

DIVINE INTERVENTION: RE-EXAMINING THE “ACT OF GOD” DEFENSE IN A POST-KATRINA WORLD

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INTRODUCTION

On August 29, 2005, the eleventh tropical storm and third hurricane of the 2005 season, named Katrina by the National Hurricane Service,¹ made landfall at Buras, Louisiana as a slow-moving Category Three storm.² When all is said and done, Katrina will probably be the most costly and one of the most deadly natural disasters the United States has ever experienced.³ As is typical with tropical storms, Katrina caused significant wind damage. Yet it was the subsequent flooding that caused the unprecedented and unimaginable destruction that left the Gulf Coast, and particularly New Orleans, reeling and forever changed. While roughly 1,800 people lost their lives in the storm,⁴ the “victims” of Katrina far exceed the number expressed in the death toll. At least four hundred thousand residents were

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1. For each year, there is a pre-approved list of names for tropical storms and hurricanes. These lists have been generated by the National Hurricane Center since 1953. Hurricanes are named alphabetically from the list in chronological order. Thus the first tropical storm or hurricane of the year has a name that begins with “A” and the second is given a name that begins with “B.” The lists contain names that begin from A to W, but exclude names that begin with a “Q” or “U.” Nat’l Hurricane Ctr., Nat’l Weather Serv., Worldwide Tropical Cyclone Names [hereinafter Nat’l Hurricane Ctr., Names], <http://www.nhc.noaa.gov/aboutnames.shtml> (last visited Aug. 14, 2006).

2. RICHARD D. KNABB ET AL., NAT’L HURRICANE CTR., TROPICAL CYCLONE REPORT: HURRICANE KATRINA 1 (2005) [hereinafter KNABB ET AL.], *available at* http://www.nhc.noaa.gov/pdf/TCR-AL122005_Katrina.pdf.

3. The Great Storm of 1900 that hit Galveston had long been considered the worst natural event in U.S. history. The storm killed over 6,000 of the 38,000 living on the island city, and roughly one-third of the city was leveled. Galveston.com, History of Galveston Island, <http://www.galveston.com/history/> (last visited Aug. 14, 2006).

4. As of July 7, 2006, nearly 1600 were reported deceased in Louisiana alone. LA. DEP’T OF HEALTH AND HOSPS., REPORTS OF MISSING AND DECEASED: JULY 7, 2006 (2006), *available at* <http://www.dhh.louisiana.gov/offices/page.asp?ID=192&Detail=5248>. As of December 14, 2005, over 230 were reported dead in Mississippi, *Mississippi’s Invisible Coast*, SUN HERALD, Dec. 14, 2005, <http://www.sunherald.com/mld/sunherald/13402585.htm>.

displaced,⁵ families' homes swept away or suffered massive flood damage. Businesses, schools, and sports stadiums were laid to waste. The cleanup and eventual rebuilding of New Orleans will certainly make Katrina the most costly hurricane in U.S. history, with preliminary estimates of \$75–\$80 billion in damages.⁶

One of the most immediate and pressing concerns, however, is the devastating environmental impact of Hurricane Katrina. In New Orleans, oil spills and hazardous waste releases have contaminated the city and surrounding parishes, raising grave safety concerns in allowing residents to return to their homes.⁷ Off-shore oil refineries, oil and chemical plants in and around the city, pesticides, household cleaning products, and sewage, not to mention contamination from human waste and the rotting bodies of those who died in the days and weeks after Katrina, have revived the use of an oft-quoted phrase regarding a contaminated New Orleans: “toxic gumbo.”⁸ The cleanup task is daunting, but the pursuit to rehabilitate New Orleans and the rest of the Gulf Coast into a safe place to live must not be taken lightly. Governments and policy-makers at all levels must plan not only for the inevitable reality of future hurricanes; the more critical and immediate inquiry arising from this disaster is how to address the effects of oil and hazardous waste releases contaminating the numerous sites in the region.

Hurricane Katrina and the subsequent flooding in New Orleans and along the Gulf Coast will trigger a number of federal environmental statutes. The Federal Water Pollution Control Act of 1972 (“FWPCA,” commonly known as the Clean Water Act (“CWA”)), provides for federal pollution removal costs associated with oil spills.⁹ The Oil Pollution Act of 1990¹⁰ (“OPA”) established a comprehensive oil spill response and liability framework, with the goal of strengthening CWA measures for oil spill prevention, designed, at least in part, in response to the monumental disaster of

5. Peter Whoriskey, *Katrina Displaced 400,000, Study Says*, WASH. POST, June 7, 2006, at A12.

6. KNABB ET AL., *supra* note 2, at 12.

7. Rep. Jerrold Nadler (D-N.Y.) said this: “That entire area has to be cleaned up before people move back in. You could have tens of thousands of people getting seriously ill.” Katharine Mieszkowski & Mark Benjamin, *Toxic Gumbo: Katrina's Environmental Legacy*, SPEIGEL ONLINE, Oct. 6, 2005, <http://www.spiegel.de/international/0,1518,378296,00.html>.

8. Reporter Ron Nixon used the phrase “toxic gumbo” to describe the noxious mix of pollutants coursing through Louisiana, long before Hurricane Katrina. See Ron Nixon, *Toxic Gumbo: In the “Cancer Belt,” Louisiana Black Communities Fight Industrial Polluters*, SEEINGBLACK.COM, Apr. 9, 2001, http://www.seeingblack.com/x040901/toxic_gumbo.shtml.

9. 33 U.S.C. § 1321(c) (2000).

10. 33 U.S.C. §§ 2701–2761.

the Exxon Valdez.¹¹ The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (“CERCLA”) was enacted to address the threats to human health and the environment from abandoned hazardous waste disposal sites and specific hazardous substance releases.¹² All three statutes will be key instruments for environmental response and remediation actions in the Gulf Region following Katrina.

The OPA, CWA, and CERCLA use identical or similar language, imposing strict liability on parties responsible for oil spills, releases, or threatened releases of hazardous substances.¹³ Likewise, courts have consistently interpreted liability under these statutes as strict in order to achieve the statutes’ broad remedial purposes.¹⁴ However, a narrow and exclusive set of affirmative defenses are available to potentially responsible parties (“PRPs”) looking to avoid what may otherwise be extraordinary cleanup costs.¹⁵ Parties may avoid liability if they can

establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom were caused *solely* by (1) an act of God; (2) an act of war; (3) an act or omission of a third party . . . ;¹⁶ or (4) any combination of the foregoing paragraphs.¹⁷

Of particular relevance to Hurricane Katrina will be the act of God defense. Congress defines an act of God as “an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or

11. See 136 CONG. REC. 22283, 22291 (1990) (statement of Rep. Fields). Congressman Fields stated that “the primary goal of this legislation is to prevent oilspills from occurring in the future. We must make every effort to ensure that accidents like the *Exxon Valdez* and the *Mega Borg* do not happen again and that our waterways are free from the ravages of oil.” *Id.*

12. See Pub. L. No. 96-510, 94 Stat. 2767 (codified as 42 U.S.C. §§ 9601–9675 (2000)).

13. See 33 U.S.C. § 1321(f)(1)–(3); 33 U.S.C. § 2702(a); 42 U.S.C. § 9607(a). All of these statutes state in similar language that a party is responsible notwithstanding any other provision of law, and subject only to the defenses set forth in the statute.

14. See *New York v. Shore Realty Corp.*, 759 F.2d 1032, 1042 (2d Cir. 1985); *Lincoln Props., Ltd. v. Higgins*, 823 F. Supp. 1528, 1539 (E.D. Cal. 1992).

15. See 33 U.S.C. § 1321(f)(1)–(4); 33 U.S.C. § 2703(a)(1)–(3); 42 U.S.C. § 9607(b)(1)–(4).

16. This defense applies when the third party is other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant (except where the sole contractual arrangement arises from a published tariff and acceptance for carriage by a common carrier by rail), if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions.

42 U.S.C. § 9607(b)(3).

17. 42 U.S.C. § 9607(b)(1)–(4) (emphasis added).

avoided by the exercise of due care or foresight.”¹⁸ Not surprising in light of the statutes’ remedial purposes and strict liability standards, although the defense has been available for nearly three decades, there is not a single case on record where a court has granted an otherwise liable party relief by accepting the act of God defense. While not explicitly breaking down the defense into specific elements, courts have decided act of God cases based on the following criteria: (1) whether the event was a grave natural disaster/phenomenon of an exceptional, inevitable, and irresistible character; (2) whether the event was anticipated; (3) whether the event was the sole cause of the release; and (4) whether the effects of the event could have been prevented or avoided by the exercise of due care or foresight.¹⁹ The first element is beyond the control of a PRP, while a PRP has at least partial control over the last three elements.

It will take years to adequately analyze, plan for, and finally clean up contaminated sites, ensuring that Katrina-related litigation will last for decades. This note will focus on oil and hazardous substance releases from facilities in the Gulf Region caused by Hurricane Katrina and will describe how, when the time comes, invocations of the CWA, OPA, and CERCLA act of God defense should be analyzed. Although the defense has never succeeded, the monumental size and destruction of Katrina presents new opportunities to prove an act of God has occurred. However, the note will conclude that, notwithstanding the exceptional devastation brought about by the storm, the statutory act of God defense should only apply to the most extraordinary of situations. A hurricane in the Gulf Region, such as Katrina, would not and should not qualify as one of those situations.

Part I will describe three of the relevant federal statutes and the standards of liability assigned, and summarize how cleanups after releases are traditionally effectuated. Part II will describe Hurricane Katrina and the subsequent damage in more detail, and will then compare Katrina to previous natural disasters in both magnitude and effect. Part III will break down the act of God defense into elements based on how courts have analyzed it in the past and, applying those elements to Hurricane Katrina, reach the conclusion that the storm does not qualify as an act of God under the statutory definition. Specifically, although Hurricane Katrina was one of the most intense and destructive storms in recorded history, it was anticipated on numerous levels. PRPs will also be challenged to establish that the hur-

18. 33 U.S.C. § 2701(1); 42 U.S.C. § 9601(1). The OPA and CERCLA definitions of “act of God” are identical. The CWA definition of “act of God” simply states “an act occasioned by an unanticipated grave natural disaster.” 33 U.S.C. § 1321(a)(12).

19. See *infra* Part III.

ricane was the sole cause of the release and that due care and foresight were exercised. Part IV will discuss the policy rationale in favor of denying the defense and holding parties financially liable for cleanup costs.

I. BACKGROUND OF RELEVANT ENVIRONMENTAL STATUTES

Three of the major federal environmental statutes that Hurricane Katrina will likely trigger are the Clean Water Act (“CWA”),²⁰ the Oil Pollution Act (“OPA”),²¹ and the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”).²² Each Act prescribes the actions, in accordance with the National Contingency Plan (“NCP”), that must be taken in an emergency when oil or hazardous substances are involved.²³ The NCP was originally established by the Clean Water Act, with the purpose of providing “efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges, including containment, dispersal, and removal of oil and hazardous substances”²⁴ The OPA and CWA deal with removal costs and damages resulting from an incident in which oil is discharged into navigable waters or adjoining shorelines or the exclusive economic zone,²⁵ while CERCLA provides for the cleanup of sites contaminated by hazardous substances as defined by the Act.²⁶

A. *Standard of Liability: Strict*

Congress explicitly intended liability under CWA, OPA, and CERCLA to be strict, where the absence of fault or the exercise of due care alone is not a defense.²⁷ All three statutes, in similar language, provide that, notwithstanding any other provisions or rule of law and subject only to the defenses set forth in the statute, each responsible party for a vessel or a

20. 33 U.S.C. §§ 1251–1387.

21. 33 U.S.C. §§ 2701–2761.

22. 42 U.S.C. §§ 9601–9675.

23. See 33 U.S.C. § 1321(d)(4) (“[T]he removal of oil and hazardous substances and actions to minimize damage from oil and hazardous substance discharges shall, to the greatest extent possible, be in accordance with the National Contingency Plan.”); 33 U.S.C. § 2702(b)(1)(B) (including removal costs “incurred by any person for acts taken by the person consistent with the National Contingency Plan”); 42 U.S.C. § 9605(a) (requiring the President to “revise and republish the national contingency plan for the removal of oil and hazardous substances, . . . to reflect and effectuate the responsibilities and powers” under CERCLA in addition to those matters specified in the CWA).

24. 33 U.S.C. § 1321(d)(2).

25. See 33 U.S.C. § 1321 (CWA); 33 U.S.C. § 2701 (OPA).

26. See 42 U.S.C. §§ 9601(14), 9607.

27. See S. REP. NO. 96-848, at 34 (1980) (CWA); *Apex Oil Co., Inc. v. United States*, 208 F. Supp. 2d 642, 652 (E.D. La. 2002) (OPA and CERCLA).

facility from which oil or hazardous substances is discharged is liable for removal costs and damages.²⁸ Section 9601(32) of CERCLA provides that liability “shall be construed to be the standard of liability” under the Clean Water Act,²⁹ which the courts have consistently determined to be strict liability.³⁰ OPA legislative history also relates back to the CWA standard of liability:

The Oil Pollution Liability and Compensation Act of 1989 continues to rely on Section 311 of the Clean Water Act as the basic law providing for cleanup authority, for penalties for spills and failure to notify of spills, and, by adopting the standard of liability under section 311 as the standard of liability under this Act, for liability of dischargers for cleanup costs for the discharge of oil. That standard of liability has been repeatedly determined to be strict, joint and several liability.³¹

CERCLA case law has followed suit, consistently holding that the statute is one of strict liability.³² While it is clear that the standard of liability is strict under these statutes, it is not absolute.³³

B. *The Clean Water Act (“CWA”)*

The Clean Water Act, originally passed in 1972 as the Federal Water Pollution Control Act (“FWPCA”),³⁴ is a comprehensive statute aimed at restoring and maintaining the chemical, physical and biological integrity of the nation’s waters.³⁵ Among the various programs under the CWA, § 1321, titled “Oil and hazardous substance liability,” will apply to releases during and after Katrina. Congress declared that it would be the policy of the United States “that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone”³⁶

28. 33 U.S.C. § 1321(f)(1)–(3); 33 U.S.C. § 2702(a); 42 U.S.C. § 9607(a). All of these statutes state in similar language that a party is responsible notwithstanding any other provision of law, and subject only to the defenses set forth in the statute.

29. 42 U.S.C. § 9601(32).

30. *See, e.g.,* *Steuart Transp. Co. v. Allied Towing Corp.*, 596 F.2d 609, 613 (4th Cir. 1979).

31. S. REP. NO. 101-94, at 11, *reprinted in* 1990 U.S.C.A.N. 722, 732–33.

32. *See, e.g., Apex Oil*, 208 F. Supp. 2d at 652 (“Liability under the OPA and CERCLA is strict, and the absence of fault, or the exercise of due care is not a defense.” (footnote omitted)).

33. *See infra* Part III (discussing the elements that must be satisfied to succeed on the act of God defense).

34. Clean Water Act of 1977, Pub. L. No.95-217, 91 Stat. 1566 (codified as 33 U.S.C. §§ 1251–1387 (2000)).

35. 33 U.S.C. § 1251(a).

36. 33 U.S.C. § 1321(b)(1).

There are a number of methods Congress authorized for the cleanup of a discharge. The CWA provides for federal removal authority, including the power to

- [1] remove or arrange for the removal of a discharge, and mitigate or prevent a substantial threat of a discharge, at any time; [2] direct or monitor all Federal, State, and private actions to remove a discharge; and
- [3] remove and, if necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available.³⁷

Under the CWA, the NCP also grants affected states the authority to remove such discharges and allows for reimbursement from the Oil Spill Liability Trust Fund (“Fund”)³⁸ for reasonably incurred costs.³⁹ The CWA also grants the President authority to require the United States Attorney General to secure relief from any person or to take any other action necessary to protect public health and the environment, including issuing a unilateral administrative cleanup order.⁴⁰ The CWA provides for the imposition of civil and criminal penalties for unlawful discharges and for the failure to carry out orders issued under the Act.⁴¹ Finally, under the framework of the NCP, a responsible party may itself initiate and fund a cleanup.⁴² Once a party has acted to remove released oil or hazardous substances, it may be entitled to the reasonable costs incurred in effecting the removal by establishing one of the enumerated defenses in a suit against the United States government in the Court of Federal Claims.⁴³ Among those is the act of God defense.

C. *The Oil Pollution Act (“OPA”)*

Congress passed the Oil Pollution Act in 1990 in the wake of the Exxon Valdez disaster at Prince William Sound, Alaska,⁴⁴ in order to amend and strengthen related existing laws, in particular the CWA. The OPA retains many of the same elements as the CWA. Removal costs under the OPA, for example, are referred to as all removal costs incurred under

37. 33 U.S.C. § 1321(c)(1)(B)(i)–(iii).

38. I.R.C. § 9509 (2000).

39. 33 U.S.C. § 1321(d)(2)(H).

40. 33 U.S.C. § 1321(e)(1).

41. *See* 33 U.S.C. §§ 1319(c), 1321(b)(6)(A)–(B).

42. *See* 33 U.S.C. § 1321(c)(3)(B).

43. 33 U.S.C. § 1321(i).

44. *See* Oil Pollution Act of 1990, Pub. L. No. 101-380, 104 Stat. 484 (codified as 33 U.S.C. §§ 2701–2761); U.S. Envtl. Prot. Agency, Exxon Valdez [hereinafter EPA, Exxon Valdez], <http://www.epa.gov/oilspill/exxon.htm> (last visited Aug. 14, 2006).

the CWA,⁴⁵ and as stated above, the same language is used to establish strict liability.⁴⁶ If the removal actions are consistent with the NCP, the Fund⁴⁷ is available for payment of a number of costs, including removal costs; the cost of assessing natural resource damages; the cost of “developing and implementing plans for the restoration, rehabilitation, replacement, or acquisition of the equivalent of damaged resources”; and certain other claims.⁴⁸ As with the CWA, recovery costs are available for responsible parties if they can establish one of the defenses, one of which is again the act of God defense.⁴⁹

D. The Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”)

Passed in 1980,⁵⁰ CERCLA provides for the cleanup of sites contaminated by hazardous substances.⁵¹ CERCLA grants the President authority to respond to releases (or substantial threats of releases) of hazardous substances, or other substance that may present an imminent and substantial danger to the public, in a number of ways, so long as they are consistent with the NCP. The options include (1) acting to remove or arrange for the removal of the substance;⁵² (2) providing for remedial action;⁵³ or (3) tak-

45. See 33 U.S.C. § 2702(b)(1) (stating that removal costs include those incurred under 33 U.S.C. § 1321(c)–(d), (e), (l)).

46. See *supra* Part I.A. See generally 33 U.S.C. § 2702(a) (“Notwithstanding any other provision or rule of law, and subject to the provisions of this Act, each responsible party . . . is liable for removal costs and damages specified [in the Act] . . .”).

47. I.R.C. § 9509 (2000).

48. 33 U.S.C. § 2712(a)(1)–(2). The Fund was suspended in 1993 because it reached its statutory limit of \$1 billion, was reinstated in July 1994 when the balance fell below the limit, and then expired at the end of 1994. Nat’l Pollution Funds Ctr., U.S. Coast Guard, The Oil Spill Liability Trust Fund, <http://www.uscg.mil/npsc/About%20Us/oslf.htm> (last visited Aug. 14, 2006). However, in 2005 the Energy Policy Act of 2005 reinstated the tax, which becomes effective in 2006. Pub. L. No. 109-58, § 1361, 119 Stat. 594, 1058.

49. 33 U.S.C. § 2708(a)(1).

50. Comprehensive Environmental Response, Compensation and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767 (codified as 42 U.S.C. §§ 9601–9675 (2000)). In 1986 Congress passed the Superfund Amendments and Reauthorization Act (“SARA”), and today the Act is concurrently known as CERCLA, SARA, or Superfund. Pub. L. No. 96-510, 94 Stat. 2767 (codified as 42 U.S.C. §§ 9601–9675).

51. See 42 U.S.C. § 9607. For CERCLA’s definition of “hazardous substance,” see 42 U.S.C. § 9601(14) (providing an expansive and non-exhaustive listing of hazardous substances).

52. A “removal action” may be the cleanup or removal of released hazardous substances from the environment, taking preventative action against a threatened release, and other actions necessary to prevent the immediate threat to human health and the environment. 42 U.S.C. § 9601(23).

53. A “remedial action,” on the other hand, contemplates a long-term, permanent remedy taken instead of or in addition to a removal. 42 U.S.C. § 9601(24).

ing other response actions consistent with the NCP to protect public health or welfare or the environment.⁵⁴

CERCLA presents a number of the same alternatives as the CWA to accomplish its cleanup goals. The Environmental Protection Agency (“EPA”) may issue a unilateral administrative order directing a PRP to take action and fund cleanup, or it may secure such an order through the federal district court—commonly known as “106 orders.”⁵⁵ An alternative method is where the government cleans up the contaminated site and later sues the PRP to recover the costs incurred—commonly known as a “107 cost recovery.”⁵⁶

Before the government attempts to collect from the PRP under section 107, cleanup activities may be funded by the Hazardous Substance Response Trust,⁵⁷ commonly known as the Superfund.⁵⁸ If the government is successful in a suit against a PRP, the recovered costs are deposited back in the Superfund.⁵⁹ The other key channels of revenue for the Superfund traditionally came from two main sources: so-called dedicated taxes (on petroleum, chemical feedstocks, and on corporate income) from industries involved in the handling of substances that commonly triggered CERCLA, and from general revenue taxes (the taxpayers).⁶⁰ However, dedicated taxes expired at the end of 1995 and were not reauthorized, at which point the government began dipping into the fund faster than it was being replenished.⁶¹ The current administration has proposed to compensate for the lack

54. 42 U.S.C. § 9604(a)(1).

55. Comprehensive Environmental Response, Compensation and Liability Act § 106, 42 U.S.C. § 9606. These orders are authorized by section 106 of CERCLA, hence the name “106 order.”

56. Comprehensive Environmental Response, Compensation and Liability Act § 107, 42 U.S.C. § 9607. These suits are authorized by section 107 of CERCLA, hence the name “107 cost recovery.” Under section 107, any number or combination of parties may be liable for all removal and/or remedial costs, any other necessary response costs consistent with the NCP, damage to natural resources, and the costs of any health assessment or health effects study carried out. *Id.*

57. I.R.C. § 9507 (2000).

58. CERCLA and the Superfund are often regarded as legislation gone wrong, due to a slew of problems such as poor legislative drafting which makes the statute very difficult to interpret. *See, e.g.*, John Copeland Nagle, *CERCLA’s Mistakes*, 38 WM. & MARY L. REV. 1405 (1997) (discussing the statutes’ passing in a lame duck congress, along with the poor drafting, ambiguous and vague language, and policy errors). *See generally* JONATHAN LEE RAMSEUR ET AL., CONG. RESEARCH SERV., SUPERFUND TAXES OR GENERAL REVENUES: FUTURE FUNDING ISSUES FOR THE SUPERFUND PROGRAM, (2006) [hereinafter RAMSEUR ET AL.], available at <http://ncseonline.org/nle/crsreports/06apr/RL31410.pdf> (discussing the failure to reinstate dedicated taxes for Superfund and the resulting insufficient fund balance).

59. *See* I.R.C. § 9507(b)(2), (4)–(5).

60. *See* RAMSEUR ET AL., *supra* note 58, at 2–3.

61. *Id.* at 3. By the end of 2003, “the fund’s unobligated balance was zero, down from a high of \$3.8 billion in 1996.” *Id.* at Summary.

of dedicated tax revenue by increasing taxpayer contributions.⁶² One argument for reinstating dedicated taxes is that the cost of cleanups at hazardous waste sites and spills should be borne by the chemical and petroleum industries and companies that profit from the sale or use of the hazardous substances being cleaned up, not by ordinary taxpayers.⁶³

Like the CWA, CERCLA provides for penalties in a civil as well as criminal context.⁶⁴ Finally, as with the previous statutes, strict liability is not absolute—establishing one of the four enumerated defenses will relieve what would be an otherwise liable party.⁶⁵ The act of God defense is a likely target for many businesses suffering releases from Katrina.⁶⁶

II. NATURAL DISASTERS, THEN AND NOW: HURRICANE KATRINA IN CONTEXT⁶⁷

The following sections will review the 2005 Tropical Storm season (section A), paying particular attention to Hurricane Katrina (section B) and the actual environmental impacts on the region (Section C). It will then compare Katrina to some of the most devastating and costly natural phenomena since recordings began in the United States (section D), confirming that this event not only affected millions of lives nationwide, but has become one of the worst natural disasters in United States history. Although Part II focuses on the destruction and fallen records from Hurricane Katrina and the 2005 Season, its main purpose is to prepare the reader for the conclusion that, notwithstanding the great devastation, Hurricane Katrina is not the type of unanticipated grave natural disaster that Congress envisioned to relieve liability for oil or hazardous substances releases. While it may be difficult, the magnitude of and emotion surrounding Katrina must not interfere with or influence the analysis of the act of God defense.

62. In his fiscal year 2006 budget request, the President proposed to fund nearly all of the requested \$1.26 billion appropriation for the Superfund program through general revenues. *Id.* at Summary.

63. *Id.* at 3. The rationale of this “polluter pays” principle is supported by this note’s conclusion that the act of God defense should be very narrowly construed, and is discussed further *infra* Part IV.

64. See 42 U.S.C. §§ 9603(b), 9609 (2000).

65. 42 U.S.C. § 9607(b)(1)–(4).

66. For a detailed analysis of the act of God defense, see *infra* Part III.

67. Much of the information on the 2005 Tropical Storm season, including many of the records set, was taken from The Weather Channel, *Hurricane Central: The 2005 Season Is Finally Over* (Jan. 7, 2006), <http://www.weather.com/newscenter/tropical/>. The National Hurricane Center, part of the National Oceanic and Atmospheric Administration, provides reports for each Tropical Storm. Much of the information regarding Hurricane Katrina was provided by KNABB ET AL., *supra* note 2.

A. 2005–06 Tropical Storm Season

Hurricane prediction has received significant attention in recent years, both before and after the 2005–06 tropical storm season. While a divide has formed in the debate over whether climate change and global warming have impacted the strength of tropical storms, few experts proposed any connection to the *number* of storms forming. After years of inaccurate storm number predictions, experts were convinced that their forecast of six to eight hurricanes for the 2005 season would be accurate.⁶⁸ Hurricane Katrina was the fifth of a record fifteen hurricanes in the season⁶⁹, breaking the previous mark of twelve,⁷⁰ and nearly doubling the experts' forecasts. By the end of the season, other records were shattered, including the previous records of twenty-one named storms (twenty-seven in 2005),⁷¹ three major hurricanes (four in 2005), and the strongest hurricane in the Atlantic Basin (Gilbert at 888 millibars (mb)⁷² in 1998, surpassed in 2005 by Wilma at 882 millibars).⁷³ Although experts have not yet drawn conclusions, and may never have a definitive answer, the debates rage on as to whether the remarkable season was due to natural trends or human influence.⁷⁴ Taking

68. One day before Arlene began to form, a Wall Street Journal article discussed the difficulty in hurricane forecasting and the ongoing debate among climatologists on different theories of prediction. The article, *almost* comically (*almost* being the operative word), concludes "This year, [researchers'] forecasts are mostly in line—ranging from six to eight hurricanes. 'That would give you confidence we all have it right,' says Christopher Landsea, an NOAA meteorologist. 'Either that,' he laughs, 'or we'll [sic] all going to bomb.'" Carl Bialik, *In Hurricane Forecasting, Science is Far From Exact*, WALL ST. J. ONLINE, June 8, 2005, <http://online.wsj.com/public/us>.

69. Jeffrey R. Ambrose, *Hurricane Season 2006: How Will it Affect America?*, THE REAL TRUTH, July–Aug. 2006, available at <http://www.realtruth.org/articles/0404-hshwaa.html>.

70. The Weather Channel, *supra* note 67.

71. For the first time since storm naming began in 1953, the Greek alphabet had to be employed. See Nat'l Hurricane Ctr., Names, *supra* note 1.

72. A millibar is a unit of atmospheric pressure equal to one one-thousandth of a bar. The average atmospheric pressure at sea level is 1,013 millibars. Nat'l Weather Serv. Forecast Office, Nat'l Oceanic & Atmospheric Admin., Weather Glossary, http://www.srh.noaa.gov/tsa/weather_glossary.html (last visited Aug. 15, 2006).

73. The Weather Channel, *supra* note 67.

74. Disagreement is most pronounced between renowned hurricane scientist Dr. Greg Holland of the National Center on Atmospheric Research, and Dr. William Gray, one of the most prominent hurricane scientists, who has been studying storms for nearly fifty years. Dr. Holland's view represents a growing belief among many top scientists that the extremely intense and destructive storms in recent years may be explained in part by global warming caused by human activities. Conversely, Gray ardently argues that natural factors, such as warming ocean temperatures resulting from natural, historical trends, and upper-air currents that help push storms ashore, have caused the recent activity, and that these natural phenomena will subside in the next few decades. Advancing the heated debate and controversy (beyond an apparently intense feud among opposing camps) is that whenever one side offers allegedly strong evidence in the form of scientific studies for a position, the opposing side presents its own repudiations that the study is incorrect or that calculations are flawed. See Valerie Bauerlein, *Hurricane Debate Shatters Civility of Weather Science*, WALL ST. J. ONLINE, Feb. 2, 2006, <http://online.wsj.com/public/us>.

the season as a whole, with Katrina as the centerpiece, PRPs may argue that nothing could have prevented the releases that occurred during the season. However, as we will see in Part III, even though the act of God defense considers whether the effects could have been avoided by the exercise of due care or foresight, proving this element alone will not lead to a successful defense.

B. Hurricane Katrina

In combination the 2005–06 season was record setting, but from roughly August 23–30, 2005,⁷⁵ Hurricane Katrina's combination of magnitude and destruction would leave all the other storms in its wake. The tropical depression that would become Hurricane Katrina developed on August 14, but it did not become a tropical storm and thus acquire the name Katrina, until midday on August 24.⁷⁶ At its worst, Katrina attained Category Five strength at 150 knots.⁷⁷ Before landfall in Louisiana, Katrina weakened rapidly. Although news initially reported that Katrina made landfall as a Category Four hurricane, experts now estimate that Katrina made landfall at Buras, Louisiana at roughly 125 miles per hour (mph), placing it as a high-end Category Three hurricane.⁷⁸ After Katrina made landfall, the sustained winds over most of New Orleans and Lake Pontchartrain likely weakened to less than Category Three strength⁷⁹—from the data that was gathered, the city experienced sustained surface winds of Category One or Two strength.⁸⁰

With wind speeds at well over 100 mph, it is not surprising that wind damage was significant.⁸¹ Yet it was the tremendous storm surge and levee failure that caused the damage now associated with the disaster that is Hurricane Katrina. The National Hurricane Center reports that even though the intensity of the storm weakened significantly before making landfall, the

75. KNABB ET AL., *supra* note 2, at 1.

76. *Id.* at 1–2.

77. *Id.* at 3. See Hurricane Research Div., Atl. Oceanographic & Meteorological Lab., Frequently Asked Questions [hereinafter AOML, FAQ], <http://www.aoml.noaa.gov/hrd/tcfaq/D1.html> (last visited Aug. 15, 2006), for a breakdown of maximum sustained wind speeds at each category of storm. For example, at over 156 miles per hour, or 136 knots, a hurricane is classified as Category Five.

78. *Katrina Was Category 3, Not 4*, CNN.COM, Dec. 21, 2005, <http://www.cnn.com/2005/WEATHER/12/21/katrina/>. Category Three hurricanes range from 111 to 130 mph. See AOML, FAQ, *supra* note 77.

79. KNABB ET AL., *supra* note 2, at 8.

80. *Id.* One must also keep in mind that hurricane winds increase in strength from the ground upward to a few hundred meters, such that high-rise buildings were likely affected by greater sustained winds than points directly below at ground level. *Id.*

81. *Id.* at 11. Windows in high-rise buildings in downtown New Orleans were blown out, and the roof of the Louisiana Superdome was partially destroyed.

size of the storm surge may be explained in part by the extraordinary wide radius of the storm.⁸² Also adding to the surge was the fact that Katrina had already generated massive swells at sea while still at Category Four and Five strength.⁸³

C. *Katrina-Related Releases and Environmental Effects*

It is far too early to make conclusive statements about the actual destruction and long-term effects of Hurricane Katrina. More than half a year later, cleanup and testing for environmental impacts are still in the very early stages,⁸⁴ and hundreds of thousands of Gulf Coast residents were directly impacted by the hurricane.⁸⁵ What is clear is that local, state, and federal governments must work hand-in-hand to effectuate a cleanup that will ensure a clean environment and health and safety to those residents returning to the area. There are a number of environmental cleanup considerations, including debris and waste disposal,⁸⁶ effects on previously contaminated (Superfund) sites,⁸⁷ and more directly associated with potential act of God contentions, releases of oil and hazardous substances.⁸⁸

82. *Id.* at 9. For example, Hurricane Camille in 1969 followed a similar track as Katrina. Although Camille was more intense, it was also more compact, and thus produced storm surges along a much narrower path. *Id.*

83. *See id.* One particular buoy measured a peak significant height (defined as the average of the one-third highest waves) of fifty-five feet at 1100 Coordinated Universal Time (“UTC”) on August 29, matching the largest ever measured by a National Data Buoy Center (“NDBC”) buoy. *Id.*

84. *See* U.S. Env’tl. Prot. Agency, Response to 2005 Hurricanes: Frequent Questions [hereinafter EPA, FAQ], <http://www.epa.gov/katrina/faqs.htm> (last visited Aug. 15, 2006). In emergency situations, the United States EPA serves as lead agency for cleanup of hazardous waste releases, and continually updates its website to reflect cleanup progress, identify health risks, and assess damage.

85. *See* Michelle Roberts, *Katrina Homeless in Search of Trailers*, SUNHERALD.COM, Aug. 8, 2006, <http://www.sunherald.com/mld/sunherald/15223201.htm> (stating that FEMA has “provided housing assistance to more than 900,000 people nationwide since Katrina”).

86. *See* ROBERT ESWORTHY ET AL., CONG. RESEARCH SERV., CLEANUP AFTER HURRICANE KATRINA: ENVIRONMENTAL CONSIDERATIONS 1, 7 (2005) [hereinafter ESWORTHY ET AL.], available at <http://ncseonline.org/nle/crsreports/05oct/RL33115.pdf>. Debris includes “construction materials, damaged or destroyed buildings, sediments, ‘green’ wastes (e.g., trees, limbs, leaves, and shrubs), ‘white’ goods (appliances such as refrigerators), personal property, and vehicles.” *Id.* at 7.

87. *See id.* at 13. The most contaminated sites in the United States are placed on the National Priority List (“NPL”) and are commonly known as Superfund sites. There are fifteen Superfund sites located in the Katrina-affected area of Louisiana, six in Alabama, and three in Mississippi. *Id.*; *see also* U.S. Env’tl. Prot. Agency, Summary of Assessments at Superfund National Priority List Sites, <http://www.epa.gov/katrina/superfund.html> (last visited Aug. 14, 2006) (providing a summary of the NPL sites affected by Hurricanes Katrina and Rita). The site of greatest initial concern was the Agriculture Street Landfill in New Orleans, which was inundated with three feet of floodwater from Katrina. ESWORTHY ET AL., *supra* note 86, at 14. The site was previously remediated and partially deleted from the NPL and, at the time of Katrina, was fenced off and covered with two feet of soil. Although the post-Katrina evaluation at the site is not complete, early sampling indicated that lead levels were not above the range that existed after the remedial action, and initial and secondary inspections reveal that the landfill cap was not compromised. *See id.*; U.S. Env’tl. Prot. Agency, Agriculture Street Landfill 1 (June 6, 2006), <http://www.epa.gov/katrina/superfund.html> (follow “Agriculture Street Landfill, Or-

There have been a number of reports of hazardous waste releases as a result of Katrina, and in the coming months and years more will certainly surface. The U.S. EPA website continues to report on the status of areas under investigation and cleanup.⁸⁹ While hazardous waste releases from chemical storage facilities may not have been as severe as initially feared,⁹⁰ releases of oil appear to have been significant. More than forty releases from Gulf Coast refineries and oil tanks have been reported,⁹¹ at least five of which were large spills.⁹² The largest appears to be at Bass Enterprises Production Company in Cox Bay, where approximately 3.77 million gallons were released.⁹³ Another Bass Enterprises facility at Point a la Hache sustained damage to above ground tanks, with approximately 461,000 gallons of oil being discharged.⁹⁴ At Shell Pipeline in Pilot Town, approximately 1.1 million gallons of crude oil was found leaking from an above ground storage tank.⁹⁵ The Chevron Empire Terminal facility at Buras, Louisiana (Hurricane Katrina's point of landfall) experienced storage tank damage resulting in spillage of 991,000 gallons of oil.⁹⁶ Including the Murphy spill discussed below, the sum of the five largest Katrina-related spills is roughly 7.5 million gallons. At 11 million gallons the Exxon Valdez spill of 1989 remains the largest single spill in U.S. history.⁹⁷

leans Parish" hyperlink). CERCLA requires financial assurance through the establishment of a Post-Closure Liability Fund, so that any additional remedial action will be funded by the party initially responsible for cleanup. See 42 U.S.C. § 9607(k) (2000).

88. See ESWORTHY ET AL., *supra* note 86, at 11.

89. See EPA, FAQ, *supra* note 84. As the website indicates, there is still work to be done in determining the extent of releases. For example, as of August 17, 2006 (roughly one year after Hurricane Katrina hit), in response to the question, "When will we know about the number of oil spills and how many gallons were likely dumped into the flooded areas, the bay and the river?" the EPA states, "We expect that it will take some time before we know the full extent of the impacts of oil spills resulting from Hurricane Katrina." *Id.*

90. See *Katrina Floodwaters Not as Toxic to Humans as Previously Thought, Study Says*, SCIENCE DAILY, Oct. 12, 2005, <http://www.sciencedaily.com/releases/2005/10/051012082827.htm>.

91. Mieszkowski & Benjamin, *supra* note 7.

92. See Miguel Llanos, *44 Oil Spills Found in Southeast Louisiana*, MSNBC.COM, Sept. 19, 2005, <http://www.msnbc.msn.com/id/9365607/>. A large spill is over 100,000 gallons, a medium is between 10,000 and 100,000 gallons, and a small spill is less than 10,000 gallons.

93. *Id.*

94. *Id.*

95. *Id.*

96. *Id.*

97. See EPA, Exxon Valdez, *supra* note 44. The Valdez may arguably have been more manageable because, unlike the scattered spills in the Gulf Region, the Valdez release occurred in only one area. The Valdez disaster is the single worst oil spill in U.S. history, with effects still lingering over 15 years later. See Exxon Valdez Oil Spill Tr. Council, Habitat: Injured Resources and Services, <http://www.evostc.state.ak.us/Habitat/injuredresources.htm> (last visited Aug. 16, 2006).

One of the most publicized spills took place at the Murphy's Oil Corporation at their Meraux Refinery in St. Bernard Parish, Louisiana.⁹⁸ The Murphy facility, surrounded by a residential neighborhood, released over one million gallons of mixed crude oil.⁹⁹ The U.S. EPA and the U.S. Coast Guard have joint responsibility for cleanup: the Coast Guard is responsible for supervising Murphy's removal of oil releases in the "canals, tank farm containment area, neighborhood streets and storm drains"; while the EPA is working with the Louisiana Department of Environmental Quality in supervising Murphy's cleanup of oil releases in publicly accessible residential areas such as parks, school yards, roads, highway median strips, and sidewalks.¹⁰⁰ Although Murphy has already paid more than \$50 million to affected homeowners, as well as spent more than \$13 million on cleaning up public property and another \$4 million to clean up private property,¹⁰¹ it has recently been named defendant in the first federal case stemming from a Katrina-related release.¹⁰² While Murphy blames the release on Katrina, the Plaintiffs seek to find Murphy negligent for not adequately securing the oil storage tank that leaked after being dislodged from its foundation by floodwaters.¹⁰³ While this action is currently in the form of negligence, and the damages sought are for property damage and personal injury, this is precisely the type of situation in which the act of God defense may later be raised to recover cleanup costs. With the number of large, medium, and small oil spills that have been reported, in addition to chemical releases that have not yet been publicized, the number of suits will begin to mount in the coming months and years.

D. Katrina in Context

Not only was Katrina the most devastating of the 2005 season, when compared to other hurricanes in recorded U.S. history, Katrina is one of the most deadly and destructive hurricanes of all time. Even still, the facts discussed below do not change the analysis of the statutory act of God defense. The defense does not only consider magnitude of the event or

98. Env'tl. Prot. Agency, Response to 2005 Hurricanes: Murphy Oil Spill, <http://www.epa.gov/katrina/testresults/murphy/index.html> (last visited Aug. 14, 2006).

99. *Id.*

100. *Id.*

101. *Oil Company: Katrina Spill Victims Got \$50m*, MSNBC.COM, Jan. 13, 2006, <http://msnbc.msn.com/id/10838641/>.

102. See *Turner v. Murphy Oil USA, Inc.*, 234 F.R.D. 597 (E.D. La. 2006). The case involves twenty-seven consolidated class action lawsuits filed by residents of St. Bernard Parish, Louisiana. Plaintiffs are homeowners and residents in the area near the oil refinery, and they have brought a variety of claims for property damage and personal injury, among others, resulting from the discharge.

103. *Oil Company: Katrina Spill Victims Got \$50m*, *supra* note 101.

severity of destruction. As easy as it may be to make broad conclusions based on these figures, the defense is stronger than any single element.

In terms of economic damage, two previous storms are well-regarded as being the most costly. In modern times, 1992's Hurricane Andrew cost nearly \$44 billion in 2004 dollars.¹⁰⁴ At more than twice that of Andrew, the famous unnamed 1926 storm that destroyed much of Southern Florida would have cost over \$100 billion in 2004 dollars¹⁰⁵—thus becoming the most costly storm of all time. The American Insurance Services Group estimates that Katrina caused roughly \$38 billion of insured property damage.¹⁰⁶ It is generally assumed that total damages will be double that of insured losses, bringing the total to roughly \$75 billion, well in excess of Hurricane Andrew.¹⁰⁷ While \$75 billion is on the moderate end, other estimates have ranged up to \$200 billion.¹⁰⁸ If this higher estimate proves true, Katrina would clearly be the most costly natural disaster in U.S. history.

In terms of human casualty, the deadliest hurricane was the Great Galveston storm of 1900, a Category Four storm that annihilated much of the community, killing between 6,000¹⁰⁹ and 8,000 people.¹¹⁰ A far distant second was the 1928 Southeast Florida/Lake Okeechobee Hurricane that claimed 1,836 lives.¹¹¹ At nearly 1,400, Katrina would be the third most deadly U.S. hurricane of all time.¹¹² Keeping in mind the over 6,000 still missing, however, Katrina will likely surpass the 1928 storm and may also rival the great Galveston storm of 1900.¹¹³

104. Nat'l Hurricane Ctr., Nat'l Weather Serv., *Costliest U.S. Hurricanes 1900–2004 (Adjusted)*, <http://www.nhc.noaa.gov/pastcost2.shtml> (last visited Aug. 14, 2006).

105. ERIC S. BLAKE ET AL., NAT'L OCEANIC & ATMOSPHERIC ADMIN., *THE DEADLIEST, COSTLIEST, AND MOST INTENSE UNITED STATES TROPICAL CYCLONES FROM 1851 TO 2005*, at tbl.3b (2006), available at http://www.nhc.noaa.gov/Deadliest_Costliest.shtml (ranking storms using 2004 inflation, population, and wealth normalization).

106. KNABB ET AL., *supra* note 2, at 12.

107. *Id.*

108. *See* *Historic Hurricanes*, <http://www.hurricaneville.com/historic.html> (last visited Aug. 14, 2006).

109. Galveston.com, *supra* note 3.

110. Nat'l Oceanic & Atmospheric Admin., *Galveston Storm of 1900*, <http://www.noaa.gov/galveston1900/> (last visited Aug. 14, 2006). Although there have been significant advancements in technology and warning measures, the U.S. Weather Bureau, the predecessor the NOAA's National Weather Service, did issue warnings, which were unheeded by many who were curious to see the tremendous waves. *Id.*

111. JERRY D. JARRELL ET AL., NAT'L OCEANIC & ATMOSPHERIC ADMIN., *THE DEADLIEST, COSTLIEST, AND MOST INTENSE UNITED STATES HURRICANES FROM 1900 TO 2000*, at tbl.2 (2001) [hereinafter JARRELL ET AL.], available at <http://www.aoml.noaa.gov/hrd/Landsea/deadly/>.

112. *See supra* note 4 and accompanying text.

113. The National Hurricane Center points to two hurricanes in 1893 that might have been directly responsible for more fatalities than Katrina: one hit the southeast Louisiana barrier island of Cheniere Caminanda, killing roughly 2,000, and a second hit Georgia and South Carolina and killed between

While storm intensity or strength is often generally thought of in terms of category (ranked by miles per hour), the most accurate representation of storm intensity is by central barometric pressure; the lower the pressure, the more intense the storm is likely to be.¹¹⁴ While there is some correlation between barometric pressure readings and intensity, there is no hard and fast rule. At just below the Category Four threshold, Katrina's Buras, Louisiana landfall intensity, in terms of category, was less than other hurricanes with comparable minimum pressures.¹¹⁵ However, at 920 mb, Hurricane Katrina became one of the most intense hurricanes, based on barometric pressure, at U.S. landfall on record. It places third in that regard, trailing only Hurricane Camille in 1969 (909 mb) and the Labor Day hurricane hitting the Florida Keys in 1935 (892 mb), the latter of which stands as the lowest central pressure of any U.S. storm at landfall in recorded history.¹¹⁶ Although the statistics may be alarming, the following discussion of the act of God case law will show that statistics alone will not save PRPs from liability.

III. ACT OF GOD JURISPRUDENCE

Hurricanes are one of the most destructive natural phenomena to affect the United States, and by this point there is no question that Katrina ranks as one of the worst hurricanes in recorded times. Although PRPs will surely argue this fact when raising an act of God defense, the legislative history, plain text, and courts' interpretation of the defense will likely stand as insurmountable barriers to a successful defense.

Congress defines an act of God as "an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight."¹¹⁷ The defense applies only if the party can show by a preponderance of the evidence that the act

1,000 and 2,000 people. KNABB ET AL., *supra* note 2, at 11. Beyond the uncertainty in the number of the deaths in the Galveston storm, death tolls from other hurricanes striking at least three-quarters of a century ago are not terribly accurate. In any event, Katrina is hands down the most deadly hurricane since 1928.

114. Doyle Rice, *Hurricane Katrina Was Weaker than First Thought at Landfall*, USATODAY.COM, Dec. 22, 2005, http://www.usatoday.com/weather/hurricane/2005-12-20-katrina-strength_x.htm.

115. KNABB ET AL., *supra* note 2, at 7. An example is Hurricane Andrew, which came ashore as a Category Five, but central pressure measured 922 mb, and thus was "less intense" than Hurricane Katrina. See JARRELL ET AL., *supra* note 111, at tbl.4.

116. KNABB ET AL., *supra* note 2, at 7.

117. 33 U.S.C. § 2701(1) (2000); 42 U.S.C. § 9601(1) (2000). The OPA and CERCLA definitions of "act of God" are identical. The CWA definition of "act of God" simply states "an act occasioned by an unanticipated grave natural disaster." 33 U.S.C. § 1321(12).

of God was the sole cause of the release.¹¹⁸ As discussed above, Congress created an uphill battle for PRPs by establishing a strict liability framework for cleanup under these statutes.¹¹⁹ Yet, in addition to the heavy burden imposed by strict liability, courts have construed the defenses even more narrowly. Courts have analyzed the defense in terms of four elements: (1) whether the event was a grave natural phenomenon of an exceptional, inevitable, and irresistible character; (2) whether the event was anticipated; (3) whether the event was the sole cause of the release; and (4) whether the effects of the event could have been prevented or avoided by the exercise of due care or foresight. The first element is beyond the control of a PRP, while the PRP has at least partial control over the last three elements.

A. *Element One—Characterizing the Event*

The first element of the defense is beyond the control of the PRP, in that the natural phenomenon must be of a sufficiently severe nature to overcome otherwise strict liability. The statutory definition prescribes a very general outline for what might constitute such an event: a “grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character”¹²⁰ Clearly Congress did not intend every “natural disaster” or “natural phenomenon” to be eligible for the act of God defense. Indeed, by including the qualifying adjective “grave,” Congress seems to indicate a heightened level of severity.¹²¹ But beyond that generalization, the text does not give much guidance in categorizing natural phenomena/disasters. When the text is vague or ambiguous, other sources, such as legislative history and case law interpretation, may be helpful to clarify meaning.¹²²

CERCLA’s legislative history, while sparse, does give some indication as to what Congress intended would (or would not) qualify as an act of God for purposes of relieving liability. A 1986 House report during deliberations for passage of SARA¹²³ states that

[t]he “act of God” defense is more nebulous, and many occurrences asserted as “acts of God” would not qualify as “exceptional natural phenomenon.” For example, a major hurricane may be an “act of God,” but

118. 33 U.S.C. § 1321(f)(1)–(3); 33 U.S.C. § 2703(a)(1); 42 U.S.C. § 9607(b)(1).

119. *See supra* Part I.A.

120. 33 U.S.C. § 2701(1); 42 U.S.C. § 9601(1).

121. *See Sabine Towing & Transp. Co. v. United States*, 666 F.2d 561, 565 (Ct. Cl. 1981).

122. *See In re Sinclair*, 870 F.2d 1340, 1342–44 (7th Cir. 1989) (discussing the proper use of legislative history in interpreting statutes).

123. *See supra* note 50.

in an area (and at a time) where a hurricane should not be unexpected, it would not qualify as a “phenomenon of exceptional character.”¹²⁴

While not dispositive of this element, this report indicates that, based on the acknowledgement of hurricane occurrences, some in Congress believed that the majority of hurricanes should not fall within the domain of the statutory defense.

In line with the strict liability standard of the environmental statutes and the legislative history, case law has held that the “grave natural disaster . . . of an exceptional, inevitable, and irresistible character” language creates a very narrow exception. In *Sabine Towing & Transportation Co. v. United States*, the natural phenomenon in question was a freshet condition on the Hudson River—a sudden rise in the river level, coupled with an increased rate of flow due to rain and the spring runoff of melted snow, that is known to wash down sediment, gravel, logs, rocks, and other debris.¹²⁵ Sabine sought to recover the costs associated with cleaning up thirty to fifty thousand gallons of oil released into the Hudson, when an allegedly unknown object struck its vessel and created a twenty foot tear in the ship’s hull.¹²⁶ In holding that the conditions did not constitute a grave natural disaster, the court pointed to evidence at trial indicating that the flow rate on the day of the incident was equaled or exceeded on twenty-five percent of all days that year, and “[t]o contend that the freshet . . . was a disaster is to contend that the Hudson is in a disaster condition one-quarter of the time.”¹²⁷

A number of other courts have determined that the natural phenomenon which caused the release of oil or hazardous substances did not rise to the level contemplated by Congress. In *United States v. Stringfellow*, the U.S. sued an array of PRPs due to releases and threats of release of hazardous substances, including the owners and operators of a toxic waste disposal site, the generators of waste at the site, and the transporters of waste from the generators to the facilities.¹²⁸ The natural phenomenon in question was heavy rains in two distinct years, which the defendants attempted to qualify as an act of God under the definition found in CERCLA and CWA.¹²⁹ The court was not persuaded, noting that the rains “were not the

124. H.R. REP. NO. 99-253(IV), at 71 (1986), as reprinted in 1986 U.S.C.C.A.N. 3068, 3101. This House report also speaks to Element Two, whether the phenomenon was “unanticipated.”

125. 666 F.2d at 563.

126. *Id.* at 562–63.

127. *Id.* at 565.

128. 661 F. Supp. 1053, 1058 (C.D. Cal. 1987).

129. *Id.* at 1061.

kind of 'exceptional' natural phenomena to which the narrow act of God defense of section 107(b)(1) applies."¹³⁰

In *United States v. Alcan Aluminum Corp.*, defendant Alcan, an aluminum manufacturer, dumped a large amount of oily wastes containing hazardous substances down an air shaft leading to a network of coal mines that bordered the east bank of the Susquehanna River in Pittston, Pennsylvania.¹³¹ In September 1985, Hurricane Gloria struck the East Coast, and approximately one hundred thousand gallons of the emulsion was discharged into the Susquehanna River, which the EPA cleaned up at a cost of roughly \$1.3 million.¹³² Alcan raised the act of God defense, for which the court found little sympathy. The court in part held that, like in *United States v. Stringfellow*, "heavy rainfall is not the kind of 'exceptional natural phenomenon' to which the act of God exception applies."¹³³ Alcan countered by arguing that the release was not simply the result of heavy rainfall, but rather that a hurricane (Gloria) caused the release, and that *this* constituted a "grave natural disaster or phenomenon."¹³⁴ Unfortunately the court did not clarify by holding that the hurricane also did not rise to a sufficient level of severity. Instead, as will be discussed further in Element Three below, the court decided the issue by finding that "no reasonable factfinder could conclude that Hurricane Gloria was the sole cause of the release"¹³⁵

From all of these cases it is clear that the weather event must not simply be severe, unprecedented, or destructive. While there is no baseline standard of severity for an event to be categorized as a "grave natural disaster . . . of an exceptional, inevitable, and irresistible character,"¹³⁶ what is clear is that neither the freshet condition in *Sabine Towing*, the heavy rains in *Stringfellow*, nor the hurricane (Gloria) in *Alcan Aluminum*,¹³⁷ were of a level great enough for the courts to deem this element satisfied.

Hurricane Katrina, however, may present parties with a stronger argument regarding this first element. There is no question that, in terms of natural phenomena, a court will find Katrina more severe than seasonal

130. *Id.*

131. 892 F. Supp. 648, 651 (M.D. Pa. 1995).

132. *Id.*

133. *Id.* at 658. See generally *Stringfellow*, 661 F. Supp. at 1061 (C.D. Cal. 1987).

134. *Alcan*, 892 F. Supp. at 658.

135. *Id.* (emphasis omitted).

136. 33 U.S.C. § 2701(1) (2000); 42 U.S.C. § 9601(1) (2000).

137. Hurricane Gloria was in fact a severe Hurricane, ranking in the top 25 in minimum pressure at 942 mb. See JARRELL ET AL., *supra* note 111, at tbl.4. The Alcan site, however, was not directly hit by Gloria, and as Element Three suggests, Gloria was not the sole cause of the release. See *Alcan*, 892 F. Supp. at 658.

river flooding or even a very severe rain storm. And compared to other U.S. hurricanes, as noted in Part II, Katrina was one of the most intense hurricanes in a record setting year. The keys to satisfying the first element, therefore, will be to show that Hurricane Katrina was not only much more grave and exceptional than other natural phenomena from past act of God cases, but one of the most exceptional hurricanes of all time. Even if a court is persuaded as to this first element, the next element begins to indicate why the act of God defense should not succeed in Katrina-related cases.

B. Element Two—Foreseeability of the Event

The second element of the defense is drawn from the first part of the statutory definition of an act of God: an “*unanticipated*” natural disaster/phenomenon.¹³⁸ The legislative history of both CERCLA and the CWA are clear on this point: if the storm was foreseeable, predicted, or not unusual at the time and place it occurred, the defense should not apply. A 1970 Congressional Report prior to passage of the CWA provides a short yet concise discussion of Congress’s take on the act of God:

The term “act of God” is defined to mean an act occasioned by an unanticipated grave natural disaster. . . . [O]nly those acts about which the owner could have had no foreknowledge, could have made no plans to avoid, or could not predict would be included. Thus, grave natural disasters which could not be anticipated in design, location, or operation of the facility or vessel by reason of historic, geographic, or climatic circumstances or phenomena would be outside the scope of the owner’s or operator’s responsibility.¹³⁹

As stated in Element One, CERCLA’s legislative history also addresses the idea of a storm (the example specifically uses a hurricane) being unanticipated: “[A] major hurricane may be an ‘act of God,’ but in an area (and at a time) where a hurricane should not be unexpected, it would not qualify as a ‘phenomenon of exceptional character.’”¹⁴⁰ In sum, the House reports prior to the passage of both the CWA and CERCLA conclude that if the hurricane was expected it would not be exceptional, and imply that an unexpected storm may qualify as “exceptional.”

The courts have often based their decision to deny the defense, at least in part, on the fact that the phenomenon should have been anticipated, with two trends emerging. The first involves storms occurring in a region and at

138. 33 U.S.C. § 1321(12); 33 U.S.C. § 2701(1); 42 U.S.C. § 9607(1) (emphasis added).

139. H.R. REP. NO. 91-940 (1970) (Conf. Rep.), as reprinted in 1970 U.S.C.C.A.N. 2712, 2722.

140. H.R. REP. NO. 99-253(IV), at 71 (1986), as reprinted in 1986 U.S.C.C.A.N. 3068, 3101,

a time when they are known to occur. The second involves storms that were actually forecasted, such that the responsible facility/vessel should have prepared itself for the event. In *Kyoei Kaiun Kaisha v. M/V Bering Trader*, a storm in Lost Harbor, Alaska led to the grounding of a ship containing oil.¹⁴¹ The defendant raised the act of God defense in an attempt to show that they were not liable for the cost of the Coast Guard's activities in preventing a threatened oil spill from the grounded vessel.¹⁴² The court found that the defendants put forth no evidence that the weather on the night of the storm could not have been foreseen, and further cited a Coast Guard navigation guide for Alaska in effect at the time of the grounding.¹⁴³ The guide warned that weather in the region is characterized by "persistent overcast skies, strong winds, and violent storms"¹⁴⁴

Other courts have rejected the act of God defense when the natural phenomenon takes place in regions (and at times of year) when such events are known to occur. In *Sabine Towing*, the Hudson River flooding case discussed in Element One, the court held that the circumstances of the hull damage were not unanticipated, noting that the "frequency of freshet conditions on the Hudson and the danger that they cause are well known to those who navigate the river."¹⁴⁵

A similar situation arose in *Apex Oil Co., Inc. v. United States*,¹⁴⁶ the most recent case involving the act of God defense in an OPA context. While Apex navigated a pushboat and oil barges on the Lower Mississippi River during the 1995 floods, the captain, faced with a strong current and a sharp bend in the river, chose to navigate past a bridge. The current overwhelmed the barges and pushboat, which soon collided with the bridge, releasing approximately 840,000 gallons of slurry oil into the river.¹⁴⁷ Apex accepted responsibility, funded removal activities (costing \$2.7 million), and after losing a claim for reimbursement from the National Pollution Funds Center ("NPFC"), sought judicial review.¹⁴⁸ In concluding that the flood conditions did not constitute an act of God within the meaning of the OPA, the court agreed with the NPFC conclusion that Apex could have anticipated that spring floods would result in high river stages, and that

141. 795 F. Supp. 1054, 1055 (W.D. Wash. 1991).

142. *Id.* at 1055, 1056 n.2.

143. *Id.* at 1056 n.2.

144. *Id.* (internal quotations and citation omitted).

145. *Sabine Towing & Transp. Co., Inc. v. United States*, 666 F.2d 561, 565 (Ct. Cl. 1981).

146. 208 F. Supp. 2d 642 (E.D. La. 2002).

147. *Id.* at 645.

148. *Id.* at 645-46, 648.

strong flood currents associated with the floods are not unusual and/or unanticipated.¹⁴⁹

The second type of case involves the storm being forecasted before the release occurs. In *United States v. M/V Santa Clara I*, during a storm off the New Jersey coast that was predicted by the National Weather Service and known by the captain and crew of the vessel prior to departure, roughly 441 barrels of arsenic trioxide were lost overboard, and some 800 pounds of magnesium phosphide spilled in the hold of the vessel.¹⁵⁰ The EPA issued an administrative order directing the owners and operators of the vessel to retrieve and dispose of the lost barrels of arsenic trioxide. After six weeks and an estimated \$5 million, the vessel owners recovered approximately 320 barrels.¹⁵¹ Hoping to recover the response costs, the owner of the vessel invoked the act of God defense. The court, however, was not convinced, finding that even a poorly forecasted storm is not an act of God because it was predicted and was avoidable.¹⁵²

Another important aspect of the foreseeability of a storm comes from *Liberian Poplar Transports, Inc. v. United States*, another case in which a severe but predicted storm caused a vessel to release oil into a river (the Delaware).¹⁵³ *Liberian* argued that the storm was unanticipated because it was not “well forecasted, and was not *visually* foreseeable by the ship’s watch”¹⁵⁴ The court noted that “the [CWA] and the legislative history do not subscribe to a subjective test for anticipation.”¹⁵⁵ “If the crew had monitored the radio for weather conditions, they clearly *could* have anticipated and taken precautions against the storm,” considering the National Weather Service issued a Severe Thunderstorm Watch over an hour before the storm hit and a Warning at least a half hour before the storm hit.¹⁵⁶ Therefore this element of the defense, and thus the entire defense, failed.¹⁵⁷

PRPs attempting to raise a successful act of God defense in Katrina-related litigation will find it difficult to overcome the anticipation element. In terms of geographic expectations, both the Atlantic and Gulf Regions of the United States are well-known for their long hurricane seasons. No facil-

149. *See id.* at 656–57.

150. 887 F. Supp. 825, 830, 843 (D.S.C. 1995).

151. *Id.* at 830–31.

152. *See id.* at 843 (citing *Liberian Poplar Transp., Inc. v. United States*, 26 Cl. Ct. 223, 226 (Cl. Ct. 1992)).

153. 26 Cl. Ct. at 224.

154. *Id.* at 226.

155. *Id.*

156. *Id.* at 224, 226.

157. *See id.*

ity that deals with oil or hazardous substances in the region will succeed in convincing a court that they were unaware of the strong possibility of a tropical storm/hurricane disrupting operations.¹⁵⁸ Because facilities will be unable to prove Katrina was unanticipated, the facilities had a duty to exercise due care or foresight in anticipation of such events. In terms of advanced notice based on weather forecasting, the storm that developed into Hurricane Katrina was well-forecasted, well before final landfall.¹⁵⁹ Because courts have held that warnings issued by the National Weather Service as little as a half hour before a storm hits is sufficient to establish anticipation,¹⁶⁰ it would be highly unlikely for a court to conclude that a facility could not have tracked Katrina's development, beginning on August 14 and reaching tropical storm intensity on August 24, four days before landfall in Louisiana.¹⁶¹

One possible fact-specific opportunity to establish this element will be for PRPs to show that, although they were carefully tracking the storm, an unpredictable last-minute change in the hurricane's direction or level of storm surge, rainfall, or flood level led to the release. Although these site and fact-specific variations *may* exist, possibly satisfying Element Two, a PRP will still face formidable challenges in showing that the hurricane was the sole cause of the release (Element Three) and that the release could not have been prevented or avoided through the exercise of due care or foresight (Element Four).

C. *Element Three—Sole Cause*

The final two elements (sole cause and due care exercised), over which a PRP has much more control, will be very fact-specific inquiries, therefore allowing more room for successful argument. At the same time, it is the fact-specific nature of these elements that has spelled doom for past act of God invocations. The two elements are very much related (if a PRP did not exercise due care or foresight, the storm would not be the sole cause of the release), and the courts have labeled facts as relating to the sole

158. See generally TED STEINBERG, ACTS OF GOD: THE UNNATURAL HISTORY OF NATURAL DISASTER IN AMERICA (2000) (discussing how decision-makers in the United States have literally paved the way for greater loss of life and property from floods, earthquakes, hurricanes, etc.).

159. For a detailed description of the comprehensive and accurate forecasts and warnings issued by the National Weather Service, beginning with a statement of the formation of the system that was to become Katrina on August 22, 2005, see NAT'L OCEANIC & ATMOSPHERIC ADMIN., U.S. DEP'T OF COMMERCE, SERVICE ASSESSMENT: HURRICANE KATRINA, AUGUST 23–31, 2005 (2006), available at <http://www.weather.gov/os/assessments/pdfs/Katrina.pdf>.

160. See *Liberian Poplar Transp., Inc.*, 26 Cl. Ct. at 224, 226.

161. See *KNABB ET AL.*, *supra* note 2, at 1–2.

cause element when they could have just as easily fallen under the due care element, and vice versa. For consistency, the cases will be discussed in terms of how the individual courts have treated the elements.

The third element of the act of God defense requires that the natural disaster or other natural phenomenon be the *sole* cause of the release or threatened release.¹⁶² This imposes a heavy burden on a party seeking to avoid liability, in that any factor other than the natural event that even slightly contributed to the release will destroy this element, and consequently, the entire defense. *United States v. Alcan Aluminum Corp.*, as noted above in Element One, presents a clear situation in which the natural event, regardless of being labeled a “grave natural disaster,” was not the sole cause of the release. Recall that in the late 1970s, Alcan dumped as much as two million gallons of oily wastes containing hazardous substances down an air shaft leading to a network of coal mines and related tunnels bordering the Susquehanna River, and as a result of Hurricane Gloria, approximately one hundred thousand gallons of the waste were discharged from a tunnel into the river.¹⁶³ Alcan’s act of God defense was rejected in part because “no reasonable factfinder could conclude that Hurricane Gloria was the *sole* cause of the release and resulting response costs.”¹⁶⁴ In cases like this, the courts have been less than patient with such a defense. The court further stated that “[t]wo million gallons of hazardous wastes were not dumped into the borehole by an act of God, and were it not for the unlawful disposal of this hazardous waste Hurricane Gloria would not have flushed 100,000 gallons of this chemical soup into the Susquehanna River.”¹⁶⁵ Clearly illegal acts of a PRP will be a contributing factor to a release, destroying this element of the defense.

The acts of the PRP do not have to be illegal to defeat the sole cause element of the defense. In *Apex Oil Co., Inc. v. United States*, the Mississippi flooding case discussed in Element Two, the court observed that it was Apex’s conduct, not simply a strong current associated with the 1995 floods, that contributed to the collision and resulting spill.¹⁶⁶ Apex used an underpowered tug which contributed to the loss of control, and the tug captain chose to negotiate the bridge with his tug and tow, eliminating any argument that the conditions, even if the floods were considered an act of God, were the *sole* cause of the discharge.¹⁶⁷

162. See 33 U.S.C. § 1321(f)(1)–(3) (2000); 33 U.S.C. § 2703(a); 42 U.S.C. § 9607(b) (2000).

163. 892 F. Supp. 648, 651 (M.D. Pa. 1995).

164. *Id.* at 658.

165. *Id.*

166. See 208 F. Supp. 2d 642, 657 (E.D. La. 2002).

167. *Id.* at 657–58.

In *United States v. Barrier Industries, Inc.*, the United States sought to recover response costs for cleanup of a site under CERCLA, stemming from a spill allegedly caused by a bursting pipe resulting from “an unprecedented cold spell.”¹⁶⁸ Although the cold spell may have been unusual and damaging, in dismissing the defense the court observed that the government presented “substantial undisputed evidence” that numerous other factors *prior* to the cold weather contributed to the problems at the Barrier site.¹⁶⁹

For this and the final element, a PRP must seek to establish that its own conduct in no way contributed to the release of oil or hazardous substances in the wake of Hurricane Katrina. The complexity surrounding each specific release will present numerous pitfalls for the party asserting the defense, where a single and, perhaps, unnoticed and remote contributing factor will spell the end to any hopes of avoiding liability. This is a heavy burden for any PRP already faced with an uphill struggle.

D. Element Four—Due Care or Foresight

The final element of the defense, related to the sole cause element, is that the effects of the natural disaster/phenomenon “could not have been prevented or avoided by the exercise of due care or foresight.”¹⁷⁰ What amounts to due care or foresight will depend on such fact-intensive issues as specific activities before, during, and after the event; individual facility/vessel construction and upkeep; industry standard procedures for operations and whether those procedures were followed; permits required, permits issued, and compliance with such permits; as well as applicable local, state, and federal laws regarding each of these issues. If it is found that the facility/vessel did not exercise due care or foresight at any point and the result was a release or threatened release of oil or a hazardous substance, this element will not be satisfied.

In *United States v. Stringfellow*, where the court decided that heavy rains did not meet the standard of an exceptional natural phenomenon,¹⁷¹ the defense also failed because the Stringfellow site did not exercise due care. The court found that “any harm caused by the rain could have been prevented through design of proper drainage channels.”¹⁷²

168. 991 F. Supp. 678, 679 (S.D.N.Y. 1998) (internal quotations and citation omitted).

169. *Id.* at 679–80.

170. 33 U.S.C. § 2701(1) (2000); 42 U.S.C. § 9601(1) (2000).

171. *See supra* Part III.A (Element One—Characterizing the Event).

172. 661 F. Supp. 1053, 1061 (C.D. Cal. 1987).

As stated above, the sole cause and due care elements are inextricably linked. For example, in *United States v. Alcan Aluminum Corp.*, where the party conceded to dumping hazardous waste down a mineshaft, there is little doubt that the hurricane was not the sole cause of the subsequent release.¹⁷³ Yet it is equally clear that “exercise of due care or foresight would have militated against dumping hazardous wastes into mine workings that inevitably lead to such a significant natural resource as the Susquehanna River.”¹⁷⁴ Even if the other elements of the defense were met, this failure to exercise due care or foresight would likely have provided sufficient reason to reject Alcan’s act of God assertion.

Apex Oil Co., Inc. v. United States is another case where the final two elements overlap. Just as the flooding on the Mississippi was not the sole cause of the spill, Apex Oil could have prevented or avoided the effects of the flooding and associated predictably strong currents by investing in a higher-powered tug or by deciding not to knowingly navigate into higher and faster water with such an under-powered tug.¹⁷⁵

If and when PRPs face liability costs associated with a Katrina-related release, this last element, that the effects of the natural disaster/phenomenon could not have been prevented by the exercise of due care or foresight, will present a serious challenge in meeting the already heavy burden imposed by the first three elements. Courts have used facts such as vessel¹⁷⁶ and facility¹⁷⁷ design, specific handling of hazardous waste,¹⁷⁸ and choices made during the natural event¹⁷⁹ to determine that the effects of the natural disaster/phenomenon *could* indeed have been prevented by exercising due care or foresight. Because there is no regulation defining what due care or foresight is, courts have significant latitude in making this determination, and all have leaned in favor of strict liability. While it is clear that illegal activity such as the dumping in *Alcan Aluminum* will not be seen as exercising due care or foresight,¹⁸⁰ it is much less clear that a facility’s poor channels would be seen as failing to meet a duty of due

173. See 892 F. Supp. 648, 658 (M.D. Pa. 1995).

174. *Id.*

175. See 208 F. Supp. 2d 642, 647–48 (E.D. La. 2002).

176. See *id.* (Apex’s under-powered tug).

177. See *Stringfellow*, 661 F. Supp. at 1061 (poor drainage at the Stringfellow site).

178. See *Alcan Aluminum Corp.*, 892 F. Supp. at 658 (Alcan’s mine shaft dumping).

179. See *Apex Oil Co., Inc.*, 208 F. Supp. 2d at 647 (Apex’s decision to navigate through higher and faster water).

180. See 892 F. Supp. at 658.

care.¹⁸¹ In the more questionable types of case, courts may subconsciously be making decisions based on the best overall policy choice, as will be discussed in the final section.

PRPs will have to show that, knowing that they conduct business in an especially hurricane-prone region, they made a concerted effort to prepare their facility or vessel to endure a natural disaster, in addition to acting with due care or foresight directly before, during, and after the storm.¹⁸² Some PRPs will surely argue that no amount of preparation or due care could have prevented the releases from Katrina. This is a question of fact that each case will explore. However, it will be much more difficult to prove that they exercised foresight; given what we know about the low-lying, hurricane-intense region, poor levees, and continued wetland loss, the burden on the PRP for this element will be difficult to overcome.¹⁸³ Even before the act of God defense has been raised by the defendant, the idea behind this element has already been questioned in the class-action Murphy's Oil spill case, where plaintiffs argue that Murphy failed to exercise due care by not properly securing a storage tank that leaked after being

181. See *Stringfellow*, 661 F. Supp. at 1061 (finding that "any harm caused by the rain could have been prevented through design of proper drainage channels," but failing to explain Stringfellow's duty to maintain proper channels).

182. Another issue receiving significant attention is more than a half-century of wetland destruction, which experts agree contributed to the heightened level of destruction in Katrina. Wetlands act as natural buffers against storm surges, where one foot of storm surge is absorbed by roughly every 2.7 miles of wetlands. Adam Cohen, *The Big Easy on the Brink*, TIME.COM, <http://www.time.com/time/reports/mississippi/orleans.html> (last visited Aug. 16, 2006). While PRPs may argue that wetland destruction is out of their hands, and thus they should not be responsible for its effects, there is no doubt that they knew, or should have known, of wetland loss and cannot claim ignorance when a strong storm surge causes greater damage.

The same arguments fail regarding the deteriorating, insufficient levees in and around New Orleans. Public awareness of the need for levee repair has grown since Katrina, but was also a very public issue well before the levee failure in August 2005. See DONALD T. HORNSTEIN ET AL., CTR. FOR PROGRESSIVE REFORM, *BROKEN LEVEES: WHY THEY FAILED* 8, available at http://www.progressivereform.org/articles/CPR_Special_Levee_Report.pdf (last visited Sept. 25, 2006). Much criticism has been directed at the George W. Bush administration, even from fellow Republicans. For example, Mike Parker, a former Mississippi Congressman and the chief of the Army Corps of Engineers until 2002, publicly stated in a Senate committee meeting that "the national interest was being harmed" by President Bush's proposal to cut over one-third of the Corps' \$6 billion budget. He was forced to resign following the meeting. *Id.* at 8. While recent criticism of the Bush administration's low prioritization of levee repair is supported by significantly reduced budget appropriations to the Army Corps of Engineers, in reality the problem has persisted, with knowledge, throughout a number of past administrations. *Id.* at 9.

Again, industries in the area are well aware of the problem, and in terms of the act of God defense, should have exercised due care or foresight with this knowledge in hand. The industries should have either moved to a more secure area or equipped their facilities to handle such a storm. Either way, industries continued to operate in this region, significantly weakening the due care or foresight element of the defense.

183. See generally Cohen, *supra* note 182. (discussing the problems associated with the levees and wetlands).

disrupted by floodwaters.¹⁸⁴ If it does not happen sooner, this element will most likely be the breaking point of the act of God defense.

IV. POLICY IMPLICATIONS

This note has thus far focused on the legislative and judicial interpretation of the act of God defense, supporting a very narrow application and offering little chance of success. However, on a very real and practical level, the policy implications associated with holding PRPs strictly liable for the costs related to oil and hazardous waste releases further bolster the previously narrow interpretation of the defense. Three important policy considerations stand out in support of holding PRPs liable for cleanup costs. First, in order to clean up sites as efficiently, effectively, and quickly as possible, PRPs should bear the costs of cleanup, and to maximize efficiency should step forward and lead the cleanup where releases are attributable to them. Second, principles of equity dictate that PRPs, or in some cases those entities in the industries associated with these releases, should bear the cost of cleanup, instead of the general public. Finally, there is a deterrent aspect to strict liability, whereby entities may take steps to avoid the high costs associated with releases in the future. Combining these policy justifications with legislative intent and judicial interpretation, the act of God defense should not be used by PRPs to avoid Katrina-related environmental cleanup costs.

A. *Efficiency*

It is imperative that the oil and toxic releases be cleaned up well, as quickly as possible, in order to protect the health of the returning residents, as well as the affected environment. For this reason, not only should the act of God defense fail but, in the interest of public health and the PRP, the most efficient solution is for the PRP to clean up the site immediately, avoiding delay and wasting valuable time litigating the defense.

Regardless of whether (1) PRPs step forward and begin to administer cleanup, (2) the EPA files suit against PRPs to force cleanup, or (3) the EPA cleans up the sites and later seeks cost recovery, cleaning up the destruction from Hurricane Katrina will take years, possibly decades. Case in point is the Exxon Valdez oil spill of 1989. Closing in on two decades later, Prince William Sound, where the spill took place, has not fully recovered—animal and plant wildlife still suffer from exposure to lingering oil, and

¹⁸⁴. See *Turner v. Murphy Oil USA, Inc.*, 234 F.R.D. 597, 606–07 (E.D. La. 2006); see also *Oil Company: Katrina Spill Victims Got \$50m*, *supra* note 101.

long-term recovery is unknown.¹⁸⁵ Considering the Valdez was an isolated spill, from a known party, with immediate response and financial backing, one can only imagine the devastation and lack of progress had those facts been different.¹⁸⁶

Knowing that it will takes years to clean up from the numerous and scattered releases from Katrina, and that the effects may be felt decades down the line, clearly the most important first step is an efficient commencement of the process. This means that cleanup should begin as soon as possible, and plans should be prepared with the utmost care and consideration for the health of the residents and the environment. The most efficient mean to this end is for PRPs to step forward and bear the cost of the releases for which they are responsible. A successful act of God defense would greatly delay cleanup of polluted sites and, keeping in mind the lack of resources in the Superfund, it could further jeopardize a safe, quick, and effective cleanup.

If a PRP were to enter into a lengthy court battle in order to invoke the defense, and in the end lose, overall costs would skyrocket: legal costs would no doubt be high, but even more so, the longer the delay in cleaning up a site, the more difficult and expensive it will probably be to achieve suitable results. Considering the heavy burden to succeed on the defense, the PRP, as well as the public, would benefit most by the responsible parties coming forward from the beginning and initiating cleanup. In that vein, it is in the PRP's interest to initiate the cleanup because they would have discretion in how to proceed, and will no doubt choose a more cost-effective plan than if the EPA organized the process and later sued the PRP for cost recovery. In any event, if a PRP does raise the act of God defense, principles of equity disfavor its success.

B. *Equity*

A second policy rationale supporting the denial of the act of God defense is based in equity. Whether in the context of a site contaminated by a known and active facility, or in orphan sites where specific responsibility is unknown or the entity no longer exists, the fact remains that the general public should not bear the financial burden of cleaning up contaminated sites.¹⁸⁷

185. See Exxon Valdez Oil Spill Tr. Council, *supra* note 97.

186. See EPA, Exxon Valdez, *supra* note 44.

187. This is especially true when we remember the current state of CERCLA and the Superfund. The industry taxes, known as the polluter pays taxes, that had previously kept the Superfund full, faded

When a site is contaminated by a known source, the equitable solution is for that source to clean up and pay for their spilled contaminants, and not allow the act of God defense to shift the burden to the public in any but the most extreme cases. A party may be ordered to clean up the site, or may be sued down the line for cost recovery, and then use the act of God defense to recover or avoid cleanup expenses. In these cases, if a court grants a PRP's act of God defense, those responsible parties will avoid liability, placing the financial burden on the Superfund. Considering the serious doubt as to whether Hurricane Katrina should, in the first place, be classified under the statutory definition of an act of God, and the current state of the Superfund, the act of God defense is an inequitable shifting of the burden from the responsible party to the general public. The public, especially in the affected region (but also throughout the country in general), has already paid a price for the pollution in terms of health and environmental damage. It is unfair, almost cruel, to turn around and place the financial burden to clean up the contamination on the public while letting the polluter off without assuming liability.

One solution that practitioners have advocated (with varying degrees of success) that would continue to reflect the polluter pays principle is for the oil companies or those businesses dealing in toxic substances¹⁸⁸ to internalize these costs by creating their own private cleanup "superfund" for the annual hurricane season.¹⁸⁹ By implementing their own dedicated taxes, cleanup would be funded by those associated with the oil or chemicals that create the risk in the first place, just as it would be if the cleanup were funded by the federal Superfund, when it was funded by dedicated taxes. The taxes paid by the entity into the private "superfund" account may be included as a cost of doing business and, thus, passed down to consumers. The policy implications for denying the defense become even more apparent when orphan sites are considered.

The Superfund shortfalls are greatly magnified in the context of Katrina by the presence of possible orphan sites, those sites where the EPA cannot identify or prove the source of the pollutant, or the responsible facility is bankrupt or no longer exists. The strong storm and floods, coupled

into the sunset in 1995, and the Superfund now derives its revenue from general taxes. RAMSEUR ET AL., *supra* note 58, at 3-4.

188. As in the plethora of oil companies and businesses dealing in toxic substances that exist in the Gulf Coast.

189. See generally James Boyd, *Banking on "Green Money": Are Environmental Financial Responsibility Rules Fulfilling Their Promises?* (Res. for the Future, Discussion Paper No. 96-26, 1996), available at <http://www.rff.org/rff/Documents/RFF-DP-96-26.pdf> (discussing the promise of individual financial responsibility for environmental pollution and weaknesses in the current framework).

with the disorder after Katrina, prevented prompt investigations, so that answering the question of who is responsible for what contamination will surely be an arduous, long term process. In orphan sites there are no PRPs to assign liability to (and thus no possibility of an act of God defense), leaving no choice but to dip into the Superfund to cover cleanup costs. A downward spiral emerges: the EPA cannot promptly and effectively carry out removal or remedial actions at orphan sites without a properly funded Superfund, and the Superfund cannot be properly funded without reinstating the taxes on the industries that have historically been responsible for the releases that prompt cleanup.

The decade-long argument in favor of reinstating the dedicated taxes gains credence by virtue of an equitable rationale: when an orphan site is in need of cleanup, instead of the general public bearing the cost, costs should be borne by those most closely related to the releases and those that profit from doing business in those areas, i.e. oil and toxic/hazardous substance handling industries in the Gulf Coast region. Without a properly funded Superfund, a number of unacceptable risks surface: (1) available funds may be stretched thin across the numerous sites needing response, reducing the likelihood of appropriate cleanup at all sites; (2) lack of funds may lead to long delays before cleanup begins; or (3) whole sites may be ignored. All of these risks will come at the expense of human health. At the moment, the reality is that until dedicated taxes are restored, principles of fairness demand that the limited Superfund resources be used only for orphan sites, and that in the absence of a bona fide act of God, an identifiable PRP should be strictly liability for cleanup costs.

C. *Deterrence*

The third policy rationale for denying the act of God defense in Katrina-related releases is related to the defense itself. The failure of a facility to exercise either due care or foresight will invalidate the act of God defense, and thus the defense's failure may be a strong deterrent against releases in the future. There is no question that facilities operating in the Gulf Coast region were, or should have been, aware of the potential for storm damage from a hurricane season that lasts roughly six months out of the year.¹⁹⁰ Congress, in drafting the narrow act of God defense, took affirmative measures to provide for a "due care or foresight" condition: the defense will not succeed unless "the effects of [the phenomenon] could not

190. *See supra* Part II.A.

have been prevented or avoided by the exercise of due care or foresight.”¹⁹¹ This condition may be seen as both encouragement and a warning to a facility dealing with oil or hazardous substances.

First, because Congress explicitly stated that the defense will not apply unless the event’s effects could not have been prevented or avoided by *due care*, a facility is put on notice that it must take affirmative precautions to avoid releases stemming from natural disasters or other natural phenomena.¹⁹² If the level of care falls below a certain standard, then the due care element, and thus the act of God defense, should fail. Katrina may act as a hard lesson, but a lesson nonetheless.¹⁹³ If the act of God defense is applied narrowly and only granted in the most deserving of cases, facilities in the Gulf Coast and throughout the country will be encouraged, even forced, to take a hard look at their practices in anticipation of the next major event. Every facility that manufactures, handles, treats, stores, or disposes of oil or hazardous substances has an incentive to employ safe business practices or risk economic disaster and social vilification. Examples of such practices include utilizing effective control equipment and responsible management of these substances. Facilities may also realize an incentive in reducing use of toxic substance or in using less toxic substances, so that if an unavoidable event does occur, the damage, and thus their liability, will be minimized.

As this note has mentioned, a question that each facility and case will have to explore is what level of care was exercised, and whether any degree of care could have prevented the release from occurring in a storm of Katrina’s magnitude. If a facility can prove that it did exercise a sufficient level of care, and the release still occurred, there may be a chance at a successful defense. The second deterrent effect, however, may also suggest, once again, why the defense should not succeed in the first place.

Even if a facility exercised due care, a failure to exercise foresight will be a difficult hurdle to overcome. Because no one can argue with sincerity and a straight face that there was not a strong likelihood that hurricanes of varying strength would hit the region, good policy suggests that those who choose to operate in the area despite this knowledge should have to bear the costs of cleanup when releases occur. This is a recurrent theme, discussed above as a reason that Element Four (due care/foresight) should fail. The

191. 33 U.S.C. § 2701(1) (2000); 42 U.S.C. § 9601(1) (2000).

192. This will always be a question of fact depending on, among other things, the area in question and the type of substance being handled.

193. Katrina will be a hard lesson in a number of respects, such as the shortfalls of FEMA and the poor federal response, the need for a better storm protection system in New Orleans, and the need to rebuild the depleted coastal wetlands.

risk of a massive hurricane apparently did not deter operators of chemical facilities and oil refineries in the region from doing business prior to Hurricane Katrina. However, Katrina may have opened the eyes of those who may now bear cleanup costs, forcing decision-makers to run a careful cost-benefit analysis of doing business in the region. This analysis will either lead to (1) improvements in operating practices to meet a requisite level of due care; (2) a sobering consideration of doing business in a hurricane-prone region and a subsequent move to a safer locale to operate; or (3) no action at all. Whatever decision these groups eventually make, the public's interest in a safe and healthy region will only be fulfilled by denying the act of God defense and holding these companies liable for the costs of cleaning up their own spills.

CONCLUSION

When PRPs invoke the statutory act of God defense in the hopes of avoiding possibly tremendous cleanup liability from oil and hazardous waste releases surrounding Hurricane Katrina, they will find little support from the general public and even less support from locally-affected residents. More importantly, they should find no relief from the courts. Even before Katrina ravaged New Orleans and much of the Gulf Coast, a growing number of people, like environmental historian Ted Steinberg, staunchly questioned how "natural" such disasters really were.¹⁹⁴ The opinions only stiffened after Katrina; Steinberg was recently interviewed for a *Wall Street Journal* online article, in which his 2000 book was again referenced for the proposition that these disasters are not acts of God. Steinberg stated, "This is an unnatural disaster if ever there was one, not an act of God . . . If the potential for mass death and destruction from extreme weather existed anywhere in the U.S., it existed in New Orleans."¹⁹⁵ If this "act of God" was seen by many as nothing short of predicted,¹⁹⁶ then the statutory act of God defense found in a number of environmental statutes,¹⁹⁷ which provides a narrow exception to strict liability, will likewise be a poor fit. Not only does the plain language of the defense create a complex design and heavy burden to overcome, but courts have been extremely

194. See STEINBERG, *supra* note 158.

195. Sharon Begley, *Man-Made Mistakes Increase Devastation of 'Natural' Disasters*, WALL ST. J. ONLINE, Sept. 2, 2005, <http://online.wsj.com/public/us> (internal quotations omitted).

196. For an eerie prediction of a Katrina-like hurricane apocalypse in New Orleans, see Joel K. Bourne, Jr., *Gone with the Water*, NAT'L GEOGRAPHIC MAG., Oct. 2004, available at <http://magma.nationalgeographic.com/ngm/0410/feature5/?fs=www3.nationalgeographic.com>.

197. See 33 U.S.C. § 1321(f)(1)-(3) (2000); 33 U.S.C. § 2703(a)(1); 42 U.S.C. § 9607(b)(1) (2000).

weary of parties wishing to use the defense to skirt their financial responsibilities. Furthermore, national policy considerations favor PRP liability in the event of oil or chemical spills.

Of the four main elements of the defense, only the first element, which considers the size and gravity of the event, is likely to be satisfied in the context of Katrina. As to the second element, the storm was not unanticipated. Advanced tracking watched the storm form eleven days before Florida landfall (and at least thirteen days before Louisiana landfall), and the Gulf Coast is a well-known hot-spot for tropical storm activity. The final two elements, that the phenomenon must be the sole cause of the release (Element Three) and that the effects could not have been prevented or avoided by the exercise of due care or foresight (Element Four), will be very fact-intensive inquiries into the facility's conduct. Precedent has been quick to point out the multitude of evidence that may exist to demonstrate that a party did not use due care or foresight, and thus that the act of God was not the *sole* cause of the release. In order for the defense to ever succeed, an extremely unlikely set of events would have to occur, where all four elements are satisfied in a single case—and *that* would be the true act of God.