor; but (3) the landlord may be insolvent; and further, (4) the landlord may well escape liability in many instances, as these victims are unlikely to have the knowledge or resources necessary to bring suit.[221] Thus, although the Shavell model would recommend full coverage based solely on points (1) and (2) above,[222] points (3) and (4) indicate that this may be a situation in which society should consider *forbidding* liability coverage at the outset to reduce the problem of moral hazard.[223] Thus, the Shavell model suggests that the absolute pollution exclusion clause should be interpreted to exclude coverage for lead poisoning caused by routine exposure to lead paint.

Now, however, consider a different scenario. Suppose the insured is a paint manufacturer, and the exposure in question results from employees' failure to use adequate safety precautions in handling paints. Characterizing this risk situation in terms of the Shavell model, (1) the risks are again highly reducible; and (2) the insurer can easily monitor the ac-

---

[220] *See supra* Part III.C.

[221] *See* Clifford L. Rechtschaffen, *The Lead Poisoning Challenge: An Approach for California and Other States*, 21 HARV. ENVTL. L. REV. 387, 416 (1997). Professor Rechtschaffen describes the dismal state of lead paint litigation as follows.

> Tort litigation will provide compensation for only a very small percentage of injured children. ... Many families are unaware that their children are lead-poisoned. Other families are unaware of their legal rights or are reluctant to consult lawyers. Tenants may also forego litigation because of fear of landlord retaliation or of losing low rent housing. Harsh legal economics will discourage private attorneys from taking many cases, particularly those involving indigent families. ... [P]roving the elements of a negligence claim, particularly causation, can be quite difficult. Owners of some of the worst housing are judgment proof or have no insurance.

Id (internal citations omitted).

[222] *See supra* Part II.B.

[223] *See supra* Parts II.C.7, II.C.7.

tivity (by visiting regularly to observe safety procedures); but now, (3) the insured paint manufacturer is likely to be solvent; and (4) the manufacturer is unlikely to escape liability. In this scenario, therefore, the Shavell model suggests that full coverage of the personal injury losses caused by this routine exposure is optimal for deterrence purposes.[224]

Overall, then, the recommendations of the Shavell model with respect to compensation for personal injury losses caused by routine exposure to toxic substances depend on the facts in question. In general, the model suggests that if the risks involved are reducible and the activity easily monitored, the CGL policy should be interpreted to provide full coverage in spite of the absolute exclusion. In some cases, however, if the insured is likely to escape liability or to be judgment proof, the model seems to recommend that the absolute exclusion be invoked to deny coverage.

D. Summary of the Shavell Model's Recommendations for Coverage Disputes

In conclusion, the Shavell model recommends that all but one of the coverage disputes discussed in this Note be resolved in favor of the insurer. With respect to the qualified pollution exclusion, the model indicates that the "sudden and accidental" exception should be interpreted to restore coverage only for pollution events that are unexpected, abrupt, *and* short-lived because allowing coverage of slower events (even if unexpected) leads to a moral hazard problem, as insureds are more likely to escape liability or to be insolvent by the time suit is brought. Additionally, the model suggests that only unexpected discharges, not unexpected property or personal injury losses, should be covered under the exception (as long as the discharge took place at a time at which the general hazards posed by discharging substances of unknown properties were known) to provide insureds with adequate incentives to minimize discharges of such substances. The model also advises that coverage be excluded for unexpected secondary discharges (from landfills, for example) to increase insureds' incentives to exercise care in choosing reliable third parties with whom to contract. For similar reasons, the model advises that the "sudden and accidental" exception should only restore coverage for pollution events that are entirely unexpected from all points of view. Finally, with respect to the "as damages" issue, the model's recommendations serve insurers, as the model suggests that unless environmental cleanup costs can be estimated with reasonable accuracy ex ante, or at least capped, the "as damages" requirement should preclude coverage of such costs.

---

[224] *See supra* Part II.B.

It is only in the context of the absolute pollution exclusion that the model gives a more equivocal response. Under the model, full coverage of personal injury losses caused by routine exposure to pollutants is advisable, as long as insureds seem unlikely to escape liability or to be judgment proof. If the insured may be insolvent or escape liability, however, the model once again comes out in favor of the insurer because in these circumstances, granting coverage of uncertain and uncapped cleanup costs exacerbates the problem of moral hazard.

V. Critique of the Shavell Model's Recommendations

Having described the Shavell model's recommendations on several real-world environmental insurance disputes, it is now important to ask why the model leads to those conclusions, and whether the conclusions make sense when the assumptions of the model are relaxed.

A. Does the Shavell Model Have Inherent Biases?

As the following discussion demonstrates, the Shavell model deliberately incorporates certain biased assumptions that in turn dictate the model's conclusions. To see this, consider the three basic conclusions of the model that effectively dictate its recommendations regarding the CGL policy interpretation questions discussed above. First, the model emphasizes that in situations in which risks are uncertain and possibly independent of an individual insured's level of care (as in the case of environmental cleanup costs), the advantages of insurance as a method of distributing the risk of liability without decreasing the deterrence effects of that liability are significantly reduced. As a result, in such situations, insurers, insureds, and victims may not be made better off by the availability of liability insurance, and society may choose to forbid coverage at the outset. Second, the model indicates that in scenarios in which the relevant level of care is not only that of the insured but also that of a known third party (such as a landfill operator), insurers, insureds, and victims may opt to draft policies that preclude coverage of losses negligently caused by the third party to provide insureds with adequate incentives to monitor third parties' level of care.[225] Third, the model demonstrates that in circumstances in which there is significant risk that insureds will be insolvent or escape liability entirely, the availability of insurance can exacerbate the problem of moral hazard, which in turn harms victims (and, in this case, taxpayers) and again suggests that society may wish to forbid liability insurance. As these three basic conclusions make clear, the model incorporates an essential underlying premise:

---

[225] This will be particularly true if the insurer is not itself able to monitor the insured's interactions with the third party.

the advantages of liability insurance are greatly reduced, and potentially even eliminated, in situations in which the availability of insurance interferes with the deterrence function of liability.

This Note incorporated the model's underlying premise without question in applying the model to the various CGL policy coverage disputes discussed in Part IV. The outcome of that exercise, however, suggests certain problems with the model as applied to environmental insurance questions. Consider whether the model's premise in fact ensures the socially optimal result in an analysis of a pollution-liability coverage question. As noted in Part IV.D, the model recommends resolution of most of the disputes regarding coverage of pollution events under the 1973 and 1986 CGL policies in favor of the insurer. This recommendation is not obviously objectionable until one considers that many of the situations in which the Shavell model indicates that coverage should be unavailable are precisely those situations in which the insured is least likely to be able to compensate victims or to cover the costs of environmental cleanup—namely, those situations in which (1) expected losses are highly uncertain and uncapped ex ante, (2) insureds may be insolvent,[226] or (3) insureds may escape liability.[227] This uncomfortable realization provokes two questions. First, why does the Shavell model systematically disfavor insurance in cases in which insureds are least likely to be able to cover the costs of the losses caused by their actions? And second, if the model's recommendations prove unpalatable in the environmental context, how could one alter either the model itself or real-world circumstances to achieve a more satisfactory solution?

B. The Shavell Model Assumes the Existence of Adequate and Efficient First-Party Insurance To Compensate Victims of Loss

That the foregoing analysis of coverage issues under the 1973 CGL policy and the 1973 and 1986 pollution exclusion clauses leads so frequently to outcomes that favor insurers rather than insureds results directly from the Shavell model's emphasis on the deterrence and risk-

---

[226] This may not seem like a significant issue for those used to thinking of insurance in the context of catastrophic accidents. In the environmental context, however, many injuries are slow to arise or to be discovered, greatly increasing the probability that the injurer will be insolvent, or will not exist, by the time suit is brought. *See, e.g.,* Oshinskie, *supra* note 193, at 3–4 (recognizing that petroleum leaks from USTs at gas stations may not be discovered until long after the stations have gone out of business and the tanks have been abandoned); Lisa Heinzerling, *Environmental Law and the Present Future*, 87 GEO. L. J. 2025, 2026–27 (1999) (discussing the regulatory implications of the long latency period of many diseases caused by exposure to hazardous substances).

[227] As noted above, the model also recommends against coverage in situations in which accidents may be caused by third parties. This recommendation does not raise the same concerns, however, as there is no particular reason to suppose that situations involving third parties are *a priori* more likely to be situations in which a polluter would be unable to cover the costs of an accident in the absence of insurance coverage.

spreading functions rather than the compensation function of liability insurance. The model's bias is not accidental. It results directly (and purposely) from Shavell's conviction that first-party insurance is a more efficient source of compensation for victims than third-party liability insurance.[228] This conviction enables Shavell to argue, for example, that in cases in which injurers may be judgment proof, society may wish to forbid insurance to maximize the deterrence effects of liability.[229] Without an underlying notion either that liability results in perfect deterrence and avoidance of all accidents, which Shavell does not suggest, or that an adequate and efficient alternative source of compensation for victims exists, which he does,[230] this argument would be far more objectionable.

Therefore, to evaluate the Shavell model's recommendations for pollution liability coverage, one must first determine whether the model's deliberate underemphasis of the compensation function of liability insurance is justified in the environmental context. This Note argues that it is not, for two basic reasons. First, many environmental accidents involve losses to the commons rather than to private individuals, and no suitable analog to first-party insurance exists for such public losses. Second, even in situations involving only private victims, first-party insurance may prove an inefficient and ineffective source of compensation for victims of environmental losses.[231]

---

[228] *See supra* note 94.

[229] *See supra* Part II.C.7.

[230] *See supra* note 94.

[231] Some authors dispute the assertion that first-party insurance is necessarily a more efficient source of compensation than enterprise liability even in other, more typical contexts. *See, e.g.*, Steven P. Croley & Jon D. Hanson, *What Liability Crisis? An Alternative Explanation for Recent Events in Products Liability*, 8 YALE J. REG. 1 (1991). Croley and Hanson question three "[p]urported [s]hortcomings" of "manufacturer-provided insurance": its allegedly higher administrative costs, its purported award of undesired damages for non-pecuniary losses, and its assumed inability to "cope" with the problems of moral hazard and adverse selection. *Id.* at 14, 23. The authors suggest that each of these purported shortcomings may be unfounded: (1) "the total administrative costs of accident recovery through both the tort and first-party insurance systems may well be less under an enterprise liability regime than they would be under a cost-benefit negligence regime," *id.* at 110; (2) awarding non-pecuniary loss damages may well serve deterrence goals, suggesting that such damages are not entirely inefficient, *see id.*; and finally (3) "manufacturer-provided insurance can and does employ mechanisms analogous to the deductibles and copayment mechanisms of first-party insurance," *id.* Thus, in Croley and Hanson's view, the efficiency benefits of first-party insurance may not be as great as some authors suggest, and therefore "courts should move toward enterprise liability, unashamedly." *Id.* at 111. *See also* Jon D. Hanson and Kyle D. Logue, *The First-Party Insurance Externality: An Economic Justification for Enterprise Liability*, 76 CORNELL L. REV. 129 (1990) ("[I]t is plausible (especially given the failure of first-party insurers to adjust premiums according to consumption choices) that enterprise liability [is] superior" to first-party insurance in providing compensation).

*1. Unavailability of First-Party Insurance for Public
Environmental Losses*

To explore the availability of first-party insurance for public losses, consider the following situation: an insured company buries toxic waste in fifty-five-gallon drums on its property; the drums leak slowly over a period of years; a nearby river and surrounding land become contaminated; during the same period, the company goes out of business and is dissolved.[232] In this scenario, once the contamination is discovered, numerous victims may wish to seek compensation from the company or its insurer: individuals who suffer cancers and other illnesses that may have been caused by exposure to the toxic substance, individuals whose property value falls when the contamination is discovered, and individuals whose use of the river (for drinking water, for fishing, swimming, or canoeing, or simply for its aesthetic value) is affected by the contamination.[233] One can debate whether medical and homeowners insurance are more efficient sources of compensation than third-party liability insurance for the first two categories of victims, but it is difficult to imagine a workable system of first-party insurance that would compensate the individuals whose losses consist entirely of a reduction in canoe-hours on the now-polluted river

As this scenario makes clear, many victims of environmental accidents suffer only indirect losses as a result of damage to the commons. One simply cannot construct a first-party insurance system that would compensate these individuals for the reduction in their quality of life due to the accident.[234]

---

[232] Lest this scenario appear too extreme, consider the following descriptions of the methods used by the Northeastern Pharmaceutical & Chemical Co. ("NEPACCO") to dispose of byproducts generated during its manufacture of hexachlorophene:

> The manufacturing process produced a variety of hazardous wastes, including the highly toxic chemical dioxin. In . . . 1971 NEPACCO disposed of about eighty-five 55-gallon drums of hazardous wastes by burying them in a trench on a farm . . . . Many of the drums had deteriorated and were in poor condition at the time of disposal; many broke open when they were dumped in the trench. A strong chemical odor persisted in the immediate area of the . . . farm site for several months thereafter.

Cont'l Ins. Cos. v. Northeastern Pharm. & Chem. Co., 842 F.2d 977, 979 (8th Cir. 1988) (en banc) (applying Missouri law).

[233] This latter category could potentially include *all* of the people who used the river anywhere downstream of the source of the contamination, including people in other states, and possibly even other countries. Environmental accidents thus present unique cross-boundary issues that further complicate analysis.

[234] Aside from its general absurdity, there are also numerous practical difficulties with the notion of first-party insurance for damage to one's individual "share" of the commons. Among other things, air and water quality are affected by every aspect of life in an industrial society. As a result, any first-party insurance policy that promised compensation for reductions in air quality would, for example, have to compensate insureds every time they

2. *Relative Inefficiency of First-Party Insurance in the Environmental Context*

·   Of course, in the above scenario, the angry canoer could not recover the value of her lost canoe-hours in tort, either—her only hope lies in restoration of the river. This observation leads directly to the second argument against relying on first-party insurance as a method of paying the bill for environmental accidents: such first-party insurance is unlikely to be as efficient in the environmental context as in other contexts, and may well be far less efficient than enterprise liability and third-party insurance as a method of compensating victims for existing losses, preventing future harms, and restoring the environment to its ex ante condition.[235]

There are three primary reasons for the reduced relative efficiency of first-party insurance in the environmental context. First, in many situations, the cheapest solution to an environmental problem may be to remove the source of the contamination, rather than to continue indefinitely to compensate individual victims. Such environmental cleanup can obviously be accomplished far more efficiently by one or a few polluters (possibly using funds supplied by insurers) than by a group of unrelated individual victims. Individual victims not only face significant transaction costs in organizing to undertake a cleanup effort, but they also have far less information about the true source, nature, and extent of the contamination than does the polluter, and they may have less expertise in handling the materials in question.[236]

Second, polluters may themselves be aware of contamination well before it affects third parties. In such situations, it will likely be more economically efficient for the polluter to remedy the contamination before property damage or personal injury losses occur.[237] Clearly, however,

---

used a dry cleaner or pumped gasoline.

[235] This Note argues only that first-party insurance is less efficient in the environmental context than in other contexts and that some of the common arguments in favor of first-party insurance are not applicable in the context of environmental losses. The Note does not revisit the many other general arguments regarding the relative efficiency of first-party insurance. For further discussion of these arguments, see *supra* notes 94 and 231 and articles cited therein.

[236] This argument is related, though not identical, to the argument that in the absence of a first-party source of funds, cleanup costs can be borne more efficiently by polluters than by taxpayers. *See* James J. Reardon, Jr., *Limiting Municipal Solid Waste Liability under CERCLA: Towards the Toxic Cleanup Equity and Acceleration Act of 1993*, 20 B.C. ENVTL. AFF. L. REV. 533, 569 (1993) ("[I]ndustrial polluters are more efficient at distributing the cost of hazardous waste disposal because they may pass the costs of disposal and cleanup on to the buyers of their products in the form of higher prices. Raising taxes is a less, if not a completely, inefficient mode of sending proper price signals to consumers."). Professor Reardon's argument assumes the absence of first-party insurance, however, whereas the argument in the text may hold true even in cases in which medical or homeowners insurance is available as a source of funds for victims.

[237] CERCLA recognizes this possibility. *See, e.g.*, 42 U.S.C. § 9601(23) (1994) (defining the terms "remove" and "removal" in the CERCLA provision that allows the President to "act ... to remove or arrange for the removal of" hazardous substances as

polluters have little incentive to undertake preventive cleanup measures if they know they will never themselves face liability for subsequent losses caused by the contamination.

Third, firms may be able to reduce or eliminate pollution risks through relatively cheap improvements, such as installing smokestack scrubbers to remove particulates from exhaust.[238] Unless the firms face liability for all the costs of the pollution they create, however, they have little incentive to undertake even those improvements whose benefits in terms of pollution prevention far exceed their costs.[239] Forcing polluters to internalize the costs of pollution may induce them either to reduce their activity level or "to implement more environmentally efficient and responsible technologies . . . to reduce [their expected] environmental cleanup costs."[240]

3. Additional Advantages of Third-Party Insurance in the Environmental Context

In addition to the above factors that render enterprise liability relatively more efficient in the pollution context, there is at least one oft-cited disadvantage of enterprise liability as insurance—namely, that corporate liability is regressive—that is less applicable in the environmental than the products-liability context. The standard argument in the products-liability context runs as follows:

> [T]he expansion of third-party tort law insurance directly harms the poor among the consumer population. Obviously, the general price increase consequent to the expansion of liability affects those with low levels of resources most seriously. More importantly, the benefit low-income consumers receive from the addition of the liability insurance premium to the price of a product or service is worth less to them than its price. Again, the liability insurance premium tied to the sale of a product or

---

including the "taking of such other actions as may be necessary to *prevent,* minimize, or mitigate *damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release*" (emphasis added)).

[238] This characteristic thus distinguishes pollution risks, which may or may not be a necessary aspect of a manufacturing process, from health risks, which are often an inherent aspect of a manufacturer's end product. That is, sale of cigarettes poses an irreducible health risk, whereas manufacture of cigarettes poses a largely reducible pollution risk.

[239] Because pollution is a uniquely "collective" problem, it "simply had never been taken seriously" prior to 1970; "its social costs had been treated as an externality borne for the most part by receptors as a class rather than assigned to polluters as a cost of doing business." Robert L. Rabin, *Federal Regulation in Historical Perspective*, 38 STAN. L. REV. 1189 (1986), *reprinted in* LAW AND THE ENVIRONMENT: A MULTIDISCIPLINARY READER 171 (Robert C. Percival & Dorothy C. Alevizatos eds., 1997).

[240] Colin Crawford, *Some Thoughts on the North American Free Trade Agreement, Political Stability and Environmental Equity*, 20 BROOK. J. INT'L. L. 585, 616 (1995).

service must be set according to the average expected liability payout. Tort judgments comprise medical expenditures, which are typically greater for higher income patients; past and future lost income; and damages representing pain and suffering, which are highly correlated with lost income. The high correlation of these damage elements with income, however, means that the premiums set equal to the average damage payout will undercharge high income consumers and overcharge low income consumers. The provision of liability insurance tied to the sale of products and services requires the low income to subsidize the high income.[241]

This argument fails in the environmental context because losses associated with environmental accidents are not randomly distributed with respect to income; instead, the majority of these losses are born by low-income communities.[242] Thus, in the case of environmental losses (unlike the losses discussed in the above example), "the benefit low-income consumers receive from the addition of the liability insurance premium to the price of a product or service"[243] may well be worth *more* to them than its price, not only because they are more likely than wealthier consumers to benefit from any resulting liability payout, but also because they will disproportionately benefit from any reduction in the risk of environmental accidents "purchased" along with the higher-priced product.

Overall, therefore, first-party insurance is a more dubious prospect in the environmental arena than in most of the contexts considered by Shavell and the other authors who have extolled its relative advantages as a source of compensation for victims. For environmental losses resulting indirectly from damage to the commons, first-party insurance may be entirely unavailable. Further, even in those instances in which first-party

---

[241] Priest, *supra* note 20, at 502.

[242] *See, e.g.*, Richard J. Lazarus, *Pursuing "Environmental Justice": The Distributional Effects of Environmental Protection*, 87 NW. U. L. REV. 787, 796 (1993) (discussing "[e]vidence of [e]nvironmental [i]nequity"); Robert D. Bullard, *The Threat of Environmental Racism*, 7 NAT. RES. & ENVT. 23 (1993), *reprinted in* LAW AND THE ENVIRONMENT, *supra* note 239, at 103, 104 (arguing that "a form of illegal 'exaction' forces disenfranchised communities [including many low-income communities] to pay the costs of environmental benefits for the public at large"); *see also* Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?*, 103 YALE L.J. 1383 (1994), *reprinted in* LAW AND THE ENVIRONMENT, *supra* note 239, at 118, 119, 124. Professor Been suggests that although "those neighborhoods in which [locally undesirable land uses ("LULUs")] are located .—.—are poorer than non-host communities," that phenomenon may result not from deliberate discrimination in siting decisions but rather from changes in neighborhood "characteristics following the siting." This chicken-or-egg question does not, however, affect the argument in the text. That is, regardless of the source of the discrimination, as long as LULUs are disproportionately sited in poor communities, low income people will receive a greater-than-average share of the benefits of any liability insurance premium added to the price of the product or service provided by the LULU.

[243] Priest, *supra* note 20, at 502.

insurance is readily available, it may be less efficient than enterprise liability in providing compensation. Finally, at least one of the general arguments invoked against enterprise liability—that it can be regressive—is considerably weaker in the context of environmental losses.

Of course, this analysis is highly qualitative, and there may well be scenarios involving environmental losses in which the relative advantages of liability insurance in terms of compensation are outweighed by its disadvantages in terms of increased moral hazard. In some situations in which polluters are likely to be judgment proof, it may still be worthwhile to forbid insurance, as Shavell advises, in spite of the resulting reduction of funds for compensation and cleanup. Nevertheless, the above discussion raises the question whether the conclusions of the Shavell model, which hinge in part on the availability and relative efficiency of first-party insurance as a source of compensation for victims of loss, can be applied as readily to questions of pollution liability.

C. The Shavell Model Assumes Risk Levels Can Easily Be Determined

There is one further difficulty with applying the Shavell model in the environmental context: the model assumes that risk levels can easily be determined before a loss occurs. The implications of this assumption are not readily apparent from the analyses of CGL coverage issues discussed above, as those analyses assumed the existence of a working environmental liability insurance market. Nevertheless, the problem is important to a thorough analysis of the Shavell model as a tool for analyzing environmental insurance disputes.

As discussed above,[244] Shavell's assumption that insurers can accurately estimate the ex ante risk of loss is critical to the Shavell model's central conclusion that in most circumstances insurers will choose to provide, and potential injurers will choose to purchase, third-party liability insurance. If this assumption is not met, insurers will charge too much or too little for liability insurance, insureds will purchase too little or too much coverage, and insureds' incentives to exercise care will be suboptimal. Worse still, if insurers are entirely unable to estimate risk levels, they may choose not to provide liability insurance at all. In situations involving risks that are difficult to estimate, therefore, the Shavell model's sunny conclusion that regulation of liability insurance markets is only necessary if insureds may be insolvent or escape liability may not hold.

Unfortunately, many cases involving environmental losses fit this description.[245] Scientific uncertainties make the risk of environmental losses

---

[244] *See supra* Part II.C.3.

[245] *See, e.g.*, Thomas, *supra* note 118, at 212 ("The most severe problem in the American environmental liability insurance market has been excessive uncertainty about the

difficult to estimate ex ante because the hazards of a product or activity may be unforeseen, unforeseeable, or unpredictable at the time the product is made or the activity occurs.[246] For example, consider a company that manufactures or distributes a potentially toxic substance:

> [An insurer's ability to assess the potential future liabilities of that company] suffers from fundamental uncertainties about causal mechanisms for cancer and other hazards, extrapolative relationships between high-dose and low-dose responses and between animal test data and human risks, latent effects and latency periods, special sensitivities in exposed subpopulations, synergistic or co-carcinogenic effects of various substances, past and present exposure levels, dispersion patterns for contaminants, and virtually every other area of required knowledge. These uncertainties generally preclude reliable assessments of relevant effects [of the substance].[247]

Further, imposition of retroactive and joint-and-several liability under statutes such as CERCLA greatly compounds the problem by reducing an insurer's ability to predict or constrain the range of accidents for which its insureds could seek coverage.

In turn, the difficulties inherent in environmental risk estimation reduce the likelihood that the insurance market will itself produce the optimal amount of liability insurance at the optimal price. As one author summarized the situation, "unpredictability as to the boundaries of liability has made it extraordinarily difficult for insurance companies to insure for toxic wastes liabilities and, in many instances, insurance has become unavailable."[248] Thus, contrary to the Shavell model's predictions, there may be situations in the environmental context in which liability insurance is socially desirable (for purposes of deterrence, risk spreading, or compensation) but unavailable without regulatory intervention in the market.

D. Fitting the Model to the Environmental Context

As the above discussion demonstrates, the Shavell model of liability insurance, with its underemphasis of the compensation function of insurance and simplistic assumptions about risk estimation, may not apply as

---

frequency and severity of environmental losses that will be suffered.").

[246] *See, e.g.,* Jennifer H. Arlen, *Future Prospects for Compensations Systems: Compensation Systems and Efficient Deterrence,* 52 MD. L. REV. 1093, 1119 (1993) (discussing the "special features of insurance for mass product-related torts").

[247] Howard Latin, *Good Science, Bad Regulation, and Toxic Risk Assessment,* 5 YALE J. ON REG. 89, 91 (1998).

[248] Barbara Ann White, *Economizing on the Sins of Our Past: Cleaning Up Hazardous Wastes,* 25 HOUS. L. REV. 899, 920 (1988). *See also supra* note 118.

readily to questions of environmental liability as to questions of product liability. The next step in the analysis, therefore, is to consider ways of adapting the model to account for the weaknesses of the first-party insurance market in the environmental context, and to take into account the possibility that without regulatory intervention, environmental liability insurance may not be available in all circumstances in which it is socially desirable.[249] Full exploration of this topic is beyond the scope of this Note, but one suggestion follows.

To adapt the Shavell model to situations in which non-liability-based sources of compensation are unavailable, one must simply rethink the model's conclusion that in cases in which a polluter may be insolvent or may escape liability, society should consider forbidding liability insurance. A potential alternative recommendation for such circumstances is not to forbid liability insurance at the outset, but instead to require proof of solvency.[250] Under such a requirement, any firm wishing to engage in an activity known to pose a significant pollution risk is obligated to prove to regulators that it has the funds necessary to cover expected losses prior to receiving a license to operate.[251] Imposing a proof-of-solvency re-

---

[249] A different approach to improving the fit between the Shavell model and questions of environmental liability is to improve the availability of non-liability-based funding sources to cover the costs of environmental accidents. Although true first-party insurance may not be possible in cases involving public rather than private losses, see *supra* notes 233–234 and accompanying text, other compensation schemes are possible. For example, CERCLA creates a "'Superfund' from taxes on the oil and chemical industries to provide for cleanup of sites where financially solvent and liable polluters [cannot] not be identified." Matthew J. Lawlor, *Super Settlements for Superfund: A New Paradigm for Voluntary Settlement*, 27 B.C. ENVTL. AFF. L. REV. 123, 128 (1999); *see also* CERCLA, 42 U.S.C. § 9611 (1994). The pros and cons of CERCLA's approach to funding environmental cleanups have been discussed thoroughly in the literature. *See, e.g.*, ANALYZING SUPERFUND, *supra* note 118. For purposes of this discussion, the important point is that in situations in which such a non-liability-based source of funds to cover the costs of environmental accidents is available, the Shavell model's emphasis on the deterrence and riskspreading functions of liability insurance is less objectionable.

[250] *See generally* Kehne, *supra* note 96 (discussing the potential benefits of financial responsibility requirements and insurance-based incentives for deterring environmental accidents).

[251] Numerous environmental statutes already incorporate some form of financial responsibility requirement. *See id.* at 403 n.1 (listing the various "provisions mandating or expressly authorizing financial responsibility requirements in federal statutes that seek to control environmental harms"). Such statutes include the Resource Compensation and Recovery Act ("RCRA"), 42 U.S.C. § 6924(t) (1994) (requiring that treatment storage and disposal facilities provide proof of solvency for the costs closing and/or cleaning up the facilities); OPA, 33 U.S.C. § 2716 (1994) (requiring that any vessel shipping oil in the U.S. exclusive economic zone "establish and maintain . . . evidence of financial responsibility sufficient to meet the maximum amount of liability to which the responsible party could be subjected under other sections of the Act); the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. § 1257(f) (1994) (requiring permit applicants to obtain liability insurance adequate to provide for personal injury and property damage); and the Price-Anderson Act, 42 U.S.C. § 2210 (1994) (providing that operators of nuclear power plants "have and maintain financial protection of such type and in such amounts as the Nuclear Regulatory Commission . . . shall require . . . to cover public liability claims"). Some state statutes also impose financial responsibility requirements on certain corporations operating

quirement not only guarantees the availability of funds to cover the costs of pollution accidents and encourages the creation of an environmental liability insurance market,[252] but also preserves the deterrence effect of liability (and decreases the risk of accidents) at least as well as the Shavell model's recommendation that insurance be proscribed.[253]

A proof-of-solvency requirement preserves the deterrence effect of liability and decreases accident frequency in several ways, most of which arise because such a requirement encourages firms to purchase full rather than partial insurance coverage. First, in the case of a potentially judgment-proof injurer, such a requirement eliminates "insolvency as a means of externalizing accident costs."[254] That is, as long as firms choose to prove solvency through insurance or some other method whose cost reflects the ex ante risk of loss, a firm that might otherwise have chosen to "cut corners on safety expenditures with the expectation that any damages exceeding the firm's net worth will be borne by third parties" will instead have an "incentive[ ] to invest in specific loss-avoidance measures."[255] This result does, however, depend on insurers' ability to monitor insureds' level of care and to adjust insurance premiums accordingly.[256]

In addition to the immediate deterrence effects of full insurance in situations in which the insurer can monitor the insured's level of care, a proof-of-solvency requirement also changes the calculus for a judgment-proof firm considering the purchase of insurance even in situations in

---

within the state. *See, e.g.*, David G. Dickman, *Recent Developments in the Criminal Enforcement of Maritime Environmental Laws*, 24 TUL. MAR. L.J. 1, 39 (1999) (noting that after enactment of OPA, "many states amended their oil spill laws, mostly to impose higher liability or stricter financial responsibility requirements").

CERCLA does not directly require an ex ante showing of financial responsibility but instead provides for a federal lien on property "subject to or affected by a removal or remedial action" up to the amount of "costs and damages for which a person is liable to the United States under" the statute. 42 U.S.C. § 607(l) (1994). Of course, if these costs and damages exceed the value of the affected property, this provision does not solve the problems posed by an insolvent insured.

[252] Note, however, that this is not an automatic result. One of the controversies surrounding financial responsibility requirements in environmental statutes relates to the possibility that "the periodic unavailability of insurance . . . creat[es] the possibility of a shutdown" of the regulated industry. Eric Biber, *Exploring Regulatory Options for Controlling the Introduction of Non-Indigenous Species to the United States*, 18 VA. ENVTL. L.J. 375, 423 (1999).

[253] To ensure this result, however, it is important that statutory financial responsibility requirements be carefully drafted. For further analysis of the issue in the context of CERCLA and RCRA's proof of solvency requirements, see Kehne, *supra* note 96, at 424. For a general critique of OPA's financial responsibility requirement, see Lawrence I. Kiern, *Liability, Compensation, and Financial Responsibility under the Oil Pollution Act of 1990: A Review of the First Decade*, 24 TUL. MAR. L. J. 481 (2000).

[254] Kehne, *supra* note 96, at 405.

[255] *Id.*

[256] *See id.* at 403. The Shavell model recognizes the deterrence effect of full insurance in this situation. *See supra* Part II.C.7 (suggesting that society may choose to require full insurance in situations in which insureds may be judgment proof and insurers can monitor insureds' level of care).

which the insurer cannot monitor the insured's actions. As discussed earlier, a firm that expects to be judgment proof will likely choose to "purchase less than complete coverage, or no coverage at all," depending on its level of risk aversion and its assets relative to the expected value of the losses it may cause.[257] If the firm is required to prove at the outset that it has access to sufficient funds to cover a significant loss, however, it may instead choose to purchase full coverage with a significant deductible—particularly if the firm recognizes that it can use the money it saved by accepting the deductible to take cost-effective measures to reduce the risk of loss. In turn, the high deductible will increase the firm's exposure to loss, thereby reducing the moral hazard associated with the full insurance coverage.[258]

Further, a proof-of-solvency requirement also decreases the level of accidents in situations in which a firm may either be insolvent or escape liability by increasing the cost of, and in turn reducing the demand for, "goods or services produced through processes that create significant accident risks."[259] Importantly, unlike the two effects discussed above, this reduction in demand for the firm's end product will decrease the risk of accidents by decreasing the injurer's activity level *even in cases in which the injurer might at the outset expect to escape liability*. In addition, this effect on the firm's activity level is independent of the degree to which the insurer can monitor the firm's level of care.[260]

Finally, because a proof-of-solvency requirement may induce judgment-proof firms (or firms that expect to escape liability) to purchase more insurance coverage than they otherwise would, such a requirement also increases insurers' incentive to "contribute . . . to effective risk management" by sponsoring "research and inspection programs."[261] That is, Shavell's observation that insureds should generally be willing either to provide information about risk levels and levels of care to insurers, or to pay insurers to collect such information themselves,[262] can become a

---

[257] Shavell, Regulation of Insurance, *supra* note 5, at 10; *see also supra* Part II.C.7.

[258] As suggested in the text, the resulting decrease in moral hazard will occur even if the insurer cannot adequately monitor the firm's level of care because the high deductible exposes the firm to loss, thereby increasing the firm's incentive to exercise care regardless of other terms in the policy.

[259] Kehne, *supra* note 96, at 405.

[260] Of course, this effect cannot be fine-tuned unless the proof-of-solvency requirement and/or the price of the firm's liability insurance is tied to level of care. That is, if a widget firm with risky practices and a widget firm with safer practices sell widgets at the same price initially and must both purchase the same amount of insurance at the same price in order to meet the proof-of-solvency requirement, then consumers will receive no price signal as to which widget-producer uses safer procedures—with the result that the safer firm might abandon its safe practices (assuming they are costly) to obtain a price advantage over the less safe firm. Overall demand for widgets will still fall as a result of the imposition of the proof-of-solvency requirement, but this may be an appropriate market response if there is a substitute for widgets that can be produced more safely.

[261] Kehne, *supra* note 96, at 406–07.

[262] *See supra* Part II.C.7.

factor in the case of an insured who may be judgment proof or escape liability if the insured is required to prove solvency prior to engaging in risky activities.[263]

Thus, several rationales support altering the Shavell model's default recommendation in situations involving environmental losses in which the insured may become judgment proof or escape liability. If one simply replaces the model's recommendation that society should consider forbidding insurance in these situations with the recommendation that society should instead require proof of solvency, one would not only secure funds to cover environmental losses and cleanup costs, but also reduce the level of accidents and preserve the deterrence effects of liability.[264]

VI. CONCLUSION

Although there are signs that the market for environmental insurance has improved somewhat in recent years,[265] the trend in the previous decades was decidedly downward, with insurers continually revising old and introducing new coverage provisions to limit exposure for environmental losses.[266] Analysis under the Shavell model suggests that at least some aspects of this historic downward trend are unobjectionable, resulting as they do from the existing statutory liability regime for pollution events and from inherent characteristics of those events, which combine to create unique problems for insurance markets, including high levels of uncertainty in estimating potential losses and a high risk that insureds will be judgment proof or will escape liability entirely.

In spite of the model's optimistic predictions, however, the continuing absence of a well-working market for environmental insurance poses serious problems for victims and taxpayers, who bear the brunt of uncompensated losses.[267] The Shavell model downplays these problems, in

---

[263] *But see* Kehne, *supra* note 96, at 423 (observing that pollution insurers have shown "reluctance to undertake aggressive research and risk management programs"). Kehne ultimately dismisses these concerns, however, concluding that "there is no basis for projecting that hazardous waste facilities subject to stringent financial responsibility requirements would be unable to obtain coverage on terms that assign appropriate prices to the risks that these facilities create." *Id.*

[264] Of course, such a change in the Shavell model would not significantly alter the analysis of the CGL policy disputes discussed above because those coverage disputes all arose in situations in which there was no ex ante proof-of-solvency requirement. Nevertheless, requiring firms to prove solvency before they engage in environmentally risky activities could prevent similar coverage disputes from arising in the future.

[265] *See* Waeger & Fersko, *supra* note 118, at 579 ("[I]n response to the growing demand, a limited number of insurance companies now issue liability policies offering protection against specified environmental risk.")

[266] *See supra* note 118 and accompanying text.

[267] The absence of a well-working environmental insurance market may also present a problem for society because risk-averse individuals who would otherwise be willing to undertake socially beneficial but environmentally risky ventures—such as operation of a treatment facility for toxic wastes—may be deterred from such ventures merely by the

part because it underemphasizes the compensation function of insurance. This bias may be reasonable in many insurance contexts because first-party insurance is available to compensate victims of loss. In the environmental context, however, there are no ready analogs to first-party insurance, necessitating use of a model that better accounts for the compensation function of liability insurance. One possible adaptation to the Shavell model is to incorporate a recommendation that parties be required to prove solvency before engaging in environmentally risky activities. Such a recommendation would not solve the existing problems regarding use and interpretation of the CGL policy in the pollution context, but it would improve the Shavell model's usefulness as a tool for evaluating insurance disputes in contexts—like environmental accidents—that involve significant public losses.

---

absence of adequate insurance. *See supra* note 28. This Note largely ignores this effect, both here and in previous discussions, in part because the effect is difficult to quantify relative to the conflicting effects of moral hazard and adverse selection.