American Journal of Law & Medicine, 30 (2004): 333-69

Suppression of Environmental Science

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I. INTRODUCTION

There is a long history of attacks on scientists. During the Inquisition, the Roman Catholic Church charged Galileo with heresy and, after imprisonment and threats of torture, forced him to renounce his theory that the sun, not the earth, was the center of the universe.[1] In the 1950s, politicians sought to silence scientists that allegedly held political views sympathetic to Communists.[2]

In recent years, research results, rather than the scientist's religion or politics, have motivated attacks on scientists. As environmental issues grow in economic significance and as science takes on increasing importance in influencing public opinion and resolving environmental policy debates, suppression of environmental science has become "increasingly common."[3] As one author observed, the power of science to legitimate environmental positions by claiming exclusive truth makes ownership of science "one of the most contested issues in modern environmentalism."[4] In addition, as university dependence upon industry financial support for research on environmental science becomes more widespread, the scientific freedom of university researchers to pursue research activities and communicate research results is increasingly at risk.[5]

Environmental scientists have always had to answer questions about their methods, data, assumptions, and conclusions, and rightfully so, since it is the nature of science to exchange and question research results.[6] Because scientific research

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1 Linda Rosenstock & Lore Jackson Lee, *Attacks on Science: The Risks to Evidence-Based Policy*, 92 AM. J. PUB. HEALTH 14, 14 (2002).

2 Brian Martin, *Suppression of Dissent in Science*, *in* 7 RESEARCH IN SOCIAL PROBLEMS AND PUBLIC POLICY 105, 107 (William R. Freudenburg & Ted I.K. Youn eds.1999).

3 Elihu Richter et al., *Efforts to Stop Repression Bias by Protecting Whistleblowers*, 7 INT'L. J. OCCUPATIONAL & ENVTL. HEALTH 68, 68 (Jan./Mar. 2001); *see also infra* notes 68-70 and accompanying text.

4 A. Dan Tarlock, *Who Owns Science?*, 10 PA. ST. ENVTL. L. REV. 135, 136 (2002); *see also* Brian Martin, *The Scientific Straightjacket: The Power Structure of Science and the Suppression of Environmental Scholarship*, ECOLOGIST, Jan.-Feb. 1981, at 33, 35 (arguing that environmental scholarship is a prime area for suppression because it often threatens vested interests).

5 Richter et al., *supra* note 3, at 68.

6 *See, e.g.*, ROBERT K. MERTON, SOCIAL THEORY AND SOCIAL STRUCTURE 557 (1963) (arguing that shared knowledge and full and open communication of methods and findings is one of the four imperatives of the ethos of modern science); EVE PELL, THE BIG CHILL: HOW THE REAGAN ADMINISTRATION, CORPORATE AMERICAN, AND RELIGIOUS CONSERVATIVES ARE SUBVERTING FREE

and judgments by scientists are not always free of outside influences, a healthy scientific debate may also include inquiries about a researcher's motives, biases, and values.[7] Not content with determining issues of environmental science through an open discussion over scientific methods and values, some have gone beyond debate and sought to silence certain scientists or their scientific work.[8] By attacking the scientist who brings a contrary message, these attackers seek to prevent the scientist's work or, at the very least, to delay or detract the scientist from focusing on the unwelcome research project, to reduce the credibility of the researcher and her work, or to send a warning signal to other scientists about the adverse consequences that may result if they engage in similar unwelcome work.

Suppression of environmental science raises serious concerns about scientific freedom and threatens public health and the environment. Because science, and the advancement of scientific issues and methods, depends on the free and open exchange of research and ideas, suppression of science may result in delays or wasteful repetition of research.[9] Similarly, where suppression of environmental science results in the failure or delay of scientists or government regulators to gain information about harmful activities, public health and the environment may be negatively impacted.[10]

This Article examines the phenomenon of suppression of environmental science and how the legal system addresses, or fails to address, such suppression. Part II describes the scope and methods of suppression of environmental science, examining both anecdotal evidence and surveys of scientists. Part III examines some of the laws relating to suppression of environmental science, in particular laws relating to defamation, research misconduct, and employer retaliation against employees who speak out. It analyzes both the ways laws are used to suppress scientific speech and ways they may be used to protect and promote such speech. Part IV recommends more effective legal remedies to protect scientists and prevent suppression. Finally, Part V concludes that greater professional efforts, including

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SPEECH AND THE PUBLIC'S RIGHT TO KNOW 77 (1984) (noting the argument of William D. Carey of the American Association for the Advancement of Science that good science depends as much on the free exchange of information as on the empirical process); John T. Edsall, *Scientific Freedom and Responsibility*, 188 SCIENCE 687, 688-89 (1975) (arguing that secrecy harms science because free dissemination of information and open discussion are essential parts of the scientific process).

7 *See* John T. Edsall, *Two Aspects of Scientific Responsibility*, 212 SCIENCE 11, 12 (1981) (observing that scientific facts and value judgments in controversial issues such as environmental protection are so closely interwoven they are exceedingly difficulty to disentangle); Robert R. Kuehn, *The Environmental Justice Implications of Quantitative Risk Assessment*, 1996 U. ILL. L. REV. 103, 133-39 (noting the ability of risk assessors to shape the results of environmental risk assessments).

8 Brian Martin explains the difference between commonly accepted means of disagreeing with a scientist's work and suppression:

> If someone disagrees with a scientist's research conclusions or public statements, an accepted method of response is to criticize the argument, for example, by sending a letter to the scientist or to a journal. By contrast, sending a letter of complaint to the scientist's boss or funding body, attacking the scientist's credibility or right to speak out, would be seen by many as an attempt to apply pressure on the scientist rather than address the issues under dispute.

Martin, *supra* note 2, at 110.

9 *See* AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE, ABOUT THE SCIENCE AND HUMAN RIGHTS PROGRAM, *at* http://shr.aaas.org/about.htm (last visited July 1, 2004) ("To flourish, [science] requires freedom of thought, expression and movement, and the freedom to pursue professional activities without interference.").

10 *See* Edsall, *supra* note 6, at 690; Richter et al., *supra* note 3, at 68; Steven A. Rosenberg, *Secrecy in Medical Research*, 334 NEW ENG. J. MED. 392, 393 (1996); David Shenk, *Money + Science = Ethics Problems on Campus*, NATION, Mar. 22, 1999, at 11, 14.

the support of institutions and professional societies, are necessary to deter the suppression of environmental science.

II. THE SCOPE OF SUPPRESSION OF ENVIRONMENTAL SCIENCE

The International Society of Environmental Epidemiologists ("ISEE") defines research suppression as obstructing the study or release of scientific findings for reasons other than a concern for scientific validity or objectivity.[11] Brian Martin, who has written extensively on the issue of suppression of environmental scientists, defines suppression as instances where someone or some organization threatens a scientist's employment position, financial support, or ability to publish or communicate research for reasons other than the quality of the work or the qualifications or credentials of the researcher.[12] More specifically, suppression involves efforts to withdraw or withhold research money; transfer scientists to jobs where further unwelcome research is difficult or impossible; deny employment appointments, promotions, or tenure; dismiss scientists from their research positions; and block publications or presentations on the methods and results of research.[13] Thus, suppression of environmental science, as the phrase is used herein, seeks to prevent the creation of certain unwelcome data or theories, or, alternatively, to deter or block the dissemination of unwelcome data or theories that already exist, through pressure or restraints on environmental scientists.[14] Suppression can be contrasted with what Martin has termed "repression," in which extralegal methods, including violence or threats of violence, are used to silence scientists and their work.[15]

Recent examples of efforts to suppress environmental science involve government and private sector employers who sought to punish scientists for publicizing their research results or communicating their scientific opinions. In the mid-1990s, David Kern, a physician employed by Brown University and a Rhode Island hospital, noticed a rare lung disease among workers at a flock manufacturing plant that hired him as a consultant.[16] When he prepared an abstract about his findings for a professional conference, the company requested that the abstract not be submitted, arguing that an agreement to protect manufacturing process trade

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11 INTERNATIONAL SOCIETY OF ENVIRONMENTAL EPIDEMIOLOGISTS, PROPOSED DEFINITIONS: RESEARCH SUPPRESSION & RESEARCH REPRESSION, *at* http://www.iseepi.org/ethguide.htm#bias_definitions (last visited July 1, 2004).

12 BRIAN MARTIN, SUPPRESSION STORIES 52 (1997).

13 Brian Martin, *Suppressing Research Data: Methods, Context, Accountability, and Responses*, 6 ACCOUNTABILITY IN RESEARCH 333, 346-47 (1999) [hereinafter *Suppressing Research Data*]; Brian Martin, *Critics of Pesticides: Whistleblowing or Suppression of Dissent?*, 22 PHIL. & SOC. ACTION 33, 44-45 (No. 3, 1996) [hereinafter *Critics of Pesticides*]; Richter et al., *supra* note 3, at 68.

14 For a discussion of other ways that environmental science may be distorted or suppressed, see COMMITTEE ON GOVT REFORM, POLITICS AND SCIENCE IN THE BUSH ADMINISTRATION (Minority Staff, Special Investigations Division 2003); UNION OF CONCERNED SCIENTISTS, SCIENTIFIC INTEGRITY IN POLICYMAKING (2004), *available at* http://www.ucsusa.org/publications/report.cfm?publicationID=730; Linda Greer & Rena Steinzor, *Bad Science*, ENVTL. FORUM 28 (Jan./Feb. 2002); Carolyn Raffensperger, *Bush Brings Sounds of Silence, Not Science*, ENVTL. FORUM 12 (Jan./Feb. 2003).

15 Martin, *supra* note 2, at 107. "When physical violence is used against opponents—including beatings, imprisonment, torture, and murder—this can be called repression, restricting the term 'suppression' to restraint or inhibition without physical force." *Id.*

16 David G. Kern, *The Unexpected Result of an Investigation of an Outbreak of Occupational Lung Disease*, 4 INT'L J. OCCUPATIONAL & ENVTL. HEALTH 19, 19-20 (1998).

secrets, signed by Kern a year before he began his investigation, prevented any public discussion of the disease.[17]

Kern changed the abstract to make it difficult to identify the manufacturer and presented the paper, feeling that his professional obligations to seek out information from colleagues that might assist in determining the causes of the disease and to warn others to be on the lookout for the disease outweighed the company's objections.[18] Judging that the risk of litigation by the company over any disclosure was not worth publicly disclosing information about the disease, Kern's hospital and university employer pressured Kern to withdraw the abstract.[19] Ultimately, Kern's employer terminated Kern's consulting relationship with the company, eliminated the occupational health program he directed, and informed him that his five-year employment contract would not be renewed.[20]

Omar Shafey, a former epidemiologist with the Florida Department of Health, met a similar fate when he refused to alter a report characterized by the Centers for Disease Control ("CDC") as "excellent" and "reasonable and appropriate."[21] The report recommended that the state stop its aerial spraying campaign of the pesticide malathion.[22] After Shafey refused to follow the suggestion of a state official that Shafey conform his scientific recommendations to official agency policy or leave,[23] the agency undertook an extensive audit of Shafey's travel records and, upon finding a possible $12.50 overcharge on a travel reimbursement claim and an allegedly inappropriate e-mail to the CDC, fired him.[24]

Myron Mehlman, Mobil Oil Corporation's former Director of Toxicology and Manager of its Environmental Health and Science Laboratory, gave a presentation in 1989 to corporate managers in Japan about the health effects of gasoline.[25] Upon learning during the presentation that gasoline sold by Mobil's Japanese subsidiary contained levels of benzene in excess of 5%, Mehlman warned the managers that the concentrations were too high and that the levels had to be reduced or the gasoline should not be sold.[26] Immediately upon his return to the United States, Mobil fired Mehlman, accusing him of misusing company personnel and supplies to promote his wife's scientific publishing business, and subsequently attempted "to orchestrate a

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17 *Id*. at 20, 25; Miriam Shuchman, *Secrecy in Science: The Flock Worker's Lung Investigation*, 129 ANNALS INTERNAL MED. 341, 341-42 (1998).

18 Kern, *supra* note 16, at 25, 29.

19 *Id*. at 25-26.

20 *Id*. at 27, 29; Joseph LaDou, *The Rise and Fall of Occupational Medicine in the United States*, 22 AM. J. PREVENTATIVE MED. 285, 292 (2002); Wade Roush, *Secrecy Dispute Pits Brown Researcher Against Company*, 276 SCIENCE 523, 523-24 (1997).

21 Jan Hollingsworth, *Warnings Cut from Malathion Report*, TAMPA TRIB., Jan. 17, 1999, at 1.

22 *Id*. Shafey, as head of the state's pesticide poisoning surveillance program, documented more than a hundred cases of illness associated with the state's 1998 malathion spraying campaign to eradicate the Mediterranean fruit fly. Jan Hollingsworth, *CDC Agrees Malathion Caused Illness*, TAMPA TRIB., Nov. 11, 1999, at 1.

23 Jan Hollingsworth, *Shafey Firing Raises Issue of Autonomy*, TAMPA TRIB., Apr. 5, 2000, at 1*; see also* Karen Charman, *Collateral Damage in the Pesticide Wars, at* http://www.tompaine.com/feature2.cfm/ID/4691 (Jan. 7, 2002). The Centers for Disease Control and Prevention official praised Shafey for his email. Hollingsworth, *supra*.

24 Jan Hollingsworth, *Health Office Fires Critic*, TAMPA TRIB., Mar. 18, 2000, at 1. Martin notes that the rhetoric of accountability, through audits or surveillance, is sometimes used to harass a scientist. *Suppressing Research Data*, *supra* note 13, at 355. MARTIN, *supra* note 12, at 30 (suggesting a "double standard test" to determine if the problematic scientist is being treated the same as other employees or instead discriminated against because of unwelcome research or recommendations).

25 Mehlman v. Mobil Oil Corp., 707 A.2d 1000, 1002-03 (N.J. 1998).

26 *Id*. at 1003.

smear campaign" against him.[27] Mehlman successfully sued Mobil under New Jersey's employee protection act and recovered $7 million in damages.[28]

Although they did not go so far as to dismiss the scientist, supervisors of James Zahn, a former researcher at the U.S. Department of Agriculture's Agricultural Research Service in Ames, Iowa, repeatedly prevented him from publishing or otherwise presenting his findings that air emissions from hog confinements contained antibiotic-resistant bacteria.[29] Zahn's supervisors took the action after a representative of pork producers questioned his scheduled appearance before a local board of health.[30]

Scientists for the U.S. Department of Interior report numerous instances of threats or demotions when their scientific opinions differ from the Agency's preferred position.[31] Similarly, a senior member of the Royal Society, the United Kingdom's premier scientific academy, allegedly threatened the editor of *The Lancet* that he would lose his editorial position if the journal published research questioning the safety of genetically modified foods.[32]

Lawsuits, or threats of lawsuits, are another form of harassment. For example, after Dr. Randolph Byers first suggested that some childhood learning problems might be caused by lead toxicity, the Lead Industries Association threatened to sue him for a million dollars.[33] Furthermore, a lawyer for cold fusion proponent Stanley Pons wrote a letter to University of Utah physicist Michael Salamon threatening legal action and demanding retraction of a study reported in *Nature* magazine that cast doubt on some of Pons' cold fusion claims.[34] Additionally, a retired director of epidemiology for Monsanto filed a $4 million defamation suit in 1991 against the Environmental Research Foundation, a small public interest science organization, after it published a story about a U.S. Environmental Protection Agency ("EPA") memo that raised questions about the epidemiologist's study of workers exposed to dioxin while manufacturing Agent Orange.[35] Also, a company proposing to build a

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27 *Id*. at 1003-04. The jury found that Mobil's purported grounds for Mehlman's termination were pretextual. *Id*. at 1005.

28 *Id*. at 1008, 1017. The jury awarded Mehlman over $2.56 million for his financial losses and $875,000 for emotional distress. *Id*. at 1008. In addition, the jury awarded $3.5 million in punitive damages based upon Mobil's attempted smear campaign and "as a necessary deterrent to prevent Mobil and other companies from silencing their employees when they object to the type of harmful, dangerous conduct by their employers claimed here." Mehlman v. Mobil Oil Corp., 676 A.2d 1143, 1162, 1164-65 (N.J. App. 1996). Mehlman described his efforts to restore his reputation and to battle against the smear campaign as "nine years of hell." Tony Cantu, *Whistleblower Says Win Over Mobil is Global Warning*, PRINCETON PACKET (Princeton, N.J.), Mar. 31, 1998, at 1A, *available at* http://www.pacpubserver.com/new/news/3-31-98/whistle.html.

29 Perry Beeman, *Ag Scientists Feel the Heat*, DES MOINES REGISTER, Dec. 1, 2002, at 1A.

30 *Id*.

31 *E.g.* PUBLIC EMPLOYEES FOR ENVIRONMENTAL RESPONSIBILITY, GRIZZLY SCIENCE: GRIZZLY BEAR BIOLOGY IN THE GREATER YELLOWSTONE 11-12, 16-19 (1997).

32 Laurie Flynn & Michael Sean Gillard, *Pro-GM Food Scientist "Threatened Editor,"* GUARDIAN (London), Nov. 1, 1999, at 1 (reporting threat against Dr. Richard Horton). The scientist accused of making the threat denied doing so. *Id*.

33 GERALD MARKOWITZ & DAVID ROSNER, DECEIT AND DENIAL: THE DEADLY POLITICS OF INDUSTRIAL POLLUTION 58-59 (2002); Herbert L. Needleman, *Salem Comes to the National Institutes of Health: Notes from Inside the Crucible of Scientific Integrity*, 90 PEDIATRICS 977, 977 (1992).

34 William Booth, *Utah Faculty Joins Cold Fusion Controversy*, WASH. POST, June 10, 1990, at A4; Robert Pool, *Cold Fusion Follies*, 250 SCIENCE 755 (1990). After a storm of protests from other scientists, the lawyer dropped the threat. Booth, *supra*.

35 *Bill Gaffey's Work*, RACHEL'S ENV'T & HEALTH NEWS, May 16, 1996, at 1, *available at* http://www.monitor.net/rachel/r494.html. A number of prominent newspapers, including the *Atlanta*

nuclear waste facility at Ward Valley, California, threatened to sue two members of the National Academy of Science who were commissioned by the U.S. Department of Interior to study the safety of the proposed facility.[36] When the federal government claimed that it could not indemnify the scientists against the lawsuit, the safety analysis stopped.[37]

A final set of examples involves public attacks on the personal character and conduct of the scientist. Dr. Melvin Reuber, a National Cancer Center research scientist, found his career destroyed and reputation ruined after someone leaked a private employment reprimand letter to chemical industry officials, which was then published in *Pesticide and Toxic Chemical News*.[38] The personnel action and reprimand letter, which a jury found contained false statements,[39] occurred after someone with the California Department of Food and Agriculture complained to Reuber's supervisors that his research on the potential carcinogenicity of the pesticide malathion was harming the state's agriculture industry.[40]

Former EPA scientist David Lewis alleges that EPA and sludge industry representatives retaliated against him for his research and publications challenging the safety of the land application of sewage sludge.[41] U.S. Department of Labor investigators agreed, finding that, in reaction to an article in *Nature* critical of EPA's sludge rule, agency officials applied ethics rules on the print size of publication

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Constitution and the *Austin (Tex.) American-Statesman*, also reported the allegations in the Environmental Protection Agency ("EPA") memo but were not sued, evidencing the selective nature of the harassment efforts. *Id.* On the eve of trial, the plaintiff died. *Id.*

36 Frank Clifford, *Lawsuit Threat Halts Dump Site Tests Environment*, L.A. TIMES, Nov. 22, 1996, at A3.

37 *Id.*; Peter Montague, *#552-Political Science*, RACHEL'S ENV'T & HEALTH NEWS, Nov. 28, 1996, at 1, *available at* http://www.monitor.net/rachel/r522.html*; see also Philippine Activists Sued for Libel*, 12 GLOBAL PESTICIDE CAMPAIGNER at 14 (2002), *available at* http://www.panna.org/resources/gpc/gpc_200208.12.2.dv.html (reporting on repeated libel lawsuits by pesticide manufacturers against Dr. Romy Quijano over his research on pesticide poisonings in the Philippines).

Critics also have used lawsuits, or the threat of lawsuits, to suppress the work of medical scientists. *See, e.g.*, Douglas M. Birch & Gary Cohn, *Standing Up to Industry As Corporations Increasingly Hold Their Purse Strings: Many Researchers Feel Pressured to Deliver Favorable Results*, BALT. SUN, June 26, 2001, at 1A (reporting on a $10 million demand by a drug manufacturer against university researchers who published results that the company's AIDS drug was ineffective); Robert Finn, *Landmark Case*, 10 SCIENTIST 15 (1996) (reporting on Immuno AG.'s libel suit based on a letter published in a medical journal that objected to the company's proposed experiments on chimpanzees); David J. Hess, *Suppression, Bias, and Selection in Science: The Case of Cancer Research*, 6 ACCOUNTABILITY IN RES. 245 (1999) (reporting on the suppression of research on the role of bacteria in cancer etiology); Drummond Rennie, *Thyroid Storm*, 277 JAMA 1238 (Apr. 16, 1997) (reporting on a pharmaceutical corporation's threats of legal action against a medical researcher and her university to prevent publication of research on the thyroid drug Synthroid); Miriam Shuchman, *Legal Issues Surrounding Privately Funded Research Cause Furor in Toronto*, 159 CAN. MED. ASS'N J. 983 (1998) (reporting on threats of a lawsuit by Apotex against a university researcher over her desire to inform clinical trial patients that an experimental iron chelator might put the patients at risk of early death).

38 Keith Schneider, *Hard Times*, AMICUS J., Fall 1982, at 22.

39 Reuber v. Food Chemical News, Inc., 925 F.2d 703, 707-08 (4th Cir. 1991) (holding that there was insufficient evidence to support the jury's verdict that an article containing one or more false statements about Reuber had been published with actual malice).

40 Schneider, *supra* note 38, at 29-30.

41 Letter from David L. Lewis, Research Microbiologist, to James Sensenbrenner, Chair, Judiciary Committee, U.S. House of Representatives (May 3, 2001) (on file with author); *Muting the Whistleblowers*, SARASOTA HERALD TRIB., Aug. 23, 2003, at A18*; see also* http://members.aol.com/lewisdavel/ (last visited July 1, 2004) (containing Dr. Lewis' explanation for his May 28, 2003 termination by EPA).

disclaimers in a discriminatory fashion and unlawfully denied Lewis his promotion.[42] Other efforts to suppress Lewis's work included sludge industry representative attempts to have EPA withdraw financial support for Lewis's research, an EPA official's public distribution of sludge industry materials attacking Lewis's credibility, and an EPA official's solicitation of industry help in writing a negative internal peer review of Lewis's research.[43]

In addition, a lead industry trade group hired dozens of scientists in an attempt to discredit the work of Herbert Needleman, a Harvard University scientist, whose research indicated that even low levels of exposure to lead could negatively impact a young child's intelligence and behavior.[44] Years after an EPA committee of experts examined Dr. Needleman's work and rejected lead industry complaints that he had committed scientific misconduct, two scientists, represented by a law firm that previously represented lead companies and acting on "suspicions," filed renewed scientific misconduct charges against Needleman.[45] He was again cleared of all misconduct charges but spent more than fifteen years and thousands of dollars, not to mention thousands of hours that would otherwise have been spent on further research on lead's toxicity, defending his work and character against unsupported scientific misconduct charges.[46]

Further, a campaign allegedly orchestrated by a public relations company that worked for Monsanto attacked the character of researchers David Quist and Ignacio Chapela of the University of California at Berkeley. In 2001, Quist and Chapela published a study indicating that traces of DNA from bio-engineered corn had spread to native Mexican maize and, more controversially, that the foreign genes seemed to have become re-assorted and introduced into different genomic backgrounds.[47] Immediately upon publication, critics of the study mounted a series of Internet-based attacks, some false, against the researchers' motivations and credibility.[48] It turned out that many of the Internet postings were made using fictitious names from computers belonging to a public relations firm specializing in "Internet advocacy" that represents Monsanto, a leading manufacturer of genetically modified crops.[49] Chapela, who also was personally intimidated and threatened by

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42 Caroline Snyder, *EPA Wants Scientist Out for Publishing Papers Critical of Sludge Rule*, INSIDE THE FISHBOWL, July 2002 (Chapter 280 of the National Treasure Employees Union, Washington, D.C.), *available at* http://www.nteu280.org/fishbowl/julyfishbowl.htm.

43 *Id.*; Lee Shearer, *Whistleblower Bows Out at EPA*, ATHENS BANNER-HERALD (Athens, Ga.), May 28, 2003, at A3*; see also* Bonner R. Cohen, *EPA Flayed Over Sludge Policy, Bullying of Citizens*, ENV'T NEWS, May 1, 2000, *available at* http://www.heartland.org/article.cfm?artId=9784.

44 DEVRA DAVIS, WHEN SMOKE RAN LIKE WATER 126-27 (2002).

45 Stephen Burd, *Scientists See Big Business on the Offensive: Researchers Say Industry Uses Federal Rules on Misconduct to Attack Findings It Doesn't Like*, CHRON. HIGHER EDUC., Dec. 14, 1994, at A26; Needleman, *supra* note 33, at 979-80. *But see* Claire B. Ernhart et al., *On Being a Whistleblower: The Needleman Case*, 3 ETHICS & BEHAV. 73 (1993) (defending the allegations made against Needleman).

46 Burd, *supra* note 45, at A27; Needleman, *supra* note 33, at 980. Needleman argues that his experience "shows that the federal investigative process can be rather easily exploited by commercial interests to cloud the regulatory consensus about a toxicant's dangers, can slow the regulatory pace, can damage an investigator's credibility, and can keep him tied up almost to the exclusion of any scientific output for long stretches of time, while defending himself." *Id.*

47 David Quist & Ignacio H. Chapela, *Transgenic DNA Introgressed into Traditional Maize Landraces in Oaxaca, Mexico*, 414 NATURE 541 (2001).

48 NOW WITH BILL MOYERS, SEEDS OF CONFLICT: NATURE ARTICLE DEBATE, *at* http:// www.pbs.org/now/science/ genenature.html (Oct. 4, 2002).

49 *Id.*; Peter Aldhous, *More Heat Than Light*, 420 NATURE 730 (Dec. 19/26, 2002); Jonathan Matthews, *Amaizing Disgrace*, ECOLOGIST, May 2002, at 30; George Monbiot, *Corporate Phantoms*,

fellow scientists and Mexican officials over his research, feels he can no longer work on the issue of transgenic corn because of the discreditation campaign.[50]

A number of surveys have examined the scope of suppression of science. A 1991 survey of university-industry research centers found that universities had weakened their long-held commitment to the free flow of information and to full public disclosure of their research findings in order to obtain industry funding.[51] More than 40% of survey respondents reported that sharing information with the public is at times restricted; 35% reported that companies participating in university research can require that information be deleted from research papers prior to submission for publication; and more than half indicated that participating companies can delay the publication of research findings.[52]

A 1993 survey of university life sciences faculty likewise found that 20% admitted to withholding research results for more than six months at least once in the previous three years.[53] Of that 20%, 28% delayed publication to slow the dissemination of undesired results and even greater numbers delayed to protect the proprietary or other financial value of the results.[54] Nine percent of life science faculty reported refusing to share research results or materials with other university scientists in the previous three years, and 34% indicated that they had been denied research produced by other university scientists.[55] After examining the context in which research was performed, the authors concluded that their findings confirmed the widespread impression that involvement with commercialization or participation in an academic-industry research relationship are significantly associated with the tendency of faculty to withhold research results.[56]

A 1994 study of life sciences companies engaged in the fields of agriculture, chemicals, and pharmaceuticals confirmed this practice of withholding research

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GUARDIAN (London), May 29, 2002, at 17; Kara Platoni, *Kernels of Truth*, EAST BAY EXPRESS (Cal.), May 29, 2002, *available at* http://www.eastbayexpress.com/issues/2002-05-29/feature.html.

50 Justin Berton et al., *What Ever Happened To . . .: Another Look at Stories That Appeared in the Express in 2002*, EAST BAY EXPRESS (Cal.), Dec. 25, 2002, *available at* http://www.eastbayexpress.com/issues/2002-12-25/news8.html/1/index.html; Marc Kaufman, *Battlelines Drawn in Mexico Over Genetically Modified Corn*, GUARDIAN WKLY. (London), Apr. 4, 2002, at 33, *available at* http://education.guardian.co.uk/higher/biologicalscience/story/0,9834,678935,00.html; *see also* Edward Groth, III, *The Debate Over Food Biotechnology in the United States: Is a Societal Consensus Achievable?*, 7 SCI. & ENGINEERING ETHICS 327 (2001) (detailing the "vituperative ad hominem attacks" by proponents of water fluoridation, nuclear power, and pesticides against leading opponents of those technologies); David Helvarg, *The Greenhouse Spin*, NATION, Nov. 16, 1996, at 21 (reporting on efforts to undermine the Intergovernmental Panel on Climate Change's 1995 report on global climate change by alleging misconduct by the chief scientists who prepared the report).

51 WESLEY COHEN ET AL., UNIVERSITY-INDUSTRY RESEARCH CENTERS IN THE UNITED STATES (1994). The centers conduct research and development in basic science, applied science, and engineering. *Id.* at 13-14.

52 *Id.* at 27. The survey did not indicate what kinds of information companies can ask to have deleted. *Id.*

53 David Blumenthal et al., *Withholding Research Results in Academic Life Science*, 277 JAMA 1224, 1226 (Apr. 16, 1997). The National Institutes of Health generally considers a thirty to sixty-day research delay to be reasonably necessary for commercialization purposes. Developing Sponsored Research Agreements: Considerations for Recipients of NIH Research Grants and Contracts, 59 Fed. Reg. 55,673, 55,676 (Nov. 8, 1994).

54 Blumenthal et al., *supra* note 53, at 1226. Forty-six percent reported delaying publication for more than six months to allow time for patent application; 33% reported delaying to protect the proprietary value of the research by means other than patent application. *Id.*

55 *Id.*

56 *Id.* at 1227.

data.[57] Fifty-six percent stated that the research they support in universities often or sometimes results in keeping information confidential to protect its proprietary value beyond the time required to file a patent.[58] The authors of the study expressed concern that the information withheld by these companies may involve findings of interest to academic colleagues, including information useful in repeating and confirming research results.[59]

A 1999 survey of British specialists in science, engineering, and technology found that 30% had been asked to tailor their research conclusions or resulting advice to suit the customer's preferred outcome, to obtain future contracts, or to discourage publication.[60] Results from a survey of attendees at the annual conference of the ISEE revealed that 50% of those who completed the questionnaire had experienced harassment following publication of research on health risks from environmental exposures.[61]

In addition to delays or suppression of certain information, surveys indicate that many environmental scientists are reluctant to engage in certain research, or speak out on certain issues of environmental science, for fear of retribution. More than half of Australian environmental scientists employed as university researchers felt that scientists jeopardize their careers by speaking out on environmental issues;[62] over one-third knew scientists who had been disadvantaged because of their views on environmental issues.[63] An indication of the level of concern these scientists had for their careers if they disseminated unwelcome scientific information was the finding that, while over half had provided scientific information to politically-active environmental organizations, 16% acted exclusively in an anonymous capacity and an additional 43% acted anonymously at times.[64]

A study of Cornell University agricultural and nutrition-science faculty and extension educators found that although almost half had environmental or public health reservations about genetically-engineered foods and crops, educators with such concerns were less comfortable in expressing their views with colleagues and other constituents than those with pro-genetically engineered food opinions.[65] The authors suggest that those with a precautionary viewpoint toward genetically engineered foods may not feel free to express their views openly, particularly where they are seeking tenure or reappointment, out of concern over antagonizing agribusiness interests within the university.[66]

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57 David Blumenthal et al., *Relationships Between Academic Institutions and Industry in the Life Sciences An Industry Survey*, 334 NEW ENG. J. MED. 368 (1996).

58 *Id*. at 371.

59 *Id*. at 372.

60 *One in Three Asked to Tailor Research Findings*, IPMS BULL., Feb. 2000, at 8*; see also* Liz Lightfoot, *Scientists "Asked to Fix Results for Backer,"* DAILY TELEGRAPH (London), Feb. 14, 2000, at 9.

61 Richter et al., *supra* note 3, at 70 (reporting the responses of ten individuals who completed the questionnaire at the 1999 Annual Conference of the International Society of Environmental Epidemiologists).

62 Susan Wilson & Ian Barnes, *Scientists' Participation in Environmental Policy*, 26 SEARCH 270, 273 (Oct. 1995).

63 *Id*.

64 *Id*. at 271.

65 Jennifer L. Wilkins et al., *Moving from Debate to Dialogue About Genetically Engineered Foods and Crops: Insights from a Land Grant University*, 18 J. SUSTAINABLE AGRIC. 167, 185, 194 (2001).

66 *Id*. at 196; *see also* Karen Charman, *Spinning Science into Gold*, SIERRA MAG., July/Aug. 2001, at 40 (reporting on the backlash against academics who openly criticize biotechnology).

Because researchers often are reluctant to publicize their cases of suppression or stand up to employers or financial sponsors of research, there is no way of knowing how many studies have been delayed, suppressed, or altered due to outside influences on environmental research.[67] Martin argues it is reasonable to infer that the publicized cases of suppression are but a small fraction of the number of times third parties try to suppress environmental science.[68] Every researcher that has looked at the phenomenon has concluded that efforts to suppress environmental science are significant and increasing,[69] with one university researcher opining there was more pressure on environmental research from external sources than he had seen in thirty-eight years at the university.[70]

Even if the number of publicized efforts to interfere in environmental research is limited, the effects may not be. Efforts to suppress an environmental scientist's work not only impact the person directly attacked but also others who, upon learning of the attack, are dissuaded from pursuing certain lines of inquiry or publishing certain results.[71] This self-censorship, often hard to document, may be the greatest source of suppression.

III. LAWS RELATING TO SUPPRESSION OF ENVIRONMENTAL SCIENCE

The examples of suppression set out above suggest three areas of the law that may impact the scientific freedom of environmental scientists: defamation; scientific misconduct rules; and protection of employee speech.

A. DEFAMATION: SUPPRESSION'S SWORD OR SHIELD?

Special interests and scientists have repeatedly invoked the law of defamation, and even product disparagement, as means of both suppressing and protecting scientific speech. Efforts to use the law of defamation to suppress scientific speech are unlikely to succeed in court, given the protection afforded by the First Amendment to speech of public concern. Those same First Amendment protections

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67 Katherine S. Mangan, *Drug Company Seeks $10-Million from Scientist and University*, CHRON. HIGHER EDUC., Nov. 17, 2000, at A48 (reporting observation of Marcia Angell, former editor of the *New England Journal of Medicine*).

68 Martin, *supra* note 4, at 33; *see also* Howard M. Bahr, *Violations of Academic Freedom: Official Statistics and Personal Reports*, 14 SOC. PROBS. 310, 319 (1967) ("There are approximately one hundred personally perceived violations of academic freedom for every officially reported violation.").

69 *See, e.g.*, SAMUEL S. EPSTEIN, POLITICS OF CANCER 300, 308 (1979) (characterizing industry suppression and destruction of data by scientists on the dangers of cancer from exposure to pollution as "commonplace" and "legion"); Frederick R. Anderson, *Science Advocacy and Scientific Due Process*, 16 ISSUES SCI. & TECH. 71, 74 (Summer 2000) ("Well-organized campaigns against certain types of research and the researchers who conduct them do appear to be on the rise. . . ."); *Critics of Pesticides*, *supra* note 13, at 46 (arguing that "suppression is much more common than generally realised"); Richard A. Deyo et al., *The Messenger Under Attack–Intimidation of Researchers by Special-Interest Groups*, 336 NEW ENG. J. MED. 1176, 1176 (1997) (arguing that increased financial and public interest in health hazards invite more frequent and acrimonious attacks on health research); Richter et al., *supra* note 3, at 68 (characterizing pressure on environmental scientists to discourage a particular line of research or publication of unwelcome research findings as "increasingly common").

70 Beeman, *supra* note 29 (reporting the opinion of economist Neil Harl of Iowa State University).

71 Martin, *supra* note 4, at 47.

also make it difficult for a scientist to use the law against suppression efforts that defame the scientist.

To establish a case for defamation, a plaintiff must prove that the defendant made a false statement concerning the plaintiff to a third person that "tends so to harm the reputation of another as to lower him in the estimation of the community or to deter third persons from associating or dealing with him."[72] Businesses, like individuals, can be defamed if the false statement injures the business character of the corporation or its prestige and standing in the industry.[73]

In the case of defamation and other actions alleging injury from the written or spoken statements of environmental scientists, a number of First Amendment doctrines provide protection against such suits.[74] First, where the person allegedly defamed is a "public official" or "public figure," the plaintiff must show by clear and convincing proof that the defendant made the statement with actual malice.[75] A person can be a public figure where she has achieved such pervasive fame or notoriety that she is a public figure for all purposes and contexts,[76] or where she voluntarily assumes a central role in a particular public controversy and becomes a public figure for that limited issue.[77]

In *Gertz v. Robert Welch, Inc.*, the Court defined limited public figures as those who "have thrust themselves to the forefront of particular public controversies in order to influence the resolution of the issues involved."[78] Thus, limited public figures voluntarily inject themselves into a particular public issue in hopes of

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72 RESTATEMENT (SECOND) OF TORTS § 559 (1977); *see also* RODNEY A. SMOLLA, LAW OF DEFAMATION § 1:8 (2d ed. 2003). For product disparagement, or trade libel, a plaintiff must prove that the defendant published a knowingly false statement harmful to the interests of another and intended the publication to harm the plaintiff's pecuniary interest. RESTATEMENT (SECOND) OF TORTS § 526.

73 PROSSER AND KEETON ON THE LAW OF TORTS 779 (W. Page Keeton et al. eds., 5th ed. 1984) [hereinafter PROSSER AND KEETON]; SMOLLA, *supra* note 72, § 4:75; *see also* Vincent Brannigan & Bruce Ensor, *Did Bose Speak Too Softly?: Product Critiques and the First Amendment*, 14 HOFSTRA L. REV. 571, 573 (1986).

74 First Amendment rules apply to claims of damage from false speech even if the plaintiff's claim is cast as product disparagement or some other tort. *See, e.g.*, Bose Corp. v. Consumers Union of United States, Inc., 466 U.S. 485, 513 (1984) (accepting the application of the *New York Times v. Sullivan* actual malice standard to cases involving product disparagement); Auvil v. CBS "60 Minutes," 67 F.3d 816, 820 (9th Cir. 1995) (relying on defamation cases to determine a claim of product disparagement because "as a tort whose actionability depends on the existence of disparaging speech, the tort is substantially similar to defamation"); Blatty v. N.Y. Times Co., 728 P.2d 1177, 1182 (Cal. 1986) (holding that First Amendment protection applies to all claims whose gravamen is the injurious falsehood of a statement).

75 Public officials include "those among the hierarchy of government employees who have, or appear to the public to have, substantial responsibility for or control over the conduct of governmental affairs." Rosenblatt v. Baer, 383 U.S. 75, 85 (1966). "The employee's position must be one which would invite public scrutiny and discussion of the person holding it, entirely apart from the scrutiny and discussion occasioned by the particular charges in controversy." *Id*. at 86 n.13. "In close cases, courts have begun to emphasize the degree of policy-making authority wielded by the plaintiff in his or her official position, as well as the plaintiff's level of access to the media, as factors to be weighed in making the public official determination." SMOLLA, *supra* note 72, § 2:108.

76 Gertz v. Robert Welch, Inc., 418 U.S. 323, 351 (1974).

77 *Id*. The Court has stated that the media cannot "bootstrap" a person into a public figure by pointing to media coverage by the defendant of the plaintiff as evidence that the plaintiff is a public figure. Hutchinson v. Proxmire, 443 U.S. 111, 135 (1979). The public controversy that gives rise to public figure status must preexist the statement that gives rise to the defamation suit, not be created by the media itself. SMOLLA, *supra* note 72, § 2:25.

78 *Gertz*, 418 U.S. at 345.

affecting the debate.[79] Scientists may become limited public figures if they testify before regulatory agencies or serve as expert witnesses on the subject at issue,[80] voluntarily participate in media coverage of the issue,[81] or publish an opinion piece for a newspaper on a controversial issue.[82]

Two cases illustrate the distinction between a private figure and limited public figure scientist. In *Hutchinson v. Proxmire*, a scientist sued a U.S. Senator for defamation after the Senator used the scientist's publicly-funded research as an example of what the Senator perceived to be wasteful government spending.[83] The Court found that, because the scientist had simply received federal research grants and published his research results in scholarly journals that only reach a small category of professionals, he had not invited the kind of attention and comment that merits limited public figure status.[84]

In contrast, the court in *Reuber v. Food Chemical News, Inc.* found that the environmental scientist was a limited public figure and could only recover for the publication of false information about his conduct and character upon a showing of actual malice, because, in part, the scientist willingly shared a manuscript of his research with an environmental group and an attorney for a California county.[85] Regrettably, this case suggests that where an environmental scientist is aware of a controversy and knowingly supplies her research results to interested parties, as

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79 The U.S. Fourth Circuit Court of Appeals uses a five-part test to determine limited purpose public figure status: 1) plaintiff had access to channels of effective communication; 2) plaintiff voluntarily assumed a role of special prominence in a public controversy; 3) plaintiff sought to influence the resolution or outcome of the controversy; 4) the controversy existed prior to publication of the defamatory statements; and 5) plaintiff retained public figure status at the time of the alleged defamation. Fitzgerald v. Penthouse Int'l, Ltd., 691 F.2d 666, 668 (4th Cir. 1982).

80 *See, e.g.*, McBride v. Merrell Dow & Pharmaceuticals, Inc., 800 F.2d 1208, 1211 (D.C. Cir. 1986). *But see* Wolston v. Reader's Digest Ass'n, Inc., 443 U.S. 157, 166-69 (1979) (holding that dragging a person unwillingly into a controversy, by requiring them to testify at a proceeding or charging them with a crime, does not make the person a limited public figure); Franklin v. Benevolent & Protective Order of Elks, 159 Cal. Rptr. 131, 137-41 (Cal. Ct. App. 1979) (holding that teacher was not a limited public figure in a controversy inspired by her choice of a textbook where she spoke at a public hearing and otherwise participated only to the extent required by school regulations or made necessary by inquires of the media).

81 *See, e.g.*, Reuber v. Food Chem. News, Inc., 925 F.2d 703, 708 (4th Cir. 1991); Renner v. Donsbach, 749 F. Supp. 987, 991 (W.D. Mo. 1990); Park v. Capital Cities Communications, Inc., 585 N.Y.S.2d 902, 905 (N.Y. App. Div. 1992).

82 *See, e.g.*, Faltas v. State Newspaper, 928 F. Supp. 637, 645 (D.S.C. 1996), *aff'd.*, 155 F.3d 557 (4th Cir. 1998). *But see* Madsen v. Buie, 454 So. 2d 727, 730 (Fla. Dist. Ct. App. 1984) (holding that a single published letter to a newspaper did not make a university professor of psychology a limited public figure).

83 Hutchinson v. Proxmire, 443 U.S. 111 (1979).

84 *Id.* at 134-35. "Neither his applications for federal grants nor his publications in professional journals can be said to have invited that degree of public attention and comment on his receipt of federal grants essential to meet the public figure level." *Id.* at 135. Thus, publication of scientific research in journals, without more, should not make a scientist a limited public figure. *See* Greenberg v. CBS, Inc., 419 N.Y.S.2d 988, 993-94 (N.Y. App. Div. 1979) (noting that a scientist's journal articles were intended for a scholarly audience, not for a mass market).

The Court did not address whether the professor was a "public official" but did note that the category "cannot be though to include all public employees." *Hutchinson,* 443 U.S. at 119 n.8; *see* Staheli v. Smith, 548 So.2d 1299, 1304 (Miss. 1989) (holding that public university professor involved in geology research and grants was not in that class of higher level, decision-making public employees that are deemed public officials); *see generally* Brian Markovitz, Note, *Public School Teachers as Plaintiffs in Defamation Suits: Do They Deserve Actual Malice?*, 88 GEO. L.J. 1953, 1981-83 (2000) (noting the split in state courts on whether public school teachers are public officials but arguing that it is inappropriate to treat public school teachers as public officials).

85 *Reuber*, 925 F.2d at 709-10.

opposed to having a third party find the results on its own in a scholarly journal, the scientist could be deemed a public figure in any later defamation action by the scientist against persons or publications that made false statements against the scientist. Public figure status may come simply by supplying research upon request to a public interest organization or government entity involved in a dispute.

If scientists can so easily be deemed to have thrust themselves to the forefront of particular public controversies in order to influence the resolution, then limited public purpose status would also be appropriate for a business or special interest group seeking to convince the public of the safety or minimal environmental impacts of its products or activities. Indeed, many attacks on scientists are for the very purpose of influencing, or in many cases limiting, public debate on environmental controversies. Thus, environmental scientists can take some comfort that, in most instances, a business suing an environmental scientist for allegedly defamatory research would be deemed a limited public figure and have to prove actual malice by the scientist in making the allegedly defamatory statement.[86]

If the individual or business seeking to sue the environmental scientist is a public figure, the requirement to prove by clear and convincing evidence that the allegedly defamatory statement was made with actual malice is difficult. Actual malice requires proof that the statement was made with knowledge that it was false or with reckless disregard to whether it was false or not.[87] Reckless disregard means that the speaker made the statement with a high degree of awareness of its probable falsity or entertained serious doubts as to its truth.[88] Inaccuracies or errors are considered inevitable in debates and do not demonstrate malice.[89] It is also not enough to show that the defendant acted with spite, hatred, ill will, or intent to injure the plaintiff, or even that the statement was made to increase the speaker's profits.[90] Mere denials, however vehement, do not constitute clear and convincing proof of actual malice since denials are so common in heated debates that they do not sufficiently alert the speaker to the likelihood of error.[91] In essence, if a person or business sought to sue an environmental scientist over his or her research statements, the plaintiff would have to prove some intentional research misconduct, not simply research error or carelessness.

Even if the person or business allegedly defamed is not a public figure, where the issue involved in the defamatory statement is of "public concern," the plaintiff must show proof of fault by the defendant.[92] Whether a statement addresses a matter

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86 *See generally* Bruno & Stillman, Inc. v. Globe Newspaper Co., 633 F.2d 583, 590-91 (1st Cir. 1980) (using a three-part test to determine if a corporation is a limited purpose public figure: 1) whether the controversy giving rise to the defamation was a public, or merely private, matter; 2) whether the controversy pre-existed the defamatory statements at issue; and 3) the nature and extent of the plaintiff's participation in the controversy). When a corporation sues in defamation, a majority of courts apply the same public-private figure and public concern standards to determine the burden of proof to place on the business. *See* SMOLLA, *supra* note 72, §§ 2:96, 2:98.

87 N.Y. Times Co. v. Sullivan, 376 U.S. 254, 279-80 (1964).

88 Harte-Hanks Communications, Inc. v. Connaughton, 491 U.S. 657, 667 (1989).

89 Bose Corp. v. Consumers Union of United States, Inc., 466 U.S. 485, 513 (1984).

90 *Harte-Hanks Communications, Inc.*, 491 U.S. at 666-67; Old Dominion Branch No. 496, Nat'l Ass'n of Letter Carriers v. Austin, 418 U.S. 264, 281 (1974).

91 Edwards v. Nat'l Audubon Soc'y, 556 F.2d 113, 120-21 (2d Cir. 1977).

92 Philadelphia Newspapers, Inc. v. Hepps, 475 U.S. 767, 777 (1986). State fault standards include negligence, actual malice, and gross negligence, although the vast majority of states have adopted the negligence standard in defamation actions brought by private figure plaintiffs. SMOLLA, *supra* note 72, §§ 3:28, 3:30.

of public concern is determined by the statement's content, form, and context.[93] This includes not only the number of persons affected by the subject of the allegedly defamatory statement but also the severity of the impact on those persons affected.[94] Given the public's interest in issues of environmental science and the likely broad dissemination of the statement, as well as the likely impact of the statement on public health or the environment, an environmental scientist's research and opinions about issues of environmental science are likely to be considered statements of public concern and given enhanced First Amendment protection.[95]

As a matter of public concern, the statement must be provable as false before there can be liability under defamation law.[96] Mere statements of opinion or those not shown to be false are not actionable. However, where a statement of "opinion" implies a false assertion of fact that is capable of being proven true or false, it loses its First Amendment protection.[97] Statements that are hyperbolic or exaggerated often are not taken reasonably to imply false facts.[98]

Decisions in lawsuits against environmental scientists or against publishers for reporting the results of environmental research demonstrate the remoteness of proving research statements false, much less showing, in cases where the plaintiff is a public figure, that any provable false statements were made with actual malice. For example, in a lawsuit by apple growers against CBS television for broadcasting a news program on the carcinogenic risks of the pesticide Alar on children, the court required the plaintiffs to provide affirmative evidence that the pesticide does not pose a risk to children.[99] Because of the absence of specific studies on cancer risks to children from Alar and the difficulty of disproving a risk, plaintiffs were unable to show that statements made during the broadcast were false.[100]

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93 Dun & Bradstreet, Inc. v. Greenmoss Builders, Inc., 472 U.S. 749, 761 (1985).

94 *See id*. at 762 (focusing on whether or not the statement was solely in the interest of the speaker and on the scope of the dissemination of the statement); Farnsworth v. Tribune Co., 253 N.E.2d 408, 411 (Ill. 1969).

95 In *Reuber*, the court characterized the debate over the carcinogenic hazards of pesticide spraying as a "controversy of immense public concern," observing that the implications of scientific research are more far reaching today than ever before and noting the enhanced importance of the public's understanding of a scientist's credentials and conclusions. Reuber v. Food Chemical News, 925 F.2d 703, 718, 720 (4th Cir. 1991).

96 Milkovich v. Lorain Journal Co., 497 U.S. 1, 19 (1990).

97 *Id*. at 20 (holding "a statement of opinion relating to matters of public concern which does not contain a provably false factual connotation will receive full constitutional protection"); *In re* Palmisano, 70 F.3d 483, 487 (7th Cir. 1995) ("Even a statement cast in the form of an opinion ('I think that Judge X is dishonest') implies a factual basis, and the lack of support for that implied factual assertion may be a proper basis for a penalty.").

98 *See, e.g.*, Peter Scalamandre & Sons, Inc. v. Kaufman, 113 F.3d 556, 562 (5th Cir. 1997) ("His figurative reference to 'poison' is hyperbolic, but exaggeration does not equal defamation.").

To be defamatory, the statement also must be "of or concerning" the plaintiff. Rosenblatt v. Baer, 383 U.S. 75, 81 (1966); SMOLLA, *supra* note 72, § 4:39. Where a scientist's research pertains to a group or class and is not reasonably susceptible of application to any given persons, a claim for defamation is not actionable. *See, e.g.*, Texas Beef Group v. Winfrey, 11 F. Supp. 2d 858, 863-64 (N.D. Tex. 1998) (holding that cattlemen plaintiffs had failed to show that statements about risks of "Mad Cow Disease" were "of and concerning" them), *aff'd on other grounds*, 201 F.3d 680 (5th Cir. 2000); Gintert v. Howard Publ'ns, Inc. 565 F. Supp. 829, 833 (N.D. Ind. 1983) (holding that statements about environmental and public health conditions in a community were not reasonably susceptible of application to any given individual); Nat'l Nutritional Foods Ass'n v. Whelan, 492 F. Supp. 374, 380-81 (S.D.N.Y. 1980) (holding that statements in book and article critical of the health food industry were not actionable by individuals in that industry).

99 Auvil v. CBS "60 Minutes," 67 F.3d 816, 821 (9th Cir. 1995).

100 *Id*. at 821-22.

Similarly, in *Immuno AG. v. Moor-Jankowski*, a company sued the editor of a scientific journal for publishing an allegedly false letter to the editor.[101] The letter criticized a company's plan to conduct hepatitis research using wild chimpanzees over concerns that, because there was no scientific method to determine if the animals carried hepatitis, subsequent release of the chimpanzees might endanger wild populations.[102] In holding that the plaintiff failed to show the falsity of factual assertions in the letter, the court noted that the plaintiff had failed to prove the existence of a scientific test that could "conclusively" determine the carrier state in chimpanzees or "definitely" rule out that a veteran chimpanzee was not a carrier.[103]

Many environmental science disputes are reducible to differences of opinion on the appropriate methodology, degree of uncertainty or likelihood of uncertain outcomes or causation, or involve scientific hypotheses or allegations of risk that cannot be proved or disproved. In addition, it is the nature of scientists to state their conclusions cautiously by characterizing their results as hypotheses and choosing words that suggest the tentative nature of the findings and conclusions.[104] Therefore, where an environmental scientist's research concerns an unresolved scientific issue or methodology or is expressed in cautionary fashion, proving false facts would be difficult.

The *Reuber* case, where the court of appeals reversed a jury verdict in favor of the allegedly defamed scientist, suggests that proving actual malice also would be difficult.[105] The court found that the publisher's decision not to inquire whether inconsistent statements in a government personnel letter were true or false and the publisher's admission that it would have published the allegedly defamatory statement even if it knew that some or all of it was false did not prove malice.[106] The court explained that it was "reject[ing] the attempt to silence one's adversaries in a public controversy by suing organizations attempting to inform the public about questions raised as to the research [of an environmental scientist]."[107]

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101 Immuno AG. v. Moor-Jankowski, 567 N.E.2d 1270 (N.Y. 1991).

102 *Id*. at 1275.

103 *Compare id*. at 1276, *with* Texas Beef Group v. Winfrey, 201 F.3d 680, 688 (holding that statements on the *Oprah Winfrey Show* depicting American beef as unsafe from "Mad Cow Disease" were not actionable as product or business disparagement because they did not contain a provably false factual connotation).

104 *See* Baker v. L.A. Herald Examiner, 721 P.2d 87, 90-91 (Cal. 1986) ("Where the language of the statement is 'cautiously phrased in terms of apparency,' the statement is less likely to be reasonably understood as a statement of fact rather than opinion."); Dong v. Bd. of Trs. Leland Stanford Junior Univ., 236 Cal. Rptr. 912, 920 (Cal. Ct. App. 1987) (holding that where the underlying facts supporting a belief are disclosed, courts have found such statements not to be actionable in defamation).

105 Reuber v, Food Chemical News, Inc., 925 F.2d 703, 714 (1991).

106 *Id*. at 716-17. The court noted that the fair report privilege, which shields news organizations from defamation claims when publishing information originally based on government reports or actions, "makes it more difficult for a reviewing court to conclude that a news report on government functions was published in reckless disregard of the truth." *Id*. at 714; *see also* SMOLLA, *supra* note 72, § 4:100 (noting the increased acceptance of a "neutral reportage privilege" that protects the reporting of serious charges against a public figure or public official).

107 *Reuber*, 925 F.2d at 718. The *Immuno AG*. and *Reuber* cases support Professor Diane Zimmerman's argument that scientific speech should be afforded the same claim to constitutional protection as a daily newspaper:

> Newspapers are protected not simply because they report about government, but because their entire range of reportage provides citizens with the tools necessary to inform their personal as well as their political views and decisions. This instrumental justification is equally applicable to scientific information. As the experience of the past half century shows, scientific information is profoundly

While the likelihood of success in a defamation lawsuit based on scientific speech seems remote, the "threat of being put to the defense of a lawsuit . . . may be as chilling to the exercise of First Amendment freedoms as fear of the outcome of the lawsuit itself."[108] Any lawsuit that an environmental scientist must defend extracts a heavy toll in time and expenses. In the *Immuno AG.* case, although the editor of the *Journal of Medical Primatology* was ultimately vindicated by a unanimous court, the seven-year litigation cost $2 million in legal expenses, including $70,000 the editor had to pay out of his own pocket because his insurance company would not pay for certain necessary depositions.[109] The other defendants in the case, which included the person who wrote the letter to the editor, the *New Scientist* journal, and New York University, settled rather than endure the time and expense of a trial.[110]

The threat of litigation, even where the likelihood of success by the plaintiff is doubtful, can even dissuade editors or publishing companies from publishing scientific research. When Dr. Stanton Glantz and four associates wrote a book analyzing secret tobacco industry documents on the health effects of smoking, publisher after publisher turned down the opportunity to publish the book.[111] As one publisher explained:

> At serious big-league law firms, the consensus was that, although we could probably ultimately show that we have a right to publish, financially we'd be out of business before we had a chance to show anybody anything. If you anger a tobacco company and get into what amounts to a financial war with it—where the issue is who can afford better attorneys for longer—you're going to lose.[112]

The court in *Immuno AG.* observed that the chilling effect of threatened litigation "can be especially severe for scholarly journals, such as defendants, whose editors will likely have more than a passing familiarity with the subject matter of the specialized materials they publish."[113] Professor Michael Curtis warns that "[t]he current pesticide dialogue is seriously distorted by threats of defamation actions which are insufficiently deterred by existing legal rules [on defamation]."[114] He argues that a scientist who believes that the safety of pesticides is little cause for concern is comparatively safe in making unequivocal and bland assurances of safety, while scientists who think pesticides in food expose the public to unreasonable risks must express themselves in a much more guarded fashion or face the possibility of

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> important to members of the larger society. Even a piece of "technical" information accessible only to a specialized audience of physicists or chemists or microbiologists may nevertheless be a matter of public concern precisely because its applications have real consequences for the national community, requiring informed social choices.

Diane Leenheer Zimmerman, *Scientific Speech in the 1990s*, 2 N.Y.U. ENVTL. L.J. 254, 263 (1993).

108 Karaduman v. Newsday, Inc., 416 N.E.2d 557, 563 (N.Y. 1980).

109 DEBORAH BLUM, THE MONKEY WARS 173-74 (1994).

110 *Id.* at 173. For example, the insurance company for the author of the letter settled the case over her objections and without a retraction of the statements made in the letter for $100,000, having spent $250,000 defending against the lawsuit. ANTHONY LEWIS, MAKE NO LAW: THE SULLIVAN CASE AND THE FIRST AMENDMENT 212 (1991).

111 Jon Wiener, *The Cigarette Papers*, NATION, Jan. 1, 1996, at 11, 14.

112 *Id.*

113 *Immuno AG.*, 567 N.E.2d at 1282.

114 Michael Kent Curtis, *Monkey Trials: Science, Defamation, and the Suppression of Dissent*, 4 WM. & MARY BILL RTS. J. 507, 537 (1995).

immediate legal action.[115] As discussed in Part IV, to ensure an open, fair debate on issues of environmental science in which both sides feel equally free to express their scientific positions, steps must be taken to minimize the ability of lawsuits and threats of lawsuits to suppress environmental science.

B. MISUSE OF SCIENTIFIC MISCONDUCT CHARGES

Misconduct in scientific research is a source of increasing attention and regulation. Spurred by Congressional concerns,[116] over the past decade federal agencies have developed extensive regulations that both define misconduct in federal research and set forth processes for responding to misconduct allegations and punishing those found guilty of misconduct.[117] Along with this focus have come calls for the right and responsibility of those with information about misconduct to report such activity[118] and increased efforts to protect those who do report suspected misconduct against possible retaliation.[119] Federal regulations require institutions that receive research grants to develop policies and procedures to protect whistleblowers who make good faith allegations of scientific misconduct.[120]

This focus on identifying and punishing misconduct, and encouraging the reporting of suspected misconduct, has created a potential weapon against unwelcome environmental research—the unsupported allegation of research

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115 *Id.* "As the rules play out, certain viewpoints are favored over others. . . . Indeed, by permitting long and expensive proceedings--whatever the outcome--the law deters one viewpoint while promoting another." *Id.*

116 *See, e.g., Scientific Fraud: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Energy and Commerce*, 101st Cong. (1989); David P. Hamilton, *Can OSI Withstand a Scientific Backlash?*, 253 SCIENCE 1084 (1991) (reporting that the National Institutes of Health established the Office of Scientific Integrity in response to Congressional pressure).

117 *See, e.g.*, Responsibility of PHS Awardee and Applicant Institutions for Dealing With and Reporting Possible Misconduct in Science, 42 C.F.R. pt. 50, subpt. A (2003) (containing the Public Health Service's research misconduct regulations); Research Misconduct, 45 C.F.R. pt. 689 (2003) (containing the National Science Foundation's research misconduct regulations); Federal Policy on Research Misconduct, 65 Fed. Reg. 76,260 (Dec. 6, 2000) (containing the Office of Science and Technology Policy's research misconduct policy).

The regulations define misconduct as fabrication, falsification, or plagiarism in proposing, conducting, or reviewing research, or in reporting research results. 42 C.F.R. § 50.102 (2003); 45 C.F.R. § 689.1(a) (2003); 65 Fed. Reg. 76,262 (Dec. 6, 2000). Misconduct does not include honest error or differences in interpretations or judgments of data. 42 C.F.R. § 50.102 (2003); 45 C.F.R. § 689.1(b) (2003); 65 Fed. Reg. 76,262 (Dec. 6, 2000). A finding of research misconduct requires that there be a significant departure from accepted research practices, that the misconduct be committed intentionally, knowingly, or recklessly, and that the allegation be proven by a preponderance of the evidence. 45 C.F.R. § 689.2(c) (2003); 65 Fed. Reg. 76,262 (Dec. 6, 2000).

118 *See, e.g.*, COMMISSION ON RESEARCH INTEGRITY, INTEGRITY AND MISCONDUCT IN RESEARCH: REPORT OF THE COMMISSION ON RESEARCH INTEGRITY 28 (U.S. Dep't of Health & Human Servs. 1995) ("Members of the scientific community with knowledge of research misconduct have an ethical responsibility to come forward."); COMMITTEE ON THE CONDUCT OF SCIENCE, ON BEING A SCIENTIST 18 (Nat'l Acad. of Sciences 1989) (arguing that "researchers have a professional and ethical obligation" to take action when they witness scientific misconduct by a colleague); Paul J. Friedman, *Advice to Individuals Involved in Misconduct Accusations*, 71 ACADEMIC MED. 716, 718 (1996).

119 *See, e.g.*, 42 U.S.C.A. § 289b(e) (2003) (requiring the Department of Health and Human Services to develop regulations that require institutions that receive financial assistance for biomedical or behavioral research to establish standards to prevent and respond to retaliation against an employee alleging research misconduct).

120 *See, e.g.*, 42 C.F.R. § 50.103(d)(13) (2003); 45 C.F.R. § 689.4(a)(4) (2003); Notification of Final Policy, 65 Fed. Reg. 76,260, 76,263 (Dec. 6, 2000).

misconduct.[121] In the past, a concern about scientific research might have resulted in a request for reanalysis or correction that was handled informally or in an article in a scientific journal challenging the earlier result. Today, misconduct allegations trigger a formalized process with, in a majority of cases, adverse consequences even for those exonerated of such charges.

Without doubt, an allegation of research misconduct can interfere with the ability of an environmental scientist to perform and distribute research. Herbert Needleman learned this after spending more than ten years of his life and thousands of dollars rebutting unsubstantiated charges of misconduct in his research on the effects of exposure to lead.[122] Two scientists who filed the charges, represented by a law firm that previously represented lead companies, admitted they had no evidence of any misconduct, only "suspicions."[123]

Dr. Eugene Dong, a teacher and researcher at Stanford University, forwarded a graduate student's concerns about scientific conclusions in a colleague's research to the chairman of the department.[124] Upset with Dong for passing on the information, the accused scientist, in turn, wrote letters to the university accusing Dong of scientific fraud.[125] Dong's accuser later admitted under oath that he did not have any evidence to support the misconduct charges.[126]

Various interested parties attacked University of Washington researchers after they published a study casting doubt on the value of immunodiagnostic tests used to support claims for chemical sensitivity.[127] Allegedly, some of the accusers contacted patients of one of the researchers to encourage them to attack the researcher's

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121 Professor Ellen Silbergeld explained the lead industry's efforts to silence Dr. Herbert Needleman:

> In the 1990s a new weapon was at hand. The NIH Office of Scientific Integrity provided the industry a possible weapon with which to intimidate one of its most accomplished critics. . . . [T]he industry may have perceived that it could use an allegation of scientific fraud and misconduct to regain some control over public policy on lead.

Ellen K. Silbergeld, *Annotation: Protection of the Public Interest, Allegations of Scientific Misconduct, and the Needleman Case*, 85 AM. J. PUB. HEALTH 165, 166 (1995).

122 DAVIS, *supra* note 44, at 129. William Daniell argues that the Needleman matter was elevated to the level of a misconduct hearing even though the challenged research had been affirmed in previous independent data reanalyses, replicated in other studies, and essentially consisted of differences in opinion on how data should have been analyzed or interpreted. William Edward Daniell, *Science, Integrity, and Investigators' Rights: Current Challenges*, 24 REG. TOXICOLOGY & PHARMACOLOGY S152, S157-58 (1996).

123 Needleman, *supra* note 33, at 979-80. One of the accusers admitted that the accusers' legal fees were paid through a trust fund but declined to identify the source of funds, saying she had been asked to keep the matter confidential. Burd, *supra* note 45, at A30. Silbergeld characterizes this particular abuse of the scientific misconduct investigative process as intended to "hobble a highly accomplished researcher and terrorize those who might be inspired to emulate him." Silbergeld, *supra* note 121, at 165.

124 Dong v. Bd. of Trustees, 236 Cal. Rptr. 912, 915 (1987).

125 *Id.* at 915-17; *see* RESEARCH TRIANGLE INSTITUTE, CONSEQUENCES OF WHISTLEBLOWING FOR THE WHISTLEBLOWER IN MISCONDUCT IN SCIENCE CASES 16 (1995) (reporting that 40% of complainants in scientific misconduct cases reported being subjected to counter allegations) [hereinafter RTI, CONSEQUENCES].

126 *Dong*, 236 Cal. Rptr. at 915. Dong alleged that he suffered decreased salary, denial of promotions, and emotional distress as a result of the unfounded allegations. *Id.* at 918. The court dismissed Dong's defamation suit against his accuser and university officials on the ground that the misconduct allegations were mere statements of opinion rather than fact. *Id.* at 920-21; *see also* Needleman v. Healy, Civil Action No. 92-749, 749, 1996 U.S. Dist. LEXIS 21614 (W.D. Pa. 1996) (dismissing claims by exonerated scientist for relief against university and government officials over alleged mishandling of misconduct allegations).

127 Deyo et al., *supra* note 69, at 1176-77.

credibility.[128] Even after five separate inquiries found no basis for a full-scale inquiry, the accusers continued to file complaints and publicly accuse the exonerated researchers of misconduct.[129]

A number of commentators have cautioned about the abuse of charges of scientific misconduct. Professor Dan Burk observed that the present investigative process allows charges of misconduct easily to be brought out of spite, professional jealousy or revenge, or to punish or remove unpopular or irksome researchers.[130] Professor Harold Green argues that "most whistle-blowers' allegations will ultimately prove baseless and motivated by animosity, personal grievances, personality problems, and the like."[131] The Director of the National Center for Environmental Health and a member of the federal Commission on Research Integrity expressed alarm that companies are using alleged concerns about research integrity to intimidate public health scientists and further commercial ends.[132] A report that an attorney sponsored a workshop promoting the use of allegations of scientific misconduct as a way to attack unwelcome research supports concerns that allegations of misconduct are being abused by individuals or groups motivated by special interests.[133]

Even if the misconduct allegation results in exoneration, the accused usually suffers. A 1996 report for the Public Health Service's Office of Research Integrity ("ORI") found that 60% of exonerated scientists experienced at least one adverse consequence as a result of being accused of scientific misconduct.[134] Ninety percent of those who suffered negative consequences indicated that the negative actions began during the misconduct inquiry or investigation, and 65% reported that these negative actions continued even after they were exonerated.[135] In addition to the

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128 *Id.* at 1177; Daniell, *supra* note 122, at S158. *But see* Albert Donnay, *Intimidation of Researchers by Special-Interest Groups*, 337 NEW ENG. J. MED. 1314 (1997) (alleging errors of fact and misrepresentations in the article by Deyo et al., and denying that patients were encouraged to attack the researcher's credibility).

129 Deyo et al., *supra* note 69, at 1177. "Because of the large numbers of complaints, the inquiries lasted more than 13 months, despite institutional policies requiring resolution of the inquiry phase within 30 days." *Id.*

130 Dan L. Burk, *Research Misconduct: Deviance, Due Process, and the Disestablishment of Science*, 3 GEO. MASON INDEP. L. REV. 305, 332 (1995); *see also* Press Release, Brown University News Bureau, Federal Agency Concurs with Brown Finding: No Basis for Scientific Misconduct (Mar. 8, 1996), *available at* http://www.brown.edu/Administration/ News_Bureau/1995-96/95-104.html (reporting statements of exonerated university researcher that his integrity was tarnished by the misconduct investigation resulting from false accusations made by an anonymous accuser).

131 Harold P. Green, *Scientific Responsibility and the Law*, 20 U. MICH. J.L. REFORM 1009, 1021 (1987); *see also* Victoria Slind-Flor, *Scientific Fraud and the Law*, NAT'L L.J., Oct. 25, 1993, at 1 (reporting attorney Barbara Mishkin's view that much of the increase in scientific misconduct charges is due to flawed interpersonal relationships among scientists).

132 Burd, *supra* note 45, at A27.

133 Deyo et al., *supra* note 69, at 1177.

134 RESEARCH TRIANGLE INSTITUTE, SURVEY OF ACCUSED BUT EXONERATED INDIVIDUALS IN RESEARCH MISCONDUCT CASES 17 (June 30, 1996) [hereinafter RTI SURVEY]. Negative outcomes included additional allegations beyond those of scientific misconduct, threats of lawsuits, ostracization by colleagues, reductions in research support, delays in processing grant applications, delays in obtaining clearance of manuscripts, denial of promotions, denial of salary increases, and termination. *Id.* at 81; *cf.* RTI, CONSEQUENCES, *supra* note 125, at 14 (reporting that 69% of scientific misconduct whistleblowers reported negative consequences from their whistleblowing).

135 RTI SURVEY, *supra* note 134, at 20.

Needleman matter, the cases of Dr. Jorge Ferrer[136] and Drs. Theresa Imanishi-Kari and David Baltimore[137] demonstrate the extreme adverse effects that exonerated scientists experience from having to defend their reputations and careers against charges of scientific misconduct.

In a number of ways, federal scientific misconduct whistleblower protection rules may condone unfounded misconduct allegations against environmental scientists. First, the rules do not require a complainant to provide any threshold of information to support the allegation, and institutions are expected to conduct an immediate inquiry whenever any misconduct is alleged, regardless of evidentiary basis or motivation.[138] Federal regulations do require that the initial inquiry triggered by an allegation must determine that the allegation has "substance" or a "sufficient basis" before moving to the more formal investigation stage.[139] There is neither any requirement in the regulations, however, that an accuser provide information in the initial allegation that triggers an inquiry nor any elaboration on the detail necessary to move to the investigation stage. An ORI survey of research institution policies for responding to allegations of scientific misconduct found that only 11% of institutions expect the complainant to describe the misconduct, and only 10% expect supporting documentation or other evidence.[140] Apparently, allegations sufficient to trigger a misconduct investigation at most institutions include mere suspicion.[141]

Second, ORI argues that, provided the accuser makes the allegation in good faith, a whistleblower is entitled to a conditional privilege against defamation claims.[142] ORI defines good faith as either a subjective belief in the truth of one's

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136 *See* Ferrer v. Trs. Univ. of Pa., 825 A.2d 591 (Pa. 2002) (upholding an award of $2.9 million to a university researcher for damages caused by university-imposed sanctions despite a determination that the researcher was not guilty of scientific misconduct).

137 *See* Gina Kolata, *Inquiry Lacking Due Process*, N.Y. TIMES, June 25, 1996, at C3 (reporting on the adverse consequences not only to exonerated researcher Imanishi-Kari but also to her chief defender Baltimore).

138 *See* 42 C.F.R. § 50.103(d)(1) (2003) (requiring each recipient institution's policies and procedures to provide for an immediate inquiry "into an allegation or other evidence of possible misconduct"); 45 C.F.R. § 689.4(a)(1) (2003) (requiring awardee institutions promptly to initiate an inquiry "into any suspected or alleged research misconduct").

The Office of Research Integrity ("ORI") encourages institutions receiving federal research funds to adopt its "Whistleblower Bill of Rights," which states that witnesses to possible research misconduct "have a responsibility to raise their concerns honorably and with foundation." OFFICE OF RESEARCH INTEGRITY, RESPONSIBLE WHISTLEBLOWING: A WHISTLEBLOWER'S BILL OF RIGHTS (Nov. 1995), *available at* http://ori.dhhs.gov/html/publications/guidelines_app_a.asp [hereinafter ORI, RESPONSIBLE WHISTLEBLOWING]. However, federal misconduct regulations do not require that an allegation of misconduct be made with any foundation.

139 42 C.F.R. § 50.103(d)(7) (2003) (requiring that an investigation be undertaken if findings from the inquiry provide "sufficient basis" for conducting an investigation); 45 C.F.R. § 689.2(b) (2003) (requiring a determination during an inquiry that an allegation has "substance" before moving to the investigation stage); *see also* 65 Fed. Reg. 76,263 (Dec. 6, 2000) (containing the requirement in the Federal Policy on Research Misconduct that an inquiry include an assessment of whether the allegation has substance).

140 ORI, ANALYSIS OF INSTITUTIONAL POLICIES FOR RESPONDING TO ALLEGATIONS OF SCIENTIFIC MISCONDUCT (2000) (referring to Table 3-2), *available at* http://ori.dhhs.gov/html/polanal3.htm [hereinafter ORI, ANALYSIS].

141 *See supra* note 123 and accompanying text; *see also* Deyo et al., *supra* note 69, at 1179 (noting that "no evidence is necessary to bring charges of scientific misconduct").

142 ORI, THE WHISTLEBLOWER'S CONDITIONAL PRIVILEGE TO REPORT ALLEGATIONS OF SCIENTIFIC MISCONDUCT (Dec. 1993), *available at* http://ori.dhhs.gov/html/misconduct/whistle_conditional_priv_report.asp [hereinafter ORI, PRIVILEGE].

own allegation or what a reasonable person could have believed based upon the information known to the whistleblower at the time of the allegation.[143] Nisan Steinberg argues that ORI's privilege policy seeks to provide greater protection to misconduct whistleblowers than generally provided by the common law.[144] He notes the common law privilege for reporting wrongdoing to public authorities requires that the accuser act in a reasonable manner for a proper purpose and forfeits the privilege if the accuser acts chiefly from motives of ill will.[145] ORI's broad privilege policy, by requiring a showing of actual malice before the privilege is lost, would extend protection even to accusers who have an unreasonable belief in the truth of the allegation or act primarily out of ill will, spite, or a desire to do harm to the accused scientist. As noted in Part III.A, actual malice is difficult to prove in court.[146]

Finally, the misconduct rules do not attempt to punish unfounded or bad faith accusers, other than to waive their immunity from defamation lawsuits. The Office of Science Technology, in response to a comment on its draft research misconduct policy, refused to include a provision punishing informants who act in bad faith, explaining that non-federal research institutions could adopt policies to address the consequences of false, malicious, or capricious allegations, and agencies could address the issue in the implementation of their misconduct policies.[147] However, only 3% of institutional policies specify the disciplinary actions that will be taken against persons who make bad faith allegations of scientific misconduct.[148]

Agency regulations on scientific misconduct also have not addressed sanctions against accusers who file unfounded allegations. Although the report of the Commission on Research Integrity proposed that obstruction of an investigation of research misconduct be considered a form of professional misconduct, it did not characterize unfounded accusations as misconduct nor did it propose any form of

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143 Public Health Service Standards for the Protection of Research Misconduct Whistleblowers, 65 Fed. Reg. 70,830, 70,840 (Nov. 28, 2000) (to be codified at 42 C.F.R. § 94.630(a)); ORI, RESPONSIBLE WHISTLEBLOWING, *supra* note 138; ORI, WHISTLEBLOWERS, *at* http://ori.dhhs.gov/html/misconduct/ whistleblowers.asp (last updated Feb. 21, 2003). An allegation is in bad faith if made with, in essence, "reckless disregard for or willful ignorance of facts that would disprove the allegation." ORI, RESPONSIBLE WHISTLEBLOWING, *supra* note 138; Public Health Service Standards for the Protection of Research Misconduct Whistleblowers, 65 Fed. Reg. 70,830, 70,840 (Nov. 28, 2000) (to be codified at 42 C.F.R. § 94.630(b)). ORI argues that the burden of showing bad faith, and overcoming the presumption of good faith, rests with the plaintiff in a defamation lawsuit. ORI PRIVILEGE, *supra* note 142.

144 Nisan A. Steinberg, *Regulation of Scientific Misconduct in Federally Funded Research*, 10 S. CAL. INTERDISC. L.J. 39, 102 (2000).

145 *Id*. at 102 n.377. "[I]t appears that the [common law] privilege is lost if the publication is not made primarily for the purpose of furthering the interest which is entitled to protection. If the [accuser] acts chiefly from motives of ill will, he will certainly be liable. . . . [The privilege may also be lost if the accuser does not act] "as a reasonable person under the circumstances, with due regard to the strength of his belief, the ground that he has to support it, and the importance of conveying the information." PROSSER AND KEETON, *supra* note 73, at 834-35.

146 *See supra* notes 87-91 and accompanying text.

147 65 Fed. Reg. 72,260, 72,262 (Dec. 6, 2000).

148 ORI, ANALYSIS, *supra* note 140, at App. D. ORI's Model Policy for Responding to Allegations of Scientific Misconduct likewise does not warn against bad faith allegations or specify what action will be taken against such bad faith accusers. ORI, MODEL POLICY FOR RESPONDING TO ALLEGATIONS OF SCIENTIFIC MISCONDUCT (Feb. 1997), *available at* http://ori.dhhs.gov/multimedia/acrobat/mod_pol.pdf. Instead, the Model Policy simply states that the institutional official who makes the final determination on allegations of scientific misconduct will determine whether any administrative action should be taken against the bad faith whistleblower. *Id*. at 18.

sanctions against those who file unfounded allegations.[149] Similarly, in the cases of unfounded accusations noted above, there is no report of any disciplinary or other adverse action taken against the accusers for making unfounded allegations.[150] Thus, unless an exonerated scientist chooses to sue the accuser for defamation or some other infringement of the scientist's rights, the accuser may not face any sanction for filing an unfounded misconduct charge.

The National Academy of Sciences's 1992 report on scientific misconduct noted the problems caused by false accusations and included malicious allegations of misconduct as a form of scientific misconduct.[151] The report argued that, given the damage that can be done by false or malicious allegations and the time and resources necessary to investigate allegations, "appropriate documentation" should be provided at the time of an initial allegation to justify reviewing the complaint.[152]

Members of the Commission on Research Integrity likewise expressed concern about whether allegations of misconduct have been and can be misused for commercial ends and asserted that their report would investigate this issue.[153] However, the Commission's 1995 report, although it identified obstruction of investigations of research misconduct as a form of scientific misconduct and repeatedly expressed concern over the treatment of whistleblowers, did not identify unfounded or malicious allegations as a form of misconduct.[154] The Department of Health and Human Service's ("HHS") implementation group expressed concern that the Commission's report appeared more attentive to the rights of whistleblowers and the responsibilities of other parties than to the responsibilities of whistleblowers and the rights of other parties, such as the accused.[155] In addition, fifty professional societies representing scientific researchers criticized the Commission on Research Integrity's report for ignoring the possibility that accusations may be ill-founded, malevolent, or simply wrong, and for failing to appreciate the damaging consequences innocent scientists face because of such accusations.[156] The scientists objected to the report's lack of recommendations to address wrongful behavior on the part of the accuser and to its protection of complainants at the expense of accused scientists.[157]

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149 COMMISSION ON RESEARCH INTEGRITY, *supra* note 118, at 17.

150 *E.g.*, Ferrer v. Trs. Univ. of Pa., 825 A.2d 591 (Pa. 2002); Kolata, *supra* note 137.

151 I PANEL ON SCIENTIFIC RESPONSIBILITY AND THE CONDUCT OF RESEARCH, RESPONSIBLE SCIENCE: ENSURING THE INTEGRITY OF THE RESEARCH PROCESS 29-30 (1992).

152 *Id.* at 121.

153 Burd, *supra* note 45, at A26.

154 COMMISSION ON RESEARCH INTEGRITY, *supra* note 118, at 17. The Commission's "A Whistleblower's Bill of Rights" does note that whistleblowers have a responsibility to raise their concerns "honorably and with foundation." *Id.* at 32. Nevertheless, the concluding statement in the Whistleblower's Bill of Rights, in reminding whistleblowers that every right carries with it corresponding responsibility, only warns of the "obligation to avoid false statements and unlawful behavior." *Id.* at 33.

155 Implementation Proposals on Recommendations by the Commission on Research Integrity (Dep't of Health and Human Servs. June 14, 1996), *available at* http://www.faseb.org/opar/raub.html. The group proposed that ORI refine its regulations on whistleblower protection to ensure adequate protections for accused scientists.

156 Letter from Ralph A. Bradshaw, President, Federation of American Societies for Experimental Biology ("FASEB"), to Donna Shalala, Secretary, Department of Health and Human Services ("HHS") (July 2, 1996), *available at* http://www.faseb.org/opar/hhslet2.html; Letter from Ralph A. Bradshaw, President, FASEB, to William F. Raub, Science Advisor, Office of Science Policy, HHS (May 13, 1996), *available at* http://faseb.org/opa/cristat.html.

157 Letter from Ralph A. Bradshaw to Donna Shalala, *supra* note 156; Letter from Ralph A. Bradshaw to William F. Raub, *supra* note 156.

In spite of these objections, HHS's proposed regulation on scientific misconduct whistleblowers does not include a provision on bad faith allegations.[158] As proposed in Part IV, federal agencies and research institutions must do more to guard against the harm resulting from unfounded allegations of research misconduct.

C. COUNTERING EMPLOYER RETALIATION

A common form of suppression is for an employer to take some punitive personnel action against the scientist who has undertaken, or intends to undertake, unwelcome research. These actions include discharges, denials of promotions, raises, or other employment benefits, transfers, and creating hostile working conditions, all intended to either suppress the scientist's work or discourage the scientist from continuing the area of research. In some circumstances, whistleblower protection statutes and the First Amendment may provide a remedy to counter these suppression efforts.

The federal Civil Service Reform Act of 1978,[159] as amended by the Whistleblower Protection Act of 1989,[160] recognizes that disclosure of waste, fraud, and abuse is in the public interest and protects whistleblowers from reprisal.[161] The Act makes it illegal to retaliate against any federal employee for lawfully disclosing information that evidences illegality, gross mismanagement or waste of funds, abuse of authority, or a substantial and specific danger to public health or safety.[162] For protection under the Act, a federal employee must show that the employee made a disclosure evidencing a reasonable belief of illegality or misconduct and that the disclosure was a contributing factor in an adverse personnel action that was taken or is to be taken against the employee.[163] Upon such proof, the burden shifts to the federal employer to demonstrate, through clear and convincing evidence, that the agency would have taken the same personnel action in the absence of the disclosure.[164]

For a disclosure of public health or safety to be protected, it must be both substantial and specific. As a Senate report explained:

> [G]eneral criticism by an employee of the Environmental Protection Agency that the agency is not doing enough to protect the environment would not be protected under [the Whistleblower Protection Act]. However, an allegation by a Nuclear Regulatory Commission engineer that the cooling system of a nuclear reactor is inadequate would fall within the whistleblower protections.[165]

Hence, the Whistleblower Protection Act does not protect revelation of a "negligible, remote, or ill-defined peril that does not involve any particular person,

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158 *See* Public Health Service Standards for the Protection of Research Misconduct Whistleblowers, 65 Fed. Reg. 70,830, 70,830 (Nov. 28, 2000).

159 Pub. L. No. 95-454, 92 Stat. 1111 (1978).

160 Pub. L. No. 101-12, 103 Stat. 16 (1989) (codified as amended in scattered sections of 5 U.S.C. (2000)).

161 Pub. L. No. 101-12, § 2 (1989); 5 U.S.C. § 2301(b)(9) (2000).

162 5 U.S.C. § 2302(b)(8) (2000).

163 5 U.S.C. §§ 1214(b)(4)(B)(i), 1221(e)(1) (2000).

164 5 U.S.C. §§ 1214(b)(4)(B)(ii), 1221(e)(2) (2000).

165 S. REP. NO. 95-969, at 21 (1978), *reprinted in* 1978 U.S.C.C.A.N. 2723, 2743.

place, or thing."[166] According to commentators, complex procedural requirements and narrow judicial interpretations significantly limit the usefulness of the Whistleblower Protection Act to federal employees.[167]

Employee protection provisions in federal environmental statutes may be more useful to scientists. A number of federal environmental statutes protect employees who disclose violations of environmental laws or assist in a proceeding resulting from the administration of the statute.[168] An employer violates these whistleblower provisions if the employee engaged in a protected activity of which the employer was aware, the employer discharged or otherwise discriminated against the employee with respect to the employee's compensation, terms, conditions, or privileges of employment, and the protected activity was the likely reason for the adverse action.[169] Aggrieved employees are entitled to affirmative relief to abate the discrimination, including reinstatement, back pay, and, if appropriate, compensatory

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166 Sazinski v. Dep't of Hous. & Urban Dev., 73 M.S.P.R. 682, 686 (1997) (addressing an engineer's letter and memorandum that expressed concern about the impact of abolishing certain agency positions on the operation of a federal program). *Cf.* Gady v. Dep't of Navy, 38 M.S.P.R. 118, 121 (1988) (holding that a memorandum complaining that an agency's smoking policy threatened the health of the staff and constituted a fire hazard was a protected disclosure).

167 STEPHEN M. KOHN, CONCEPTS AND PROCEDURES IN WHISTLEBLOWER LAW 101-04 (2001); Thomas M. Devine, *The Whistleblower Protection Act of 1989: Foundation for the Modern Law of Employment Dissent*, 51 ADMIN. L. REV. 531, 575-79 (1999); Editorial, *Helping Whistleblowers Survive*, N.Y. TIMES, May 1, 1999, at A14; Eric Boehlert, *The Betrayal of the Whistle-Blowers*, *at* http://www.salon.com/news/feature/2003/10/21/whistleblower (Oct. 21, 2003) (noting that the appeals court handling Whistleblower Protection Act cases has ruled against whistleblowers eighty-three out of eighty-four times and created a presumption, which can only be overcome with irrefragable proof to the contrary by the whistleblower, that public officers perform their duties correctly, fairly, in good-faith, and in accordance with the law).

168 *See*, *e.g.*, Toxic Substances Control Act, 15 U.S.C. § 2622 (2000); Surface Mining Control and Reclamation Act, 30 U.S.C. § 1293 (2000); Water Pollution Control Act, 33 U.S.C. § 1367 (2000); Safe Drinking Water Act, 42 U.S.C. § 300j-9(i) (2000); Energy Reorganization Act, 42 U.S.C. § 5851 (2000); Solid Waste Disposal Act, 42 U.S.C. § 6971 (2000); Clean Air Act, 42 U.S.C. § 7622 (2000); Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9610 (2000) ("Superfund").

169 *See*, *e.g.*, Passaic Valley Sewerage Comm'rs v. United States Dep't of Labor, 992 F.2d 474, 480-81 (3d Cir. 1993); *see also* 29 C.F.R. § 24.2 (2003) (listing acts prohibited by federal employee protection statutes). To obtain relief, the employee must file a written complaint within thirty days of the alleged discriminatory act (or 180 days in the case of the nuclear whistleblower act) with the U.S. Department of Labor. KOHN, *supra* note 167, at 145. Once an employee shows that the protected activity played a role in the employer's action, the burden shifts to the employer to show that it would have discharged the employee even if the protected activity had not occurred. *See*, *e.g.*, Stone & Webster Eng'g Corp. v. Herman, 115 F.3d 1568, 1572 (11th Cir. 1997); Mackowiak v. Univ. Nuclear Sys., Inc., 735 F.2d 1159, 1163-64 (9th Cir. 1984).

Whistleblower provisions are not intended to be "used by employees to shield themselves from the consequences of their own misconduct or failures." Trimmer v. United States Dep't of Labor, 174 F.3d 1098, 1104 (10th Cir. 1999); *see also* Am. Nuclear Res., Inc. v. United States Dep't of Labor, 134 F.3d 1292, 1295 (6th Cir. 1998) ("Moreover, an employer may terminate an employee who behaves inappropriately, even if that behavior relates to a legitimate safety concern.") (citation omitted); Dunham v. Brock, 794 F.2d 1037, 1041 (5th Cir. 1986) (holding that, despite the employee's participation in a protected activity, abusive or profane language coupled with defiant conduct or demeanor justify an employee's discharge on the ground of insubordination). *But see* Pogue v. United States Dep't of Labor, 940 F.2d 1287, 1290-91 (9th Cir. 1991) (holding that the employer had failed to prove that it would have discharged the employee even if he had not engaged in protected conduct where much of the evidence of the employee's purported disrespectful and insubordinate behavior could reasonably be attributed to the employer's retaliation and where there was no evidence that other employees had received similar disciplinary action based on similar violations).

damages.[170] Unlike the Whistleblower Protection Act, these environmental whistleblower provisions prohibit retaliation against any category of employee, not just federal employees.[171] Similarly, thirty-nine states have whistleblower statutes that provide general whistleblower protection to public employees, twenty-three states provide general protection for all employees, and fourteen states provide specific protection to persons reporting certain environmental misconduct.[172]

The availability of federal environmental whistleblower protection statutes and their effectiveness in addressing efforts to punish a scientist depend in large measure on the nature of the scientist's work. Whistleblower provisions in federal environmental statutes "share a broad, remedial purpose of protecting workers from retaliation based on their concerns for safety and quality."[173] Engaging in unpopular research alone would not constitute an activity protected by whistleblower statutes. To be protected, most statutes require that the employee commence, seek to commence, or participate in some type of proceeding for the administration or enforcement of requirements in an environmental statute.[174] Thus, with the

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170 29 C.F.R. §§ 24.8(c), 24.8(d) (2003). Claims by aggrieved employees for monetary damages or other retrospective relief against a state or state officers in their official capacities may be barred by the Eleventh Amendment. *See* Fed. Maritime Comm'n v. S.C. State Ports Auth., 535 U.S. 743 (2002) (extending immunity to administrative adjudications); R.I. Dep't of Envtl. Mgmt. v. United States, 304 F.3d 31 (1st Cir. 2002); Conn. Dep't of Envtl. Prot. v. Occupational Safety and Health Admin., 138 F. Supp. 2d 285 (D. Conn. 2001); Florida v. United States, 133 F. Supp. 2d 1280 (N.D. Fla. 2001); Ohio Envtl. Prot. Agency v. United States Dep't of Labor, 121 F. Supp. 2d 1155 (S.D. Ohio 2000); Stephen M. Kohn et al., *Environmental Whistleblowers and the Eleventh Amendment: Employee Protection or State Immunity?*, 15 TUL. ENVTL. L.J. 43 (2001).

171 *See* KOHN, *supra* note 167, at 141; *see also* Marcus v. United States Envtl. Prot. Agency, 92-TSC-5, at 3-4 (Dep't. of Labor Feb. 7, 1994) (finding that environmental whistleblower statutes apply to federal government employees and rejecting argument that the Civil Service Reform Act provides a federal whistleblower's exclusive remedy), *available at* http://oalj.dol.gov/public/wblower/decsn/92tsc05c.htm.

An employee also has a legal remedy under the Occupational Safety and Health Act ("OSHA") if the employee is discharged or otherwise discriminated against for filing a complaint or instituting or causing to be instituted any proceeding relating to conditions of employment. 29 U.S.C. § 660(c) (2000); 29 C.F.R. pt. 1977 (2003). OSHA whistleblower provisions are limited to complaints that "relate to conditions at the workplace, as distinguished from complaints touching only upon general public safety and health." 29 C.F.R. § 1977.9(b) (2003).

172 Elletta Sangrey Callahan & Terry Morehead Dworkin, *The State of State Whistleblower Protection*, 38 AM. BUS. L.J. 99, 111-14, tab. I (2000); *see also* Stefan Rutzel, *Snitching for the Common Good: In Search of a Response to the Legal Problems Posed by Environmental Whistleblowing*, 14 TEMP. ENVTL. L. & TECH. J. 1, 16-23 (1995) (discussing state whistleblower statutes); Laura Simoff, Comment, *Confusion and Deterrence: The Problems That Arise from a Deficiency in Uniform Laws and Procedures for Environmental "Whistleblowers,"* 8 DICK. J. ENVTL. L & POL'Y 325, 333-36 (1999) (same).

In addition to remedies provided under federal or state whistleblower statutes, a majority of states recognize a cause of action for wrongful employment discharge pursuant to the public policy exception to the at-will employment doctrine. KOHN, *supra* note 167, at 21; Callahan & Dworkin, *supra*, at 106; Chad A. Atkins, Note, *The Whistleblower Exception to the At-Will Employment Doctrine: An Economic Analysis of Environmental Policy Enforcement*, 70 DENV. U. L. REV. 537, 542 (1993); John Jacob Kobus, Jr., Note, *Establishing Corporate Counsel's Right to Sue for Retaliatory Discharge*, 29 VAL. U. L. REV. 1343, 1345 (1995). For a discussion of the use of the public policy exception to protect workers who make complaints relating to health or safety, see KOHN, *supra* note 167, at 25-56; Rutzel, *supra*, at 12-16; Gregory G. Sarno, Annotation, *Liability for Retaliation Against At-Will Employee for Public Complaints or Efforts Relating to Health or Safety*, 75 A.L.R. 4th 13 (1989).

173 *Mackowiak*, 735 F.2d at 1163.

174 *See, e.g.*, 42 U.S.C. § 7622(a) (2000) (prohibiting discrimination against any employee who commenced, caused to be commenced, or is about to commence or cause to be commenced a proceeding for the administration or enforcement of any requirement imposed by the Clean Air Act).

exception of the Superfund statute,[175] a scientist seeking the protection of an environmental whistleblower statute would have to show that the research work triggering the personnel action was "grounded in conditions reasonably perceived to be violations of the environmental acts" or for use in administering the acts, not simply that the research work indicated the environment might be negatively impacted by certain conduct.[176]

Even if the scientist engages in work relating to the administration or enforcement of a federal environmental law, environmental whistleblower protection only applies if the scientist in some way disseminates her concerns. Internal complaints to the employer or to a co-worker are a protected activity,[177] as are complaints to the news media and public interest groups.[178] Sharing information with an environmental activist also may constitute a protected activity, although merely discussing a problem with a member of the general public may be too remote.[179] No formal or written complaint is required, nor must the information provided be unique or of a type that the employer is attempting to hide.[180]

In some circumstances, disclosure of scientific research might constitute a protected activity. EPA toxicologist William Marcus successfully used federal environmental whistleblower provisions when he was terminated by the agency after drafting and releasing a memo criticizing a report EPA contemplated using in regulating fluoride levels.[181] When, after his reinstatement, EPA "bad-mouthed"

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175 Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9610 (2000).

176 Crosby v. Hughes Aircraft Co., 85-TSC-2, at 14 (Dep't of Labor Aug. 17, 1993), *available at* http://oalj.dol.gov/public/wblower/decsn/85tsc02d.htm; *see also* Am. Nuclear Res., Inc. v. United States Dep't of Labor, 134 F.3d 1292, 1295-96 (6th Cir. 1998) (holding that protection only extends to employees who allege a definite and specific violation of safety laws or procedures); Bechtel Constr. Co. v. Sec'y of Labor, 50 F.3d 926, 931 (11th Cir. 1995) (holding that general inquiries regarding safety do not constitute protected activity); Erickson v. United States Envtl. Prot. Agency, 1999-CAA-2, at 59 (Dep't of Labor Sept. 24, 2002) (holding that an employee should have more than a mere subjective belief that the environment might be affected), *available at* http://www.oalj.dol.gov/public/wblower/decsn/99caa02o.htm; Jayko v. Ohio Envtl. Prot. Agency, 1999-CAA-5, at 73 (Dep't of Labor Oct. 2, 2000) (holding that it is not sufficient merely to show that the environment may be negatively impacted by the employer's conduct), *available at* http://www.oalj.dol.gov/public/wblower/decsn/99caa05a.htm, *adjudication enjoined on other grounds*, Ohio Envtl. Prot. Agency v. United States Dep't of Labor, 121 F. Supp. 2d 1155 (S.D. Ohio 2000).

177 *See, e.g.*, Passaic Valley Sewerage Comm'rs v. United States Dep't. of Labor, 992 F.2d 474, 478-80 (3d Cir. 1993) (noting that its decision to construe environmental whistleblower statutes to cover internal complaints was consistent with decisions by the Second, Fourth, Sixth, Ninth, Tenth, and D.C. Circuit Courts of Appeals); KOHN, *supra* note 167, at 174 (noting that every court of appeals that has addressed the issue has held that the internal raising of concerns is a fully-protected activity).

178 *See, e.g.*, Donovan v. R.D. Andersen Constr. Co., Inc., 552 F. Supp. 249, 253 (D. Kan. 1982); KOHN, *supra* note 167, at 257-58.

179 *See, e.g.*, Ferguson v. Weststar, Inc., 1998-CAA-9, at 6-7 (Dep't. of Labor Jan. 27, 2000) (relying on Scott v. Alyeska Pipeline Service Co., 92-TSC-2 (Dep't of Labor July 25, 1995), and Wedderspoon v. City of Cedar Rapids, 80-WPC-1 (Dep't of Labor July 11, 1980)), *available at* http://www.oalj.dol.gov/public/wblower/decsn/98caa09a.htm; KOHN, *supra* note 167, at 258 (relying on Simon v. Simmons Indus. Inc., 88-TSC-2 (Dep't of Labor Apr. 4, 1994), *aff'd sub nom.* Simon v. Simmons Foods, Inc. 49 F.3d 386 (8th Cir. 1995)). Communication with a member of the public would be a protected activity where there is a "causal connection" between the employee's communication with that person and any subsequent investigation of the concerns communicated by the employee. *Ferguson*, 1998-CAA-9 at 6-7.

180 *See, e.g.*, Simon v. Simmons Foods, Inc., 49 F.3d 386, 388 n.1 (8th Cir. 1995); DeFord v. Sec'y of Labor, 700 F.2d 281, 286 (6th Cir. 1983).

181 Marcus v. United States Envtl. Prot. Agency, 92-TSC-5, at 3-4 (Dep't of Labor Feb. 7, 1994). Marcus' preparation and dissemination of the memo was a protected activity because he was

him with respect to job references and his potential as an expert witness and isolated him from his fellow employees and peers, Marcus again successfully used federal whistleblower provisions to recover an additional $100,000 in compensatory damages from EPA.[182] EPA microbiologist David Lewis collected $115,000 from EPA when agency administrators accused him of an ethics violation for publishing a 1996 article in *Nature* alleging that EPA was bypassing sound science due to political pressures.[183] The Department of Labor found that the agency's inquiry into Lewis's compliance with agency standards was improperly motivated by the content of his writings rather than a sincere concern about the form or style of the writings.[184] EPA scientist Kate Jenkins won reinstatement to her previous position and $10,000 after she was punished by EPA for releasing information that questioned the scientific validity of an industry study on dioxin.[185]

Similarly, an engineer's concern that studies relied on by his company to obtain federal water pollution discharge permits were flawed demonstrates a sufficiently perceived violation of the federal Clean Water Act to constitute a protected whistleblower activity.[186] "Protected activity" also includes the issuance of a report finding excessive concentrations of hazardous substances on school property.[187] In contrast, research advocating a new methodology to measure harm from certain wastes is not a protected activity since the work does not allege a violation of any environmental statute.[188] Thus, where a scientist's research publications and speeches indicate the government or some other entity is not complying with requirements in environmental statutes, or are for use in agency proceedings, employee protection provisions in environmental statutes should protect the scientist against employer reprisals. On the other hand, where the scientist is simply seeking to determine if a material or activity might harm the environment, and is not collecting or reporting evidence of a violation of environmental laws or information

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deemed to have "assisted or participated" in a proceeding to carry out the Safe Drinking Water Act and "provided information" that contributed to the identification of hazardous substances under Superfund. *Id*. at 5.

182 Marcus v. United States Envtl. Prot. Agency, 1996-CAA-3, at 52 (Dep't of Labor Dec. 15, 1998), *available at* http://www.oalj.dol.gov/public/wblower/decsn/96caa03a.htm; *see also Bechtel Constr. Co.*, 50 F.3d at 931 (holding that questioning a supervisor's instructions on safety procedures is tantamount to a complaint and constitutes protected activity).

183 David L. Lewis, *Background Information on EPA Whistleblowers*, *at* http://www.whistleblowers.org/epawhistleblowers.htm (last visited July 19, 2004). EPA officials alleged that Lewis violated the agency's Standards of Ethical Conduct by not including an appropriate disclaimer on articles he authored that were critical of EPA.

184 Letter from George R. Holt, Wage and Hour Division, U.S. Department of Labor, to Henry L. Longest, II, Deputy Assistant Administrator for Management, U.S. Environmental Protection Agency (undated 1997 letter) (on file with author); Wage and Hour Division Compliance, U.S. Department of Labor, Dr. David L. Lewis v. EPA Investigation Report (Jan. 16, 1997) (on file with author).

185 Jenkins v. United States Environmental Protection Agency, 92-CAA-6 (Dep't of Labor Dec. 14, 1992), *available at* http://www.oalj.dol.gov/public/wblower/decsn/92caa06a.htm.

186 Abu-Hjeli v. Potomac Elec. Power Co., 89-WPC-1, at 5 (Dep't.of Labor Sept. 24, 1993), *available at* http://www.oalj.dol.gov/public/wblower/DECSN/89WPC01B.htm.

187 Jayko v. Ohio Envtl. Prot. Agency, 1999-CAA-5, at 73, 75-77 (Dep't of Labor Oct. 2, 2000); *see also* Florida v. United States, 133 F. Supp. 2d 1280 (N.D. Fla. 2001) (addressing a whistleblower protection complaint filed by Dr. Omar Shafey alleging that he was discriminated against and ultimately fired from his state agency job in retaliation for communications he made regarding risks from pesticide exposure).

188 Jarvis v. Battelle Pacific NW Lab., 97-ERA-15, at 3-4 (Dep't of Labor June 2, 1997), *available at* http://www.oalj.dol.gov/public/wblower/DECSN/97ERA15A.HTM.

for an agency proceeding, employee protection provisions in environmental statutes likely would not protect the scientist.[189]

The First Amendment also may provide protection when an employer seeks to retaliate against an environmental scientist. In *Pickering v. Board of Education*, the Court held that the First Amendment protects government employees who speak on matters of public concern.[190] Even if a public employee could have been discharged for any reason or no reason at all, the employee may be entitled to protection if discharged for exercising a constitutional right to freedom of expression.[191] To prevail, a public employee must demonstrate that the speech may be "fairly characterized as constituting speech on a matter of public concern"[192] and that the speech was a substantial or motivating factor in the employment action.[193]

Courts look to the content, form, and context of a statement to determine if a public employee's speech pertains to a matter of public concern.[194] Speech fairly characterized as relating to any matter of political, social, or other concern to the community is deemed of public concern.[195] Speech characterized as an employee grievance concerning internal office policy or workplace conditions is not.[196] Speeches and articles addressed to public audiences, made outside the workplace, and involving content largely unrelated to employment would more likely fall within the protected category of comment on matters of public concern.[197] Speech communicated only within the office or to a supervisor, rather than to the public at large, may still be a statement addressing a matter of public concern.[198] Because issues of public health, safety, or the environment so clearly touch on matters of

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189 *See* Crosby v. Hughes Aircraft Co., 85-TSC-2, at 14 (Dep't of Labor Aug. 17, 1993) (holding that "an employee's complaint must be 'grounded in conditions constituting reasonably perceived violations' of the environmental acts"). *But cf.* 42 U.S.C. § 9610(a) (2000) (protecting employees who provide "information to a State or to the Federal Government" for use under Superfund).

190 Pickering v. Bd. of Educ., 391 U.S. 563, 574 (1968).

191 Bd. of Educ. v. Doyle, 429 U.S. 274, 283-84 (1977).

192 Connick v. Myers, 461 U.S. 138, 146 (1983).

193 *Doyle*, 429 U.S. at 287. Government scientists also may be protected against retaliation by federal and state due process guarantees. To state a due process claim, the scientist would have to show: 1) as a result of some state action in punishing the scientist for his research activities, the scientist was deprived of a liberty or property interest; and 2) the deprivation of that interest was done without adequate notice and a fair opportunity to be heard. *See, e.g.*, Cleveland Bd. of Educ. v. Loudermill, 470 U.S. 532, 538-47 (1985); Llano v. Berglund, 282 F.3d 1031, 1034-35 (8th Cir. 2002). *But cf.* Paul v. Davis, 424 U.S. 693, 711-12 (1976) (holding that an employee must suffer some alteration of a right or status, in addition to an injury to reputation, before a liberty interest will be recognized); Bd. of Regents v. Roth, 408 U.S. 564, 576 (1972) (holding that procedural due process does not apply to an interest or benefit absent a legitimate claim of entitlement rather than simply an abstract need or desire or unilateral expectation of receipt of an interest or benefit). Where the public employee has a protected interest that is deprived by the employer's action, the employee is entitled to oral or written notice of the charges against her, an explanation of the employer's evidence, and an opportunity to present her side of the story. *Cleveland Bd. of Educ.*, 470 U.S. at 546. For environmental scientists who are members of university faculties, notions of academic freedom may provide additional protection of research and publication activities. *See* WILLIAM A. KAPLIN & BARBARA A. LEE, THE LAW OF HIGHER EDUCATION 312 (3d ed. 1995).

194 *Connick*, 461 U.S. at 147-48.

195 *Id.* at 146.

196 *Id.* at 154.

197 United States v. Nat'l Treasury Employees Union, 513 U.S. 454, 466 (1995).

198 Rankin v. McPherson, 483 U.S. 378, 386 n.11 (1987).

concern to the public, statements by environmental scientists, whether in the form of writings or speeches, should be regarded as relating to matters of public concern.[199]

If the court determines that a government employee's speech addresses a matter of public concern, the court must then balance the interest of the employee in commenting upon matters of public concern against the interest of the government in promoting the efficiency of the public services it performs through its employees to determine the scope of the First Amendment protection afforded.[200] This requires weighing the employee's interest in self-expression and participation in public discussions, along with the public's interest in being informed, against the government's interest in providing efficient services.[201] Among the relevant considerations are whether the statement impairs discipline by superiors or harmony among co-workers, has a detrimental impact on close working relationships for which personal loyalty and confidence are necessary, impedes the performance of the speaker's duties, or interferes with the regular operation of the enterprise.[202]

As the public concern element of the speech increases, so does the need for the government to show that the employee's speech disrupts the efficient operation of the government agency.[203] The public's strong interest in hearing from government scientists on matters of public health and safety further increases the burden on the government to show that the potential disruptiveness of the speech outweighs its value.[204] In addition, where an existing law or policy limits or chills the government employee's potential speech before it happens, the burden on the government is greater than in the case of an isolated disciplinary action against an employee.[205]

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199 "Quintessentially, employees speak on matters of public concern when they report dereliction of public duties, corruption, or threats to public health or safety." Cynthia L. Estlund, *Free Speech and Due Process in the Workplace*, 71 IND. L.J. 101, 114 (1995); *see also* Sanjour v. EPA, 56 F.3d 85, 91 (D.C. Cir. 1995) (characterizing speech by two EPA employees on current government environmental policies as perhaps the paradigmatic matter of public concern); Reuber v. Food Chemical News, Inc., 925 F.2d 703, 720 (4th Cir. 1991) (characterizing the issue of the carcinogenic effects of pesticides as a matter of "immense public concern").

200 *Rankin*, 483 U.S. at 388; Pickering v. Bd. of Educ., 391 U.S. 563, 568 (1968). The state bears the burden of justifying the discharge on legitimate grounds. *Rankin*, 483 U.S. at 388.

201 *See Nat'l Treasury Employees Union*, 513 U.S. at 465-66, 468-70; *Sanjour*, 56 F.3d at 94.

202 *Rankin*, 483 U.S. at 388 (citing *Pickering*, 391 U.S. at 570-73). A public employer may also prevail by showing that it would have reached the same employment decision even in the absence of the protected speech. Bd. of Educ. v. Doyle, 429 U.S. 274, 287 (1977).

203 *Nat'l Treasury Employees Union*, 513 U.S. at 483 (O'Conner, J., concurring); Connick v. Myers, 461 U.S. 138, 152 (1983). For constitutional purposes, it does not matter if the employee's statement was true or false, although the veracity of the statement may affect the degree to which it interferes with the efficient operation of the employer's enterprise. *Pickering*, 391 U.S. at 570 n.3. Before disciplining an employee, the public employer must undertake a reasonable investigation into what the speech actually was and must in good faith believe the facts on which the employer purports to act. Waters v. Churchill, 511 U.S. 661, 677-78 (1994).

204 *See Waters*, 511 U.S. at 674; *Pickering*, 391 U.S. at 572; *Sanjour*, 56 F.3d at 94 (holding that depriving the public of EPA employees' novel and valuable perspective would "require a serious and carefully considered justification"). The court in *Sanjour* held that where the regulatory scheme vests essentially unbridled discretion in the agency to make the determination of whether particular employee speech is permissible or not, there is a real and substantial threat of censorship that justifies further weighing the balancing in favor of the employee. *Sanjour*, 56 F.3d at 96-97.

205 *Nat'l Treasury Employees Union*, 513 U.S. at 468. "The Government must show that the interests of both potential audiences and a vast group of present and future employees in a broad range of present and future expression are outweighed by that expression's 'necessary impact on the actual operation' of the Government." *Id.* (quoting *Pickering*, 391 U.S. at 571); *see also* Hoover v. Morales, 164 F.3d 221, 227 (5th Cir. 1998) (holding that a university policy prohibiting professors from acting as consultants or expert witnesses on behalf of parties opposing the state was unconstitutional because it drew an impermissible distinction based on the content of the employee's speech).

Because rights secured by the Constitution only are protected against infringement by governments and public officials,[206] generally only scientists employed by government agencies may seek First Amendment protection against employers who seek to punish the scientist for speeches or publications on matters of public concern. Actions taken by non-governmental entities may be subject to First Amendment restrictions only if the alleged infringement of federal rights is "fairly attributable to the State."[207] Yet, "a State normally can be held responsible for a private decision only when it has exercised coercive power or has provided such significant encouragement, either overt or covert, that the choice in law be deemed to be that of the State."[208] In the case of university researchers, even where virtually all of a school's income comes from government funding, such financial dependence does not make the school a state actor.[209] Likewise, scientists employed by government contractors, even where those employers receive most or all of their funding from government sources, should not expect protection from the First Amendment for discharges in retaliation for public speeches or publications on environmental matters.[210] Nonetheless, efforts by government officials to pressure a private employer to punish a scientist for her public speeches or publications on environmental issues could subject the government officials to claims that they unlawfully retaliated against the scientist for exercising her right to free speech.[211]

IV. RECOMMENDATIONS

The widespread scope of suppression of environmental science, the significant harm that could result to public health or the environment from such suppression, and the limited usefulness of legal remedies for the protection of scientists support the need for enhanced efforts to discourage suppression and to defend scientists whose work is attacked. On the issue of defamation, courts should be wary of declaring that by going outside the laboratory or publishing outside of academic journals environmental scientists "assume special prominence in the resolution of public questions" or "thrust themselves to the forefront of particular public controversies in order to influence the resolution of the issues involved."[212] Findings

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206 *See Doyle*, 429 U.S. at 283-84; *Pickering*, 391 U.S. at 583-84. The First Amendment applies to actions by federal, state, and local government employers. *See* Near v. Minnesota *ex rel.* Olson, 283 U.S. 697, 707 (1931).

207 Lugar v. Edmondson Oil Co., Inc., 457 U.S. 922, 937 (1982).

208 Blum v. Yaretsky, 457 U.S. 991, 1004 (1982).

209 Rendell-Baker v. Kohn, 457 U.S. 830, 840-41 (1982). "Acts of such private contractors [whose business depends on contracts with the government] do not become acts of the government by reason of their significant or even total engagement in performing public contracts." *Id.* at 841.

210 Besides financial dependence, in determining if a decision of a private entity is fairly attributable to the state, the Court has considered the degree of state regulation of the private entity, whether the private entity performs a public function, and the "symbiotic relationship" between the entity and the government. *Rendell-Baker*, 457 U.S. at 841-43. These additional factors are not likely to be present in the relationship between non-governmental scientific research institutions and the government agencies that fund or otherwise oversee such research.

211 *See*, *e.g.*, Kinney v. Weaver, 367 F.3d 337, 357-58 (5th Cir. 2004) (en banc); Worrell v. Henry, 219 F.3d 1197, 1209-13 (10th Cir. 2000); Helvey v. City of Maplewood, 154 F.3d 841, 844 (8th Cir. 1998); Korb v. Lehman, 919 F.2d 243, 248 (4th Cir. 1990).

212 Gertz v. Robert Welch, Inc., 418 U.S. 323, 345, 351 (1974). In addition to defamation allegations, scientists have repeatedly encountered threats relating to the enforcement of overly restrictive confidentiality clauses in sponsored research. *See*, *e.g.*, *supra* notes 16-20 and accompanying text; Shuchman, *supra* note 17, at 343 (characterizing disputes over confidentiality agreements as relatively common). Where the research relates to risks to public health or the

by courts that the distribution of research challenging government scientific conclusions to a public interest organization and submission of a letter to the editor make scientists limited public figures for defamation purposes ignore the requirement that the role assumed be of "special prominence" to the controversy and that the person thrust herself to the "forefront" of a public debate.[213] Sharing scientific information or opinions, even where done voluntarily by the scientist, does not mean the scientist assumed special prominence in the debate or is at the forefront of the controversy. By punishing even marginal participation in a controversy, these broad interpretations of the limited public figure criteria chill public participation by knowledgeable scientists, especially since scientists are aware that a tactic now used to silence them is unfounded defamation lawsuits.[214] If, as courts have acknowledged, the public has an interest in hearing from scientists in environmental debates, then scientists should not, in effect, become fair game for ruthless attacks on their reputation and character simply by discussing or distributing their work.[215]

Where scientists are subject to legal attack based on their work, their employers should step forward to defend and indemnify them. Defamation lawsuits against scientists rarely have merit, yet can extract a heavy toll on the scientist in terms of lost research time, money, and emotional distress. In many respects, these lawsuits resemble the "strategic lawsuits against public participation," or "SLAPPs", used by developers, businesses, and other special interests to chill or punish public participation.[216] According to experts, a SLAPP suit is best defended by early review and dismissal by courts and by "SLAPPing back" through monetary awards of attorneys' fees, litigation costs, and countersuit damages in favor of the defendant for the abuse of the courts and violation of constitutional rights caused by the SLAPP plaintiff.[217]

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environment, institutions should review all research contracts and not allow confidentiality clauses that prohibit publication or other public disclosure of the data, except where there are legitimate intellectual property reasons. Karen Young Kreeger & Paula Park, *When Corporations Pay for Research*, 15 SCIENTIST 29 (2001); Rennie, *supra* note 37, at 1241; Margaret A. Somerville, *A Postmodern Moral Tale: The Ethics of Research Relationships*, 1 NATURE REVIEWS 316, 318 (2002).

213 *See, e.g.*, Reuber v. Food Chemical News, Inc., 925 F.2d 703, 709-10 (4th Cir. 1991); Faltas v. State Newspaper, 928 F. Supp. 637, 645-46 (D.S.C. 1996), *aff'd.*, 155 F.3d 557 (4th Cir. 1998).

214 *See, e.g.*, Steven Greenhouse, *Cornell Professor Fights a Slander Suit*, N.Y. TIMES, Apr. 1, 1998, at A14 (reporting that Cornell University Professor Kate Bronfenbrenner was "very frightened and outraged" by the defamation suit brought against her for testifying at a public hearing about her research).

215 For the same reasons, courts should be wary of finding that government researchers are "public officials" for defamation purposes. *See supra* notes 75, 84.

216 Professors George Pring and Penelope Canan define "strategic lawsuits against public participation" ("SLAPP") as "involv[ing] communications made to influence a governmental action or outcome, which, secondarily, resulted in (a) a civil complaint or counterclaim (b) filed against nongovernment individuals or organizations (NGOs) on (c) a substantive issue of some public interest or social significance." GEORGE W. PRING & PENELOPE CANAN, SLAPPS: GETTING SUED FOR SPEAKING OUT 8-9 (1996). A SLAPP suit typically develops when citizens communicate (to a government decision-maker) their views opposing someone else's plans and the opponent or target of those views seeks to silence or punish the citizens by filing suit. *Id.* at 10. In essence, SLAPP seeks to punish citizens for exercising their First Amendment rights to freedom of speech and to petition the government for redress of grievances. *Id.* at 10.

217 *Id.* at 143-87. "SLAPPs, as lawsuits go, are 'losers.' The vast majority are ultimately dismissed by the courts. The remainder are chiefly cases where targets (or their insurance companies) gave up and entered into dismissal settlements." George (Rock) Pring & Penelope A. Canan, *SLAPPs: An Overview of the Practice*, A.L.I.-A.B.A. CONTINUING LEGAL EDUC., Aug. 19, 1994, at 1, 12.

To SLAPP back effectively and otherwise defend against legal attacks, scientists need the assistance of legal counsel. Institutions, however, often have failed to provide legal assistance to scientists targeted for attack.[218] State statutes generally provide for legal representation and indemnification of public employees for civil claims arising out of any act or omission occurring within the scope of their employment.[219] These employee protection provisions should be liberally construed to cover a government scientist's publications and speeches. In the case of university scientists, the American Association of University Professors recommends that colleges and universities adopt policies that ensure effective legal and other representation and full indemnification for any faculty member included in a lawsuit or other extra-institutional proceeding arising from an act or omission in the discharge of institutional or related professional duties, or in the defense of academic freedom at the institution.[220] This coverage should extend to occasions when the researcher is disseminating her work outside the academic setting, since universities offer their faculties' expertise for use by the media and use media coverage of faculty publications and speeches in university public relations efforts.[221] Research institutions should also recognize the important role attorneys play in defending scientists wrongly accused of scientific misconduct and should provide legal counsel to employees accused of scientific misconduct while performing their work in good faith.[222]

Regarding allegations of scientific misconduct, statistics indicate that few allegations of misconduct turn out to be valid.[223] Hence, rules for investigating misconduct charges should reflect the small percentage of allegations found to be valid and the significant negative consequences scientists suffer even when

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218 *See, e.g.*, Robert A. Phillips & John Hoey, *Constraints of Interest: Lessons at the Hospital for Sick Children*, 159 CANADIAN MED. ASS'N J. 955, 955 (Oct. 20, 1998) (noting the failure of Dr. Nancy Oliveri's employers to provide legal assistance when she was threatened by a research funder with legal action); Cathy Sears, *Supreme Court Ruling Could Inhibit Debate in Journals*, 4 SCIENTIST 1 (Oct. 1, 1990) (reporting that Professor Michael Salamon was originally told by the University of Utah that it would not defend him when another scientist at the University threatened him with legal action over a published study).

219 *See, e.g.*, CAL. GOV'T CODE § 825 (West 2003); 5 ILL. COMP. STAT. § 350/2 (2003).

220 AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS, Institutional Responsibility for Legal Demands on Faculty (1998), *reprinted in* AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS, POLICY DOCUMENTS & REPORTS 130 (9th ed. 2001).

221 *See, e.g.*, JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH, FACULTY RESEARCH BY TOPIC, *at* http://faculty.jhsph.edu/researchguide.cfm (last visited July 1, 2004); MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MIT NEWS, *at* http://web.mit.edu/newsoffice/www/newsoffstaff.html (last visited July 1, 2004); *see also* Kevin Oates, *Professor Defend Thyself: The Failure of Universities to Defend and Indemnify Their Faculty*, 39 WILLAMETTE L. REV. 1063 (2003) (arguing for the need for a presumption in favor of providing a defense and indemnity to professors who are sued for activities the professors believe are within the scope of their employment).

222 *See* Daniell, *supra* note 122 (arguing it is improper for an institution to fail to provide legal or advisory support when an employee is accused of misconduct while in good faith performing job duties); Glenn Harlan Reynolds, *"Thank God for the Lawyers": Some Thoughts on the (Mis)Regulation of Scientific Misconduct*, 66 TENN. L. REV. 801 (1999) (reviewing misconduct proceedings and concluding that lawyers were essential to ensure a fair proceeding); Slind-Flor, *supra* note 131, at 44 (reporting the conclusion of attorneys that, without legal counsel, an academic can suffer an erroneous scientific misconduct decision).

223 *See* Jock Friedly, *ORI's Self Assessment: A Batting Average of .920?*, 275 SCI. 1255, 1255 (Feb. 28, 1997) (reporting on a study by ORI finding that fewer than 5% of allegations of misconduct forwarded to ORI result in a final finding of scientific misconduct); *see also* Daniell, *supra* note 122, at S154 ("It appears, therefore, that reported and confirmed incidents of misconduct in science are relatively rare.").

exonerated. At a minimum, before any inquiry is initiated, the accuser should be required to provide evidence in support of the charge.[224] A mere allegation, suspicion, or hearsay information should not be considered sufficient to trigger an inquiry.

Although some institutional policies on reporting misconduct specify what evidence the accuser should provide, federal regulations do not require any evidence from the accuser.[225] For example, at the University of Arizona an accuser "should submit a detailed, written report" of the alleged misconduct; only "allegations reasonably evidencing misconduct" can trigger an inquiry.[226] The University of South Alabama likewise requires "evidence of wrongdoing" and notes that hearsay evidence alone is not adequate to warrant an inquiry.[227] Under the University of Massachusetts' policy, no inquiry may be initiated unless the allegation provides "sufficient evidence to warrant an inquiry."[228] Federal misconduct regulations should not simply allow institutions to require this type of objective evidence of misconduct in the allegation but should mandate such evidence before any institution initiates an inquiry.

In addition, federal regulations should require that the accuser have an objective basis for making a scientific misconduct allegation in order to enjoy protection from any defamation lawsuit by the accused. ORI argues that a whistleblower should be entitled to a conditional privilege to report allegations of misconduct if the whistleblower acted in "good faith."[229] ORI contends the privilege is lost only where the whistleblower acts with "bad faith" or "malice," defined as a situation where the whistleblower knows the statement is false or acts with reckless disregard for the truth.[230]

Nisan Steinberg argues, "ORI's current policy appears to extend the protection of qualified privilege by ignoring the common law's concern that a qualified privilege must be exercised in a reasonable manner for a proper purpose, or it will be forfeited."[231] He notes that at common law, but not under ORI's policy, the privilege is forfeited if the accuser acts chiefly from motives of ill will.[232] A comment to the Restatement (Second) of Torts explains that "publication of

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224 Sigma Xi, The Scientific Research Society, advises those entering careers in scientific research to make "best efforts to discover the truth" prior to whistleblowing and to not "blow a whistle without very good grounds for doing so." SIGMA XI, THE SCIENTIFIC RESEARCH SOCIETY, HONOR IN SCIENCE 31-32 (1991).

225 As noted above, ORI's Whistleblower's Bill of Rights states that "[w]histleblowers and other witnesses to possible research misconduct have a responsibility to raise their concerns honorably and with foundation." *See supra* note 138. However, federal regulations do not mandate any evidentiary support for an allegation. Some state whistleblower statutes do require an accuser to make a reasonable attempt to determine the accuracy of any information reported. Rutzel, *supra* note 172, at 20, 20 n.177 (citing IND. CODE ANN. § 22-5-3-(3)(c) (1994) and OHIO REV. CODE ANN. § 4113.51 (1994)).

226 UNIVERSITY OF ARIZONA, POLICY AND PROCEDURES FOR INVESTIGATIONS OF MISCONDUCT IN SCHOLARLY, CREATIVE, AND RESEARCH ACTIVITIES §§ I.B.4, II.D (Apr. 4, 2003), *available at* http://fp.arizona.edu/senate/research_integrity_policy.htm.

227 UNIVERSITY OF SOUTH ALABAMA, FACULTY HANDBOOK § 7.8 (Sept. 2003), *available at* http://www.southalabama.edu/academicaffairs/handbook.pdf.

228 UNIVERSITY OF MASSACHUSETTS MEDICAL CENTER, UNIVERSITY OF MASSACHUSETTS MEDICAL CENTER POLICY FOR RESPONDING TO ALLEGATIONS OF SCIENTIFIC MISCONDUCT § IV.E (Mar. 19, 1998), *available at* http://www.umassp.edu/policy/scmisconductpol.html.

229 ORI PRIVILEGE, *supra* note 142.

230 *Id*.

231 Steinberg, *supra* note 144, at 102.

232 *Id*. at 102 n.377 (citing PROSSER AND KEETON, *supra* note 73, at 834-35).

defamatory matter upon an occasion giving rise to a privilege, if made solely from spite or ill will, is an abuse and not a use of the privilege."[233] Thus, as Steinberg argues and the Restatement supports, whistleblowers should be expected to act with reasonable care in making allegations of misconduct and should not enjoy immunity from liability where they act out of malice toward the accused environmental scientist.[234]

Whistleblowers who act in bad faith also should be punished as if they committed scientific misconduct. Present misconduct regulations do not include bad faith allegations in the definition of misconduct, nor do they require research entities to develop policies for punishing bad faith whistleblowers.[235] Although 65% of non-federal institutional policies warn against making bad faith allegations of misconduct, only 3% specify the disciplinary actions that will be taken against persons who make unfounded allegations.[236] A review of HHS and National Science Foundation misconduct policies found no statement on punishment of bad faith whistleblowers other than the loss of the conditional privilege in any defamation action.[237] In the absence of a realistic threat of disciplinary action, the distant loss of the conditional privilege defense in a defamation action may not be sufficient to deter bad faith allegations of scientific misconduct.

Efforts to counter retaliation for scientific environmental speech would also be strengthened by expanding the coverage of statutory employee protection provisions. Although at least eight federal environmental statutes contain employee protection provisions,[238] the absence of these provisions in federal natural resource statutes leaves resource scientists with the largely ineffective Whistleblower Protection Act to rely on for relief. This absence of whistleblower protection provisions in most natural resource laws and the increasingly political nature of many natural resource decisions make natural resource scientists particularly vulnerable to retaliation for unwelcome research.[239] The addition of employee protection provisions to the

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233 RESTATEMENT (SECOND) OF TORTS, *supra* note 72, § 603 cmt. a. The Restatement further explains: "[I]f the publication is made for the purpose of protecting the interest in question, the fact that the publication is inspired in part by resentment or indignation at the supposed misconduct of the person defamed does not constitute an abuse of the privilege." *Id*.

234 Steinberg, *supra* note 144, at 101-03.

235 *See* 65 Fed. Reg. 76,260, 76,262 (Dec. 6, 2000) (explaining the failure of the federal policy on research misconduct to punish informants who act in bad faith). The Office of Science and Technology Policy explained that, although the federal policy would not punish bad faith whistleblowers, "non-Federal institutions may adopt policies to address the consequences of false, malicious, or capricious allegations and to respond to retaliation against informants. Agencies may also address this issue in their implementation of this policy." *Id*.

236 ORI, ANALYSIS, *supra* note 140, at App. D. The University of Arizona's misconduct policy does define the "making of false allegations or bringing of bad faith or malicious charges" as misconduct that will be addressed under existing policies. UNIVERSITY OF ARIZONA, *supra* note 226, at I.B.9. The University of Massachusetts Medical Center's policy states that if an allegation was not made in good faith, the accuser may be subject to the same institutional administrative actions faced by those who engage in scientific misconduct. UNIVERSITY OF MASSACHUSETTS, *supra* note 228, at XI.D.

237 The Department of Interior's new draft Code of Scientific Conduct states that scientists involved in activities conducted or funded by the Department shall not "hinder the scientific and information gathering activities of others." Press Release, U.S. Department of the Interior (May 30, 2003). Whether this draft provision will be interpreted to apply to bad faith allegations of misconduct and whether such bad faith actions will result in discipline is uncertain.

238 *See supra* note 168.

239 *See, e.g.*, PUBLIC EMPLOYEES FOR ENVIRONMENTAL RESPONSIBILITY, *supra* note 31 (detailing threats to wildlife biologists because of their work on grizzly bear populations); Hal Bernton, *Inside Revolt Leads to Logging Halt*, OREGONIAN, Feb. 28, 2000, at A1 (reporting on alleged

federal Endangered Species Act,[240] National Environmental Policy Act,[241] and other natural resource statutes would provide natural resource scientists with the same level of protection enjoyed by scientists working on pollution control and hazardous waste.

In addition, an expanded view of the scope of employee protection provisions in federal environmental statutes would help counter the suppression of environmental science. The Supreme Court has noted the need for broad protection under whistleblower protection provisions in order "to prevent [an agency's] channels of information from being dried up by employer intimidation."[242] Courts interpreting employee protection provisions in environmental statutes also have noted the need for a broad construction of the remedial purposes of shielding employees from retaliatory actions.[243] As the U.S. Secretary of Labor explained: "[E]mployees must feel secure that any action they may take that furthers the Congressional policy and purpose, especially in the area of public health and safety, will not jeopardize either their current employment or future employment opportunities."[244] Narrow interpretations of employee protection provisions, therefore, interfere with the remedial environmental protection and public health purposes of the statutes.

It is important, therefore, to ensure employees are protected when their work or disclosure involves something other than reporting a violation of an environmental statute. The federal Water Pollution Control Act protects an employee who filed or instituted, caused to be filed or instituted, or testified or is about to testify "in any proceeding resulting from the administration or enforcement of the provisions of [the Act]."[245] The Energy Reorganization Act shields any employee who assisted or participated, or is about to assist or participate, "in any manner" in a proceeding or "in any other action to carry out the purposes" of the Act.[246] Superfund provides for protection where the employee "provided information to a State or to the Federal Government" or caused to be instituted or testified in "any proceeding resulting from the enforcement of the provisions of [Superfund]."[247] As Stephen Kohn explained,

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retaliation by the U.S. Bureau of Land Management against a biologist because he informed fisheries officials that proposed timber sales appeared to violate federal environmental regulations); Letter from Eric Wingerter, National Field Director, Public Employees for Environmental Responsibility, to Trudy Harlow, U.S. Dep't of Interior (Mar. 26, 2001) (protesting the termination of a U.S. Geological Survey researcher because he posted a map on the agency's website showing caribou migration patterns).

240 16 U.S.C. §§ 1531-44 (2000).

241 42 U.S.C. §§ 4321-70f (2000).

242 N.L.R.B. v. Scrivener, 405 U.S. 117, 122-23 (1972).

243 *See, e.g.*, Am. Nuclear Res., Inc. v. United States Dep't of Labor, 134 F.3d 1292, 1295 (6th Cir. 1998); Passaic Valley Sewerage Comm'rs v. United States Dep't of Labor, 992 F.2d 474, 478-79 (3d Cir. 1993); DeFord v. Sec'y of Labor, 700 F.2d 281, 286 (6th Cir. 1983).

244 KOHN, *supra* note 167, at 143 (quoting Egenrieder v. Metro. Edison Co./G.P.U., 85-ERA-23 (Dept. of Labor Apr. 20, 1987)).

245 33 U.S.C. § 1367(a) (2000). "After passage of the [Water Pollution Control Act] whistleblower protection law, Congress passed six other environmental and nuclear whistleblower laws all modeled after the WPCA provision." KOHN, *supra* note 167, at 142 (citing the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 (2000), Energy Reorganization Act, 42 U.S.C. § 5801 (2000), Solid Waste Disposal Act, 42 U.S.C. § 6901 (2000), Toxic Substances Control Act, 15 U.S.C. § 2601 (2000), Safe Drinking Water Act, 42 U.S.C. § 201 (2000), and Water Pollution Control Act, 42 U.S.C. § 1367 (2000)).

246 42 U.S.C. § 5851(a)(1)(F) (2000); *see also* Stone & Webster Eng'g Corp. v. Herman, 115 F.3d 1568, 1575 (11th Cir. 1997) (noting that "purpose" is an open-ended word that should be broadly interpreted to protect employees).

247 42 U.S.C. § 9610(a) (2000).

these provisions "were passed in order to help enforce U.S. environmental laws, enhance environmental quality, and protect public health and safety."[248] Accordingly, agencies and courts should interpret employee protection provisions broadly to protect environmental scientists whenever employers seek to retaliate for work that may aid in administering or enforcing a federal environmental statute, even where that work is simply research that may assist the agency in administering the law or indicates the agency is not following a statutory requirement.[249]

V. CONCLUSION

Improved legal remedies clearly are needed to protect environmental scientists against suppression of their work, but legal remedies alone may not be sufficient to discourage and defend against such suppression. Colleagues and professional societies can and must do much more to oppose suppression. Few professional standards specifically address the practice of harassment of scientists.[250] Moreover, in some of the well-publicized cases of suppression, scientific and medical societies did not publicly support the scientists under attack.[251]

Professional societies should make clear that efforts to suppress research by attacking scientists is unacceptable and should defend scientists under attack.[252] Society members should be discouraged from participating or assisting in such attacks and expected to lend support to colleagues who come under attack. Those

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248 KOHN, *supra* note 167, at 144 (citing Chase v. Buncombe County, 85-SWD-4 (Dep't. of Labor Nov. 3, 1986)).

249 Nathaniel v. Westinghouse Hanford Co., 91-SWD-2 (Dep't of Labor Feb. 1, 1995) (holding that whistleblower provisions protected employee where her actions "'touched on' subjects regulated under the pertinent statutes"), *available at* http://www.oalj.dol.gov/public/wblower/decsn/91swd02b.htm; Dodd v. Polysar Latex, 88-SWD-4, at 5 (Dep't of Labor Sept. 22, 1994) ("Concerns such as these that 'touch on' the environment and statutory compliance are protected."), *available at* http://www.oalj.dol.gov/public/wblower/decsn/88swd04b.htm.

250 An example of a professional code that addresses suppression is the Ecological Society of America's principles that all ecologists certified by the Society "will not practice or condone harassment in any form in any professional context . . . nor attempt to injure the reputation or professional opportunities of another scientist by false, biased, or undocumented claims, by offers of gifts or favors, or by any other malicious action." ECOLOGICAL SOCIETY OF AMERICA, CODE OF ETHICS, *available at* http://www.esa.org/aboutesa/governance/codeofethics.php (last updated June 6, 2004).

251 *See, e.g.*, BLUM, *supra* note 109, at 175 (reporting that not only did no big science or medical society intervene in the *Immuno AG.* case to support the free speech rights of scientists and academic journals, but the National Association for Biomedical Research filed an amicus brief in support of Immuno AG. and against one of its members); Muzza Eaton, *Scientific Freedom and Responsibility Activities of Scientific Societies*, 5 SCI. TECH. & HUM. VALUES 24, 26 (Fall 1979) (reporting that, of the scientific societies who were requested to assist on issues of scientific freedom and responsibility, only one-third had boards or committees to investigate such problems and only one-quarter intervened to assist); Karen Young Kreeger, *Industry Support of Societies Under Fire*, 11 SCIENTIST 1 (June 23, 1997) (reporting on criticism of the American Thyroid Association for not taking up the cause of academic freedom when Professor Betty Dong was struggling to publish her research and on suggestions that the dependence of professional associations on industry money may explain their reluctance to get involved).

252 The American Association for the Advancement of Science argued in 1975 that increased activity by professional societies was the most hopeful approach in the immediate future to the problems of interference in scientific freedom and suppression of scientific data. Edsall, *supra* note 6, at 691. Similarly, Brian Martin argues that of greatest value to scientists under attack are support organizations, sympathetic media coverage, alternative employment opportunities, and a culture of dissent in which criticisms and debate are welcomed as healthy. *Critics of Pesticides*, *supra* note 13, at 48.

who fail to abide by such standards should be censured and have their memberships suspended or revoked.[253] Likewise, institutions employing environmental scientists should enhance their efforts to support scientists who are attacked because of their work. Eager for corporate money, these institutions have too often failed to support their researchers when attacked.[254] For it is only when the scientist under attack, colleagues, professional societies, and research institutions, working with improved legal remedies, all join together that suppression of environmental science will be curtailed.

253 "Many societies choose not to engage in enforcement, using their codes primarily for educational purposes." AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE & U.S. OFFICE OF RESEARCH INTEGRITY, THE ROLE AND ACTIVITIES OF SCIENTIFIC SOCIETIES IN PROMOTING RESEARCH INTEGRITY 5 (Sept. 2000).

254 "Eager for industry alliances and wary of legal battles, universities sometimes fail to support researchers who come into conflict with a corporate sponsor." Birch & Cohn, *supra* note 37 (citing the case of David Kern and Brown University).