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DISASTERS FIRST: RETHINKING ENVIRONMENTAL LAW AFTER SEPTEMBER 11

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I. INTRODUCTION

Many environmental statutes were enacted, or at least spurred along, in direct response to disasters. The Federal Water Pollution Control Act of 1972[1] followed from the Santa Barbara Oil Spill; the Emergency Planning and Community Right-to-Know Act (EPCRA)[2] resulted from the chemical gas disaster in Bhopal, India; the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)[3] was sparked by the Love Canal incident; and the Oil Pollution Act[4] was a reaction to the Exxon Valdez oil spill.

The terrorist attacks of September 11, 2001 have led to the Homeland Security Act and to several other enactments. The collapse of the World Trade Center was perhaps the greatest disaster in the history of New York, and some of the regulatory changes that flowed from these events have reflected the environmental implications. But that horrible day should also lead to lessons that have still greater ramifications for environmental law.

The principal lesson should be that disasters—whether accidental, intentional or natural—can have environmental impacts that overshadow the consequences of most gradual events. While modern environmental law is largely oriented to

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1. 33 U.S.C. §§ 1251-1387 (2002).
2. 42 U.S.C. §§ 11001-11050 (2002).
3. 42 U.S.C. §§ 9601-9675 (2002).
4. 33 U.S.C. §§ 2701-2761 (2002).

addressing slow-acting events and effects, September 11 should teach us the importance of addressing the sudden as much as the slow.

The greatest threats to the long-term health of the planet's ecology are indeed long-acting—for example, global climate change and the degradation of the oceans. Other persistent environmental conditions cause many deaths, such as air pollution in industrialized areas and poor sanitation in many parts of the Third World. However, other concerns present effects that are both localized and, in the scheme of things, relatively minor, though enormous resources are devoted to them. Aspects of the law of hazardous waste disposal are a prominent example. CERCLA primarily serves to protect people who might some day live atop contaminated sites and drink the water or be exposed to chemicals in the soil or the air there. CERCLA has absorbed a disproportionate share of the attention in environmental law, and about $6 billion per year is spent on meeting its requirements,[5] but the health risks it addresses tend to be minor. Some researchers have found insufficient data to determine whether hazardous waste sites really do pose a serious threat to human health,[6] and others have presented figures that lead to the conclusion that less than one death per year is caused by exposure to CERCLA sites.[7]

In stark contrast, during the 20th Century at least four industrial accidents took more than 1,000 lives,[8] and another five took more than 500 lives.[9] In all, several

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5. KATHERINE N. PROBST ET AL., FOOTING THE BILL FOR SUPERFUND CLEANUPS: WHO PAYS AND HOW? 11 (1995).

6. NATIONAL RESEARCH COUNCIL, ENVIRONMENTAL EPIDEMIOLOGY VOLUME I: PUBLIC HEALTH AND HAZARDOUS WASTES (1991); Dimitrios Trichopoulos et al., *What Causes Cancer?*, 275 SCI. AM., Sept. 1996, at 80, 85.

7. JAMES T. HAMILTON & W. KIP VISCUSI, CALCULATING RISKS: THE SPATIAL AND POLITICAL DIMENSIONS OF HAZARDOUS WASTE POLICY 15 (1999) (found that median number of cancer cases over 30 years at CERCLA sites was 0.017 per site; if that ratio applies to all of the approximately 1,500 National Priorities List sites nationwide, that equates to about 25 cases of cancer. Fewer than half of all cancers are ultimately fatal, so this in turn translates to 12 deaths, and less than one per year.).

8. These accidents occurred in Bhopal, India in 1984 (toxic vapor); Salang Pass, Afghanistan in 1982 (toxic vapor); Cali, Colombia in 1956 (explosion of ammunition); and Kyshtym, USSR in 1958 (radioactive leak). *See* CHARLES PERROW, NORMAL ACCIDENTS: LIVING WITH HIGH-RISK TECHNOLOGIES 105-22 (1984); Bhola Ram Gurjar & Manju Mohan, *Environmental Risk Analysis: Problems and Perspectives in Different Countries*, 13 RISK 1, 2 (2002); SUSAN L. CUTTER, LIVING WITH RISK: THE GEOGRAPHY OF TECHNOLOGICAL HAZARDS 101-02 (1993). Some have also numbered in the thousands the deaths resulting from the Chernobyl nuclear disaster, though the actual number is unknown. WILLIAM M. EVAN & MARK MANION, MINDING THE MACHINES: PREVENTING TECHNOLOGICAL DISASTERS 16 (2002).

9. Texas City, Texas in 1947 (explosions of ammonium nitrate); Acha Ufa, USSR in 1989 (explosion of natural gas); Cubato, Brazil in 1984 (explosion of gasoline); St. Juan Ixhautepec, Mexico in 1984 (explosion of natural gas); Oppau, Germany in 1921 (chemical plant explosion). *See* Gurjar & Mohan, *supra* note 8, at 2.

hundred people die each year around the world in industrial accidents.[10] One analysis found that in the United States between 1900 and 1990, there were a total of 339 chemical accidents (defined as accidents where there was an explosion or the release of a vapor or toxic cloud).[11] Thus by all accounts the number of people killed in these events exceeds by several orders of magnitude the number of people who die from the kinds of exposures addressed in CERCLA. Indeed, one violation of one statute on the fringes of environmental law killed more people than may have been cumulatively saved by most or all CERCLA cleanups—the improper transport of old oxygen cannisters, in violation of the Hazardous Materials Transportation Act, aboard ValuJet Flight 592 on May 1, 1996, leading to a fire and then a crash in the Everglades that killed 110 people.[12]

Some industrial accidents create widespread and long-lasting environmental damage. Most prominent of these are the Chernobyl nuclear disaster of 1986, which contaminated several hundred square miles in and around the Ukraine, and the 1976 explosion of a chemical plant in Seveso, Italy, which spread dioxin over several towns between Lake Como and Milan.[13] Additional examples include a damburst of a tailing pond in Baia Mare, Romania in 2000, spilling cyanide into the Danube and other rivers,[14] and a damburst in Aznalcollar, Spain, in 1998, contaminating the Doñana National Park with highly acidic water.[15] Other incidents lead to transitory releases of poisons that kill people and then disperse, or cause environmental damage only inside factory gates. No comprehensive analysis seems to be available about the relative environmental damage caused by accidents versus ongoing industrial operations, though it seems likely that accidents are usually the smaller part of this equation. One 2002 study found that urban runoff, municipal and industrial discharges, and discharges from small boats and jet skis cause a much greater portion of petroleum releases to the oceans than do large oil spills.[16] Some chemical and oil production facilities are known to have long, slow leaks that over a period of many years have released large quantities of contamination into the environment.[17]

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10. KEITH SMITH, ENVIRONMENTAL HAZARDS: ASSESSING RISK AND REDUCING DISASTER 323-25 (3d ed. 2001).

11. CUTTER, *supra* note 8, at 103, 105.

12. JAMES R. CHILES, INVITING DISASTER: LESSONS FROM THE EDGE OF TECHNOLOGY 150-55 (2001).

13. THE LONG ROAD TO RECOVERY: COMMUNITY RESPONSES TO INDUSTRIAL DISASTER 86-90, 215-19 (James K. Mitchell ed., 1996).

14. Aaron Schwabach, *From Schweizerhalle to Baia Mare: The Continuing Failure of International Law to Protect Europe's Rivers*, 19 VA. ENVTL. L.J. 431, 432-33 (2000).

15. Jerrold Long, *Hazardous Materials and Energy: Mine Disaster Threatens Spain's Donana National Park*, 1998 COLO. J. INT'L ENVTL. L. & POL'Y Y.B. 310 (1999).

16. National Academies of Science, Oil in the Sea III: Inputs, Fates, and Effects (2002).

17. *See* THOMAS D. BEAMISH, SILENT SPILL: THE ORGANIZATION OF AN INDUSTRIAL CRISIS (2002) (account of 38-year-long spill of up to 20 million gallons of oil and chemicals from Unocal

Environmental law is about both protecting the public health and preserving the natural environment. Industrial accidents and other disasters are major threats to the public health and deserve much more attention than they now receive in the scheme of environmental regulation.[18]

II. THE DICHOTOMY BETWEEN ENVIRONMENTAL AND OCCUPATIONAL RISK

The collapse of the World Trade Center killed 343 New York City firefighters, 23 police officers, and 75 other emergency response personnel.[19] A year later several hundred of the survivors were still suffering from respiratory and other effects of the collapse and the subsequent rescue operation.[20] These rescue workers have deservedly been seen as heroes for voluntarily exposing themselves to grave risks to save others.

Thus it is a great irony that, in several ways, the regulatory system generally gives much less regard to occupational risks—such as those experienced by the New York City rescuers—than to environmental risks. The budget of the U.S. Environmental Protection Agency (EPA) is several times that of the Occupational Safety and Health Administration (OSHA).[21] [cite latest budget] When the two agencies regulate exposure to the same chemicals, OSHA's standards often allow exposure to many times the levels permitted by EPA.[22] OSHA seeks to prevent risks greater than one excess worker death for every 1000 workers, while EPA aims at risks of one in one million.[23] Only OSHA can

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Corporation's oil field in Guadalupe Dunes, California); Elizabeth Kolbert, *Mobil to Pay Millions to Clean Up Vast Pool of Oil Beneath Brooklyn*, N.Y. TIMES, July 10, 1990, at A1.

18. Such natural disasters as hurricanes, volcanoes and floods can cause immense environmental damage and kill many people, but they are beyond the scope of this article.

19. *See Facts About Sept. 11: Death Toll, available at* http://www.poughkeepsiejournal.com/projects/9-11_anniversary/Stories/1o091102s28.shtml (last visited Feb. 4, 2003).

20. Centers for Disease Control and Prevention, *Injuries and Illnesses Among New York City Fire Department Rescue Workers After Responding to the World Trade Center Attacks*, 51 MORBIDITY & MORTALITY WKLY. REP., Sept. 11, 2002, at 1; Heidi Evans, *WTC study: Workers still gasping for air; Half of screened workers suffer ailments*, N.Y. DAILY NEWS, Dec. 15, 2002, at 8.

21. *See* EPA Newsroom, *available at* http://epa.gov/epahome/headline_020402.htm; OSHA Trade News Release, *available at* http://www.osha.gov/pls/osha.../owadisp.show_document?p_table=NEWS_RELEASES&p_id=1182&p_text_version=FALS.

22. Lynn K. Rhinehart, *Would Workers Be Better Protected If They Were Declared an Endangered Species? A Comparison of Criminal Enforcement Under the Federal Workplace Safety and Environmental Protection Laws*, 31 AM. CRIM. L. REV. 351, 354 n.16 (Winter 1994). Similarly, *see* Kristin Shrader-Frechette, *Workplace Pollution: Nuclear Safety, Ethics, and the Exploitation-Avoidance Argument*, 12 RISK 311, 316-17 (2001) (maximum permissible radiation dose for industrial workers much greater than for public).

23. Rhinehart, *supra* note 22, at 354 n.16. 40 C.F.R. § 300.430(e)(2)(i)(A)(2) (2002). Risk prevention goals are often expressed in terms of lifetime cancer risk; even where the goal is the same

enforce most OSHA standards, while most of the federal environmental statutes allow citizens to sue.[24] Far more criminal convictions have been obtained for violations of EPA regulations than of OSHA regulations, the penalties are greater and the prosecutors' burden of proof is much lower.[25] The liability scheme of CERCLA is so severe that it has become customary to audit a manufacturing facility's environmental conditions before the facility is sold or financed; audits of occupational conditions are much less common.

The principal rationale for these discrepancies in legal treatment is that occupational exposure is voluntary.[26] Some scholars have argued that workers receive "compensating wage differentials" for the risks they endure on the job,[27] while others question the existence of these wage differentials and also state that the decisions to take occupational risks are only partially voluntary,[28] with nonunionized workers in dangerous jobs actually being paid less than their counterparts in less dangerous jobs.[29]

Whatever the reasons for these discrepancies, their existence has had perverse results. One arises in the context of CERCLA cleanups. The most thorough of these cleanups tend to involve excavating large quantities of contaminated materials and hauling them to distant landfills or incinerators for disposal. Such excavation poses real risks to the workers involved (mostly from the heavy equipment rather than from the chemicals); and trucking the material also poses dangers to the drivers and to other motorists. The risks of injury and death from this work often exceed—and sometimes by orders of magnitude—the risks that the cleanups are designed to prevent.[30]

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for environmental and occupational risk, the loss of average life expectancy is much greater for occupational risks because they afflict younger populations on average than do environmental risks. W.F. Ten Berge & P.J.M. Stallen, *How to Compare the Risk Assessments for Accidental and Chronic Exposure*, 15 RISK ANALYSIS, 1995, at 111, 113.

24. *See* Ariela Migdal, *RCRA in the Workplace: Using Environmental Law to Combat Dangerous Conditions in Sweatshops*, 75 N.Y.U. L. REV. 1843, 1853-54 (Dec. 2000).

25. Rhinehart, *supra* note 22, at 353.

26. Shrader-Frechette, *supra* note 22, at 317.

27. *See, e.g.*, W. KIP VISCUSI, FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK 6-8, 66-69 (1992).

28. *See, e.g.*, PETER DORMAN, MARKETS AND MORALITY: ECONOMICS, DANGEROUS WORK, AND THE VALUE OF HUMAN LIFE 137-141 (1996).

29. Peter Dorman & Paul Hagstrom, *Wage Compensation for Dangerous Work Revisited*, 52 INDUS. & LAB. REL. REV. 116, 133 (Oct. 1998).

30. Michael B. Gerrard, *Safety Hazards in Hazardous Waste Remediation*, N.Y. L.J., July 26, 2002 at 3; John S. Applegate & Steven M. Wesloh, *Short Changing Short-Term Risk: A Study of Superfund Remedy Selection*, 15 YALE J. ON REG. 269, 270 (Summer 1998). Along similar lines, certain technologies to remove arsenic from drinking water require the transport of so much filtration material that more lives may be lost from the transport than would be saved from the treatment. Floyd J. Frost et al., *Physical Injury Risks Associated with Drinking Water Arsenic Treatment*, 22 RISK 235 (2002).

Another example is the abatement of asbestos from homes, schools and businesses. There is no question that large numbers of people who worked with asbestos in building ships and erecting buildings, or who mined asbestos, have suffered serious or fatal illnesses as a result. But the evidence is much less clear that it is hazardous to occupy a building that contains intact (as opposed to friable) asbestos. Asbestos is not like a radioactive material that continually emits harmful rays, but it does emit what we might imagine as liability rays: its presence, even if passive and unseen, can make it difficult to sell or finance a building. Thus an industry has emerged to remove asbestos from buildings. Segments of this industry are less than scrupulous in training their workers and requiring them to wear the required protective gear, and some employers have been known to use undocumented aliens whose lack of English and whose fear of deportation have made them especially vulnerable. Thus the abatement of asbestos creates occupational hazards that may well exceed the health benefits of the cleanup.[31]

There are many other instances where occupational safety and health is potentially at odds with environmental protection.[32] A few examples:

- Surface mining of coal has much greater environmental impacts than deep mining, but deep mining is far more dangerous for the workers.
- The widening and straightening of roadways may destroy wetlands and wildlife habitat, but may reduce traffic fatalities.
- Similarly, longer airport runways may harm natural areas but improve air safety.
- Cell telephone towers are unsightly but aid emergency response to accidents.

The Bureau of Labor Statistics has released comparative figures on the fatality rates for those in certain high-risk occupations. Deaths per 100,000 employed are 14.0 for police and detectives; 15.0 for material moving equipment operators; 18.3 for firefighters; 27.9 for truck drivers; and 41.1 for construction laborers.[33] Thus the dangers to those engaged in the kinds of work involved in hazardous waste cleanup are of the same order as, or even greater than, those faced by firefighters and police officers. One of the lessons of September 11 is that the full measure of respect and protection should be given to those who put their lives on the line to save others from harm; and this measure should be provided to members of all the affected occupations, and not only those in uniform.

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31. *See* P. Mark Glencross & David C. Christiani, *Health Hazards of Abatement Work: Asbestos and Lead*, 6 NEW SOLUTIONS, Spring 1996, at 23; Heather MacDonald, *Asbestos and TB: A Tale of Two Crises*, CITY J., Winter 1994, at 50.

32. *See generally* RISK VERSUS RISK: TRADEOFFS IN PROTECTING HEALTH AND THE ENVIRONMENT (John D. Graham & Jonathan Baert Wiener eds., 1995).

33. Cindy Clarke & Mark J. Zak, *Fatalities to Law Enforcement Officers and Firefighters, 1992-97*, COMPENSATION & WORKING CONDITIONS, Summer 1999, at 3, 7.

III. SUDDEN INCIDENTS AND ENVIRONMENTAL LAW

As the towers collapsed—and thousands of people were crushed to death in a few horrifying instants, and lower Manhattan was engulfed in a toxic cloud of pulverized asbestos, lead, and plastics—the environmental laws designed to protect against a one-in-a-million chance of cancer over a 70-year lifetime seemed entirely irrelevant. Now from the perspective of more than a year after the event, but with no assurance that there will not be more days like September 11, it still seems that the laws concerned with disasters are of particular relevance. Thus it is ironic that one of the legal aftermaths of September 11 has been to weaken rather than strengthen several of these laws.

The reason is that these laws operated chiefly by making information available about potential accidents and their consequences, and now—with greater appreciation for the sophistication as well as the destructiveness of our enemies—it is apparent that this information could fall into the wrong hands, and make some of these worst-case scenarios horribly come true. A group that can learn to fly jetliners can also surf the web. Principal among the laws that make hazard information publicly available are the post-Bhopal enactment, EPCRA (also known as SARA Title III),[34] and Section 112(r) of the Clean Air Act.[35] Both require that facilities report to government authorities if they utilize more than specified quantities of specified hazardous chemicals, and prepare emergency response plans. Even before September 11, Congress had taken steps to restrict the public release of information prepared under these laws.[36] Since then, additional restrictions had been imposed.[37]

The U.S. hazardous waste laws (unlike the air and water pollution control laws) contain few requirements for reducing waste production, but these disclosure laws were found to operate as powerful incentives for pollution prevention – and precisely because the information was made public.[38] Companies did not relish appearing on the "ten worst polluters" lists that the newspapers invariably printed after the annual reports were issued, and thus they took real steps to reduce their use of the covered chemicals. Today's challenge is find a way to

34. 42 U.S.C. §§ 11001-11050 (2002).

35. 42 U.S.C. § 7412(r) (2002); 40 C.F.R. pt. 68 (2002).

36. Chemical Safety Information, Site Security and Fuels Regulatory Relief Act of 1999, 42 U.S.C. § 7412(r)(7)(H)(ii); 65 Fed.Reg. 24,837 (Apr. 27, 2000) (concerning public release of off-site consequence analyses prepared under Clean Air Act).

37. The Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188, requires the preparation of vulnerability assessments for drinking water facilities and prohibits the release of these assessments to the public. *See also* ASS'N OF METROPOLITAN WATER AGENCIES, STATE FOIA LAWS: A GUIDE TO PROTECTING SENSITIVE WATER SECURITY INFORMATION (July 2002), *available at* http://www.amwa.net/isac/StateFOIA.pdf.

38. Susan L. Santos et al., *Industry Response to SARA Title III: Pollution Prevention, Risk Reduction, and Risk Communication*, 16 RISK 57 (1996).

release enough information to preserve the salutary effects of these laws, without releasing so much that the terrorists' task of finding targets is made easier.

Another challenge is to make sure that environmental laws, especially their stringent command-and-control mandates, do not interfere with the response to emergencies when they occur. Provisions allowing the suspension of certain requirements in cases of emergency are found in the Clean Air Act,[39] the Clean Water Act,[40] CERCLA,[41] the Endangered Species Act,[42] the Federal Insecticide, Fungicide and Rodenticide Act,[43] the Ocean Dumping Act,[44] the Resource Conservation and Recovery Act, [45] the Safe Drinking Water Act,[46] the Wilderness Act,[47] and the Toxic Substances Control Act.[48] All these emergency provisions are different; they were enacted at different times and display no uniformity. In contrast, almost identical "act of God" and "act of war" exemptions from liability appear in the Clean Water Act,[49] CERCLA,[50] and the Oil Pollution Act.[51] The National Environmental Policy Act (NEPA), a procedural law that cuts across all of the substantive laws, also provides for an emergency exemption for the requirement for an environmental impact statement.[52] The Robert T. Stafford Disaster Relief and Emergency Assistance Act (a primary authorizing statute for the Federal Emergency Management Agency) includes a NEPA exemption for many emergency response actions.[53] In a few instances Congress has declared emergencies and specifically exempted actions in response from environmental statutes.[54]

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39. 42 U.S.C. § 7410(f) (2002); 40 C.F.R. § 51.853(d)(2), (e) (2002).

40. 33 C.F.R. § 337.7 (2002).

41. 42 U.S.C. §§ 9606(c), 9607(d) (2002); 40 C.F.R. § 300.440 (2002).

42. 16 U.S.C. § 1536(p) (2001).

43. 40 C.F.R. § 166.2 (2002). *See* Environmental Defense Fund, Inc. v. Blum, 458 F. Supp. 650 (D.D.C. 1978).

44. 40 C.F.R. Pt. 220 (2002). *See* Richard G. Hildreth et al., *Evaluation of the New Carissa Incident for Improvements to State, Federal, and International Law*, 16 J. ENVTL. L. & LITIG. 81, 85-92 (2001).

45. 42 U.S.C. §§ 6961(a), 6973 (2002).

46. 42 U.S.C. § 300g-1(b)(1)(D) (2002).

47. 16 U.S.C. § 1133(c) (2002).

48. 15 U.S.C. § 2606 (2001).

49. 33 U.S.C. § 1321(f)(1) (2002). *See* Ralph M. Sugg, *Blame it on the Rain? El Niño Is No Excuse To Pollute*, 21 WHITTIER L. REV. 737, 746 (Spring 2000).

50. 42 U.S.C. § 9607(b) (2002).

51. 33 U.S.C. § 2703(a) (2002).

52. 40 C.F.R. § 1506.11 (2002). *See* Raymond Takashi Swenson, *Desert Storm, Desert Flood: A Guide to Emergency and Other Exemptions from NEPA and Other Environmental Laws*, FED. FACILITIES ENVTL. J. 3, 24 (1991). *See also* Exec. Order 12,114 § 2-5(a)(vii) (exception for disaster and emergency relief actions in environmental review of federal actions abroad).

53. 42 U.S.C. § 5159 (2002); 44 C.F.R. §§ 10.8(c), 10.8(d)(2)(xii) (2002).

54. Particularly controversial was the Emergency Salvage Timber Sale Program adopted in Pub. L. No. 104-19, § 2001, 109 Stat. 240 (1995). *See* Trilby C.E. Dorn, *Logging Without Laws: The*

Several emergency exemptions were in fact utilized in the aftermath of the World Trade Center collapse. NEPA's New York counterpart, the State Environmental Quality Review Act (SEQRA),[55] exempts from the requirement for the preparation of environmental impact statements:

> emergency actions that are immediately necessary on a limited and temporary basis for the protection or preservation of life, health, property or natural resources, provided that such actions are directly related to the emergency and are performed to cause the least change or disturbance, practicable under the circumstances, to the environment.[56]

The courts have interpreted this provision broadly to encompass events that at first glance do not look much like emergencies (such as prison overcrowding and homelessness),[57] but obviously the response to the WTC disaster fits squarely within this definition.[58] Various emergency provisions were invoked to allow solid waste transfer stations to handle the large quantities of garbage that backed up when much transportation in the City ground to a halt, and to accommodate the barges that were brought in to take away some of the debris.

A state statute provides that:

> [s]ubject to the state constitution, the federal constitution and federal statutes and regulations . . . the governor may by executive order temporarily suspend specific provisions of any statute, local law, ordinance, or orders, rules or regulations, or parts thereof, of any agency during a state disaster emergency, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster.[59]

Governor George Pataki used this law on September 12 to suspend many statutes of limitations, and in the ensuing weeks he used it to facilitate the removal of debris from the site. Most of the debris went to the Fresh Kills Landfill on Staten Island. That locally despised landfill had been scheduled to close on December 31, 2001, by operation of a state law enacted in 1996[60] after many years of controversy, but in the emergency the landfill's life was temporarily

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1995 Salvage Logging Rider Radically Changes Policy and the Rule of Law in the Forests, 9 TUL. ENVTL. L.J. 447, 463-65 (1996); Patti A. Goldman & Kristen L. Boyles, *Forsaking the Rule of Law: The 1995 Logging Without Laws Rider and its Legacy*, 27 ENVTL. L. 1035, 1048 (Winter 1997); Michael Axline, *Forest Health and the Politics of Expediency*, 26 ENVTL. L. 613, 613-14 (Summer 1996).

55. N.Y. ENVTL. CONSERV. L. §§ 8-0101 to 8-0117 (McKinney 2002).

56. N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(c)(33) (2002).

57. *See* Michael B. Gerrard et al., *Environmental Impact Review in New York* (1990, 2002 supp.) § 2.01[4][d].

58. If it did not, some of the activities at the World Trade Center site arguably would require an environmental impact statement. *See* Williamsburg Around the Bridge Block Ass'n v. Giuliani, 644 N.Y.S. 2d 252, 257 (N.Y. App. Div. 1996) (EIS required for City protocol for sandblasting of lead paint from bridges, as it could cause hazardous dust to be blown into nearby community).

59. N.Y. EXEC. LAW § 29-a (McKinney 2002).

60. N.Y. LEGIS. LAWS ch. 107 (Consol. 1996).

extended. For months it was a crime scene, as law enforcement personnel meticulously combed through the incoming loads for human remains and for evidence that might shed light on the perpetrators of the attacks.

At the north end of the site destroyed by the terrorists stood Seven World Trade Center, a 616-foot-tall office building that caught fire and (thankfully after having been fully evacuated) collapsed on the afternoon of September 11. The bottom of the building was occupied by a Consolidated Edison Co. electrical substation that supplied power to most of lower Manhattan. The destruction of this substation plunged the area into a blackout. Service was restored under a jerry-rigged system of above-ground cables, but these were vulnerable to accidental damage. In order to restore reliable electrical service to this area – a neighborhood that includes the New York Stock Exchange and other operations that are vital to the global economy – it was necessary to rebuild the substation as quickly as possible. Since the substation was an integral part of the office building, the building itself had to go back up on an expedited basis. Various considerations of urban planning required changes in the building's design; the old building could not simply be rebuilt as it had been. New York State and City authorities agreed to use emergency procedures to allow the building with the substation to be approved in much faster than the usual time.[61]

At the federal level, certain exemptions were triggered by the FEMA's declaration of New York City as a disaster area on September 11,[62] and FEMA and other federal assistance flowed into New York without major environmental impediments. No decisions have been made as to what will be built on the main World Trade Center site, or what approval processes will be followed.

IV. INCORPORATING THE LESSONS OF SEPTEMBER 11 INTO ENVIRONMENTAL LAW

The catastrophes of September 11 should teach a number of lessons about the laws that regulate environmental health and safety. Some of them are discussed below.

A. Incident Scenarios – Environmental decision-making depends on forecasts of the possible consequences of contemplated actions. NEPA, in particular, requires consideration of the impacts of an array of alternatives, and the implementing regulations call for analysis of "impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason."[63] After September 11,

61. The author of this article serves as environmental counsel to the building's owner, Silverstein Properties, and this account is drawn from that experience.

62. The declaration appears *at* http://www.fema.gov/library/diz01/d1391.htm (last visited Jan. 30, 2003).

63. 40 C.F.R. § 1502.22(b)(1) (2002).

many scenarios are plausible that previously were solely the domain of action thrillers. It remains to be seen what kinds of scenarios federal agencies will now analyze under NEPA, what efforts they will make to keep this analysis secret, and what effect the exercise will have on the substantive decisions that they make. Emergency plans under EPCRA should also reflect plausible terrorist acts.[64] A catastrophic scenario can be imagined for almost any significant federal approval of a new facility; these scenarios should not induce paralysis in the approval process, but they should be carefully assessed.

Officials should call for some consistency in the way catastrophes are depicted. Under current practice, it is common to imagine worst case scenarios with respect to the presence of hazardous waste (trespassers will spend their days rolling around in the dirt on contaminated sites, the most toxic chemicals will not be discovered, people will drill drinking water wells directly into the underground plumes), and best case scenarios for the cleanups (workers will always wear respirators and the trucks will never crash). Such imbalanced scenarios will lead to distorted decisions.

B. Protection Standards – As noted above, CERCLA aims to protect against risks on the order of 10^{-6}, and tens or hundreds of millions of dollars have been spent at individual sites addressing such risks. The disaster of September 11 killed on the order of 10^3 people. This immense gap of nine orders of magnitude suggests that some greater degree of proportionality is necessary in deciding where society should devote its limited resources.

C. Emergency Preparedness – Many lives were saved on September 11 because the emergency response personnel in New York City responded so quickly and bravely. Many more lives could have been saved had the radio systems worked better inside the burning towers.[65] The analysis of worst case scenarios performed under NEPA, EPCRA and other laws should be accompanied by consideration of how to prepare for these scenarios should they occur.[66]

D. Public Information – Combating terrorism is requiring a balancing of values that before September 11 each seemed absolute. Among the values that must be balanced are giving the public the information they need to participate in decisions and to prepare for possible futures, and not releasing information that can assist terrorists. There is no magic formula for reaching this balance;

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64. *See* Beth A. Henning, *EPCRA Emergency Plans: What to Consider Post-September 11*, 16 NAT. RESOURCES & ENV'T, (ABA), Winter 2002, at 172; *LEPCs and Deliberate Releases: Addressing Terrorist Activities in the Local Emergency Plan*, EPA FACTSHEET (Chemical Emergency Preparedness & Prevention Office) Aug. 2001, *available at* http://www.epa/gov/ceppo/factsheets/lepccf.pdf.

65. *See* Jim Dwyer & Kevin Flynn, *9/11 Tape Raises Added Questions on Radio Failures*, N.Y. TIMES, Nov. 9, 2002, at A1.

66. *Combating Terrorism: Considerations for Investing Resources in Chemical and Biological Preparedness, Before Senate Comm. on Governmental Affairs*, GAO-02-162T (2001) (Statement of Henry L. Hilton, Jr., Managing Director, Defense Capabilities and Management).

finding the right point is likely to be an ongoing tension in environmental regulation for years to come.[67] Since September 11, much information about critical facilities and the chemicals they use has been removed from web sites and public reading rooms, though much of this information is still available from non-governmental sources.[68]

E. Regulatory Gaps – Seven federal statutes govern the handling of chemicals, and each utilizes its own list of regulated chemicals. These lists have many overlaps and, more disturbingly, many gaps. The lists are only occasionally updated and do not necessarily reflect up-to-date knowledge about what chemicals cause what kinds of harm, and what chemicals are actively used in commerce.[69] In October 2002 the federal Chemical Safety and Hazard Investigation Board released the results of a review of 167 industrial accidents since 1980 in which chemical reactions caused deaths, injuries or serious damage, and found that more than half involved substances that are not regulated.[70] For most chemicals in commerce, there is little or no information about their health and safety risks, making it impossible to be sure that precautions are being exercised wherever needed.[71]

Another important regulatory gap became apparent in the weeks after September 11. The windows in many apartments in lower Manhattan were open or blown out when the towers fell, and the apartments were covered with residue from the towers. EPA's jurisdiction ordinarily ends at the window, and thus this indoor pollution fell within a regulatory hole, which was further deepened by the absence of standards over what levels of indoor pollution are unsafe. Many apartments were evacuated for months because there was no effective program to clean them and declare them safe (though EPA eventually agreed, months after the event, to clean large numbers of these dwellings).

F. Physical security – Since the birth of the modern environmental movement in 1970 and the first OPEC oil embargo of 1973, various debates have raged over hard paths versus soft paths to environmental protection and energy security. The hard paths include such items as the development of new oil and gas fields, construction of large public works projects to move and treat water, and devising end-of-tailpipe emission controls. The soft paths include energy conservation, alternative energy sources such as solar and wind, and various pollution minimization, waste prevention and recycling techniques. The lines between the

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67. *See* Stephen Gidiere & Jason Forrester, *Balancing Homeland Security and Freedom of Information*, 16 NAT. RESOURCES & ENV'T, (ABA), Winter 2002, at 139.

68. Ann Davis, *New Alarms Heat Up Debate On Publicizing Chemical Risks*, WALL ST. J., May 30, 2002, at A1.

69. John C. Dernbach, *The Unfocused Regulation of Toxic and Hazardous Pollutants*, 21 HARV. ENVTL. L. REV. 1, 3-6 (1997).

70. U.S. Chemical Safety and Hazard Investigation Board, *Hazard Investigation: Improving Reactive Hazard Management* 5 (Oct. 2002).

71. David Roe & William S. Pease, *Toxic Ignorance*, ENVTL. F., May/June 1998, at 24.

two paths were always blurry but many people and groups showed a clear tendency to favor items on one side of the ledger or the other.

This same debate is now being played out in the shaping of environmental and energy policy after September 11. All agree that the terrorist attacks highlighted the vulnerability of critical infrastructure.[72] This vulnerability had been understood for some time, and in 1996 President Clinton established the President's Commission on Critical Infrastructure Protection,[73] but it now takes on far greater urgency. The hard path includes hardening of the targets through physical barriers and supporting security and intelligence mechanisms, with a high premium on secrecy. The soft path would reduce vulnerability by limiting the use of hazardous chemicals, and decentralizing facilities so that less material will have to be hauled across the country. One focus of this debate was the Chemical Security Act introduced in 2002 by Senator Jon Corzine of New Jersey.[74] This bill would not only have mandated the preparation of detailed vulnerability assessments, but it also would have required certain chemical manufacturing facilities to increase their "inherent safety" by finding ways to reduce their use of hazardous chemicals and processes. The American Chemistry Council and other trade associations opposed the latter aspect of the bill, and devised their own voluntary codes and manuals to advance the cause of safety and security in chemical plants.[75] The bill was reported favorably out of committee in the Senate but was not included in the legislation that was enacted in November 2002 creating the new Department of Homeland Security.[76] How Congress and the new Department deal with these issues in 2003 will help show which path the country is choosing.

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72. *See* Michael J. Penders & William L. Thomas, *Ecoterror: Rethinking Environmental Security after September 11*, 16 NAT. RESOURCES & ENV'T, (ABA), Winter 2002, at 159; Tim DeYoung & Adam Gravley, *Coordinating Efforts to Secure American Public Water Supplies*, 16 NAT. RESOURCES & ENV'T, (ABA), Winter 2002, at 146, 147-48.

73. Exec. Order No. 13,010, 61 Fed. Reg. 138 (July 15, 1996). *See also* Presidential Decision Directive 63 (May 22, 1998) furthering the implementation of this order.

74. S. 1602, 107th Cong. (1st Sess. 2001). For a discussion of some of the rationale behind this approach, *see* Nicholas A. Ashford, *Policies for the Promotion of Inherent Safety*, NEW SOLUTIONS, Summer 1997, at 46.

75. *See, e.g.*, AMERICAN CHEMISTRY COUNCIL, SITE SECURITY GUIDELINES FOR THE U.S. CHEMICAL INDUSTRY (2002). Other industry publications include AMERICAN SOCIETY OF SAFETY ENGINEERS, PROVIDING SECURE TRUCK OPERATIONS: SAFETY RECOMMENDATIONS FOR THE COMMERCIAL VEHICLE OPERATOR (2002), and ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES, PROTECTING WASTEWATER INFRASTRUCTURE ASSETS: LEGAL ISSUES IN A TIME OF CRISIS CHECKLIST (2002).

76. Meredith Preston, *Security: Homeland Security Department Approved Without Requirements for Chemical Plants*, ENV'T REP., (BNA), Nov. 25, 2002.