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NEWS & ANALYSIS

Enforcement Data: A Tool for Environmental Management

by Robert H. Cutting, Lawrence B. Cahoon, and Ryan D. Leggette

Editors' Summary: Information is a key factor in shaping and regulating environmental behavior from various perspectives: that of a stockholder looking into the sound nature of an investment, of a consumer choosing a product, or of a government official determining compliance with law. The authors of this Article set out to identify and collate what they thought would be a significant amount of environmental compliance information available on the Internet that could serve these purposes. In so doing, however, they discovered that while the basic technical infrastructure exists within the current state and federal databases, there are few sources of enforcement information that are truly accessible and useful to the consumer, investor, and even the regulatory community. The authors thus argue for a publicly accessible assemblage of existing enforcement and compliance data from all environmental regulatory agencies. While the data presented below demonstrate what information is available to the public today, more importantly, they serve as a starting point for the eventual goal of providing the public with all enforcement data in an accessible format.

I. Introduction

Substantial improvements in environmental quality in the United States over the past several decades can be attributed to key environmental laws and regulations enacted since the late 1960s.¹ The principal environmental laws such as the Clean Air Act (CAA)² and Clean Water Act (CWA)³ contain different standards and methods of attainment. Since the early days of the environmental movement, there has existed a wide range of opinion as to the proper mix of enforce-

ment strategies that should be employed. Command-and-control systems utilize administrative, informational, civil, and criminal enforcement mechanisms. Though much-maligned, the nation made significant and steady progress in all media with science-based regulatory standards.⁴ Incentives (including various tax breaks) and technical assistance have always been popular "carrots," and market-based strategies such as emissions trading systems have received increasing attention.⁵ Given that many of these techniques (such as regulation of point source discharges to surface water) have peaked, and that resources for environmental protection are limited, the debate is still lively.⁶ This Article suggests that *information* is a key factor in utilizing market forces to shape discharger (generator) behavior.

Each of the above strategies requires an enforcement mechanism to achieve the desired behavior modification. Commentator Peter Yeager observed: "[E]nforcement is the centerpiece of regulation, the visible hand of the state reaching into society to correct wrongs. . . . Both symbolically and

Robert H. Cutting teaches law-related subjects in the Department of Environmental Studies, University of North Carolina, Wilmington. Mr. Cutting received his J.D. from the University of California, Davis, in 1973 and is admitted to practice in California (1973) and North Carolina (1997). He worked with the California Air Resources Board in the early 1970s and has represented many environmental groups, governmental units, and the regulated community. He has also chaired the California District Attorneys Association Consumer Protection Council and has worked on staff to North Carolina legislators.

Lawrence B. Cahoon teaches oceanography and limnology courses in the Department of Biology and Marine Biology, University of North Carolina, Wilmington, and does research on water quality issues. Dr. Cahoon has supervised water quality monitoring projects and has served as an expert witness in legal actions involving water quality issues.

Ryan D. Leggette is a graduate student working in the Environmental Studies Department at the University of North Carolina, Wilmington. Mr. Leggette holds a B.S. in Business Administration from the University of North Carolina, Chapel Hill.

1. U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA), ANNUAL REPORT 2003 (2004); J. CLARENCE DAVIES & JAN MAZUREK, REGULATING POLLUTION: DOES THE U.S. SYSTEM WORK? (Resources for the Future 1997).
2. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.
3. 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

4. DAVIES & MAZUREK, *supra* note 1.

5. The George W. Bush Administration recently implemented emissions trading for the first hazardous air pollutant: mercury. See U.S. EPA, *Clean Air Mercury Rule*, at <http://www.epa.gov/air/mercuryrule/> (last visited Oct. 17, 2005).

6. William Simmons & Robert H. Cutting Jr., *A Many-Layered Wonder: Non-Vehicular Air Pollution Control in California*, 26 HASTINGS L.J. 109, 113 (1975); Robert H. Cutting, *One Man's Ceiling Is Another Man's Floor: Property Rights as the Double-Edged Sword*, 31 ENVTL. L. 819, 899-900 (2001); CLIFFORD RECHTSCHAFFEN & DAVID L. MARKELL, REINVENTING ENVIRONMENTAL ENFORCEMENT & THE STATE/FEDERAL RELATIONSHIP ch. 5 (Envtl. L. Inst. 2003).

practically, enforcement is a capstone, a final indicator of the state's seriousness of purpose and a key determinant of the barrier between compliance and lawlessness."⁷ Law enforcement has a straightforward expression: "No cop, No stop." Despite the critical role compliance enforcement plays in the protection of environmental quality, enforcement components within regulatory agencies are controversial, politically manipulated, and subject to limitations such as budget, staffing, and technology that impede the complete compliance monitoring of regulated polluters.⁸ The realities of operating with limited resources leave regulatory agencies searching for more efficient methods of enforcement. This Article argues that an assemblage of *existing* enforcement and compliance data from all environmental regulatory agencies in a publicly accessible format would be a valuable tool that is either overlooked by policymakers or is intentionally ignored. Data availability provides both positive reinforcement for those in compliance and negative reinforcement for those who are not.

Indications from responses to both corporate environmental liability disclosures and the data available through the Emergency Planning and Community Right-To-Know Act's (EPCRA's) toxic release inventory (TRI)⁹ suggest that investors are interested in the environmental records of firms, which interests dischargers because of the effect on stock prices. Many firms believe that consumers also respond to the available data.¹⁰ The theme of "corporate responsibility" is so popular that a 10-page advertising supplement by proponent firms appeared in the *New York Times* on November 2, 2005.¹¹ Thus, there is ample evidence that firms can and do modify their behavior based on the perceptions of both investors and consumers. Many regulators also seek enforcement data because past behavior is often a predictor of future behavior, yet these agencies surprisingly cannot always easily obtain information outside (and sometimes inside) their jurisdictions. The study on which this Article is based was intended to identify and collate what we thought would be a significant amount of information available on the Internet that could serve these purposes. What we found instead was just the opposite: there are edited summaries, reports, and press releases, but little searchable data.

II. The Need for Public Disclosure of Environmental Compliance

Former President William J. Clinton and Vice-President Al Gore recognized that data on environmental performance could be a useful tool to supplement traditional methods to influence behavior and promised to provide that data as a matter of the "highest priority."¹² EPCRA, coupled with the Freedom of Information Act (FOIA), provides new levels of data accessibility for the public.¹³ In response to the increased flow of information, government agencies and nongovernmental organizations (NGOs) have begun using public information as a tool. For example, the U.S. Environmental Protection Agency (EPA) began the TRI as a publicly accessible database containing information on the release of toxic chemicals and waste management activities.¹⁴ In response, Environmental Defense, an environmental nonprofit organization, created "Scorecard," a user-friendly database that transcribes TRI data into a format that allows users to identify toxic polluters in their area.¹⁵ The response has been overwhelming. Scorecard has received 200,000 data requests *per day* since the outset and provides the public with information that can impact consumer decisions.¹⁶ Environmental Defense notes that EPA itself contends that TRI has helped reduce toxic pollution some 40%. Unfortunately, the Bush Administration has just proposed substantial reductions in the data available.¹⁷ Other albeit preliminary studies indicate that this leads to increased compliance from industry, where the perception is that negative information affects sales and profits.¹⁸ By sharing environmental information that is already collected and available within the agencies, regulators could potentially achieve compliance even beyond the requisite standards with relatively few additional resources. Unfortunately, however, the Clinton-Gore promise never reached fruition.

Preliminary indications, led by the strong response to Scorecard and the Enforcement and Compliance History Online (ECHO), a public national database that queries other EPA non-public databases,¹⁹ suggests that enforcement data could also be used to empower consumers, investors, and the regulatory agencies. In addition to the National Environmental Policy Act²⁰ and EPCRA, the concept of

7. PETER C. YEAGER, *THE LIMITS OF LAW: THE PUBLIC REGULATION OF PRIVATE POLLUTION* 251 (1990), *quoted in* Joel A. Mintz, "Treading Water": A Preliminary Assessment of EPA Enforcement During the Bush II Administration, 34 ELR 10912 (Oct. 2004).

8. R. STEVEN BROWN, REPORT TO CONGRESS, STATE ENVIRONMENTAL AGENCY CONTRIBUTIONS TO ENFORCEMENT AND COMPLIANCE (Env'tl. Council of the States (ECOS) 2001), *available at* http://www.ecos.org/files/687_file_ECOS_20RTC_20f.pdf (last visited Oct. 17, 2005) [hereinafter BROWN, CONTRIBUTIONS]; R. STEVEN BROWN, COPING WITH THE CRUNCH—WHEN THE AXE FALLS: HOW STATE ENVIRONMENTAL AGENCIES ARE DEALING WITH BUDGET CUTS (ECOS 2002), *available at* <http://www.ecos.org/section/publications/?id=685> (last visited Oct. 17, 2005) [hereinafter BROWN, BUDGET]; Mintz, *supra* note 7, at 10942; DAN BESSE & ROBIN K. SMITH, SEE NO EVIL: WHY OUR ENVIRONMENTAL LAWS ARE NOT BEING ENFORCED (Conservation Council of N.C. 2002), *available at* <http://www.conservancycouncilnc.org/education/SNEfinal.pdf> (last visited Nov. 14, 2005).

9. 42 U.S.C. §§11001-11050, 11023, ELR STAT. EPCRA §§301-330.

10. LES CARLOUGH, GENERAL DETERRENCE OF ENVIRONMENTAL VIOLATION: A PEEK INTO THE MIND OF THE REGULATED PUBLIC (Or. Dep't of Env'tl. Quality (2004)), *available at* http://www.complianceconsortium.org/StoreDocuments/State/OR_DeterrenceReport.pdf (last visited Nov. 21, 2005).

11. CSR: Three Little Letters That Just Might Change the World (paid advertising supplement), N.Y. TIMES, Nov. 1, 2005, at ZU1-ZU10.

12. BILL CLINTON & AL GORE, REINVENTING ENVIRONMENTAL REGULATION (1995), *cited in* Shameek Konar & Mark A. Cohen, *Information as Regulation: The Effect of Community Right-to-Know Laws on Toxic Emissions*, 32 J. ENVTL. ECON. & MGMT. 109-24 (1997); *see also* Ralph Nader, *The Force of Public Awareness*, 34 PROGRESSIVE 19-22 (1970).

13. J. Guttman, *What Right-to-Know Means for Environmental Strategies*, 5 CORP. ENVTL. STRATEGY 82-85 (1998); Peter Fairley et al., *Scorecard Hits Home*, CHEMICAL WK. J., June 3, 1998, at 24; Konar & Cohen, *supra* note 12.

14. Available through the Envirofacts Data Warehouse at <http://www.epa.gov/enviro> (last visited Nov. 14, 2005).

15. Available at <http://www.scorecard.org> (last visited Oct. 17, 2005).

16. Fairley et al., *supra* note 13.

17. Environmental Defense, *Tell the Bush Administration—Don't Let Toxic Pollutants Off the Hook*, at <http://actionnetwork.org/campaign/toxics/855eg7415x7n65?> (last visited Nov. 14, 2005).

18. Madhu Khanna et al., *Toxics Release Information: A Policy Tool for Environmental Protection*, 36 J. ENVTL. ECON. & MGMT. 243-66 (1998).

19. U.S. EPA, *Enforcement and Compliance History Online*, at <http://www.epa.gov/echo/> (last visited Oct. 17, 2005).

20. 42 U.S.C. §§4321-4370d, ELR STAT. NEPA §§2-209.

public information as a compliance tool is well established. For example, consumers anxiously await, examine, and discuss restaurant sanitation ratings in those jurisdictions that post these data. The police blotter and court proceedings records are still in demand in the nation's newspapers. In recent years water systems have had to publish notices of violations of water quality standards, and in some states, such as North Carolina, sewage waste spills must also be reported. The "Beaches" bill of 1999 also facilitates posting of national beach water quality data on EPA's website.²¹

Moreover, the regulated community is interested in compliance and enforcement data to track competitors' behavior²² and to gauge the efficacy of enforcement efforts. Licensed professionals are also influenced by compliance data: licensing agency publications include commonly read sections on discipline. Both prosecutors and counsel representing the regulated community indicated that public relations (PR) was a significant concern in almost every case negotiation, often more so than fines, penalties, supplemental environmental projects (SEPs), or injunctions, which can often easily be absorbed as a cost of doing business. A recent study by the Oregon Department of Environmental Quality (DEQ) found, for example, that 70% of companies sampled believed that they could not save money by evading environmental laws because of the risk of detection and subsequent adverse publicity.²³

The regulated community is wary about the release of performance and enforcement information, which is precisely why it can be so effective. A chemical industry representative, for example, called TRI the "worst thing that could possibly happen to the industry."²⁴ One regulator, who asked to remain anonymous, commented: "Companies hate it. They lobby like hell to get their names off the list after they come into compliance."²⁵ Another commentator worried that "[i]f disclosure programs mislead the general public, they could result in inappropriate policy decisions requiring financial and human resources to be misdirected on emissions that may pose low risks to the environment."²⁶ In response to those concerns, we contend that: (1) these data belong to the public by law and, thus, there is no justification for preventing easy access; and (2) providing raw rather than edited data is the best formula for both serious analysis and ease of use by the public. Firms interested in corporate responsibility should seek the data to build positive PR, perhaps while enjoying the negative PR noncompliant competitors might

receive.²⁷ The regulated community is also free to use its considerable resources to respond, or better yet, to eliminate these externalities that distort the operations of markets.

EPA recently issued a request for proposals concerning the development of a system to gauge the uses and effects of the release of environmental data, particularly data that quantify discharges, emissions, and releases.²⁸ While this is a laudable endeavor, our position is that the data should be released in their entirety so that studies may be conducted on the use of real, public data, both as to the manner in which they are creatively displayed and the effect of the data in modifying the behavior of the regulated community, consumers, investors, and the regulators themselves. Unfortunately, EPA intends to delay the release of these public data in an easily accessible format until these two- to three-year studies are completed, which will likely delay the issue to another administration. Alternatively, we think the data should be filed electronically and made available in real time, which could easily be done using common database-to-web-to-database programs.

Currently, no resource exists that has consolidated environmental enforcement data for all 50 states in a format that the public can access to aid in purchase or investment decisions. Similarly, no single state presented comprehensive data in an ideal format, although some states are notable for their efforts. Both Delaware²⁹ and New

27. Dennis M. Patten & William Crampton, *Legitimacy and the Internet: An Examination of Corporate Web Page Environmental Disclosures*, 2 ADVANCES ENVTL. ACCT. & MGMT. 31-57 (2003).

28. What follows is a synopsis of the program:

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking proposals from researchers in economics, business administration, law, decision sciences, and other social sciences to address issues associated with environmental information disclosure. Researchers are invited to identify how environmental information obtained through information disclosure rules and voluntary programs is used and by whom, the consequences such use has on behavior, and the resulting changes in environmental performance (e.g., discharges, emissions or exposure). Primarily, EPA wants to better understand how required disclosure of environmental information about contaminants in drinking water, toxic releases or residues, chemical or oil spills, emissions, discharges, waste storage and disposal, potential liabilities, toxicity, or recycling and reuse of chemicals influences environmental behavior, practices and performance at the level of facilities, firms, markets, communities or state regulatory and enforcement agencies. Secondly, EPA is interested in the effects of voluntary information provision on firm or facility environmental performance, profitability, reduced transaction costs, increased market share, enforcement costs, etc.

Award Information

Anticipated Type of Award: Grant

Estimated Number of Awards: Approximately 3 - 6 awards

Anticipated Funding Amount: Approximately \$1 million - \$1.5 million

Potential Funding per Grant: Up to a maximum of \$400,000 over 2 or 3 years, including direct and indirect costs. Cost sharing is not required but is encouraged. Proposals with budgets exceeding the total award limits will not be considered.

National Center for Environmental Research, U.S. EPA, *Funding Opportunities*, at http://es.epa.gov/ncer/rfa/2005/2005_ebd_rfa.html (last visited Oct. 17, 2005).

29. Delaware Natural Resources & Environmental Control, *Active and Recent Enforcement*, at <http://www.dnrec.state.de.us/DNREcis/dataview/asp/EnforcementsSearch.asp> (last visited Nov. 21, 2005).

21. U.S. EPA, *Beach Advisory and Closing On-Line Notification*, at http://oaspub.epa.gov/beacon/beacon_national_page.main (last visited Nov. 14, 2005).

22. All businesses seem to be concerned about unfair competition. Over 50% of all reports made to the California District Attorneys' consumer protection units have historically come from competitors who understood both the business and the competitive advantages enjoyed by those who did not comply. More than one is also looking for negative PR for a competitor.

23. CARLOUGH, *supra* note 10.

24. Fairley et al., *supra* note 13.

25. Telephone Interview with anonymous regulator (Feb. 23, 2004).

26. Mark D. Abkowitz et al., *Environmental Information Disclosure and Stakeholder Involvement: Searching for Common Ground*, 10 CORP. ENVTL. STRATEGY 415-24 (1999); Bernard Sinclair-Desgagne & Estelle Gozlan, *A Theory of Environmental Risk Disclosure*, 45 J. ECON. & MGMT. 377-93 (2003).

Jersey³⁰ provide agencywide data with pull down menus offering multiple search fields. These elements make searching enforcement data much easier and provide a better service to the public than data organized by lists or keyword search databases. California and Ohio release a significant amount of enforcement data, but the data are for individual programs, e.g., air, water. Disjointed release of data makes locating all data sources difficult and researching all data very time consuming. Unless data are disclosed in a format easily accessible to consumers, the release of enforcement data is unusable as a tool for pollution control. Arkansas and Texas made some of their agencywide data downloadable. This ability to download data is a valuable option, offering the public, NGOs, and even competitors the choice to interpret the data. Though several exhibit commendable efforts in data disclosure, the release of enforcement data to the public is currently inadequate nationwide.

There are numerous reasons why this may be the case. Limited agency resources may be the primary explanation. Technology, however, is generally not the issue. Any limitations in resources are more often a reflection of political will than technological limitations. Consider that county recorders or registrars of deeds routinely process and post on their websites on a *daily* basis thousands of complicated real estate documents that can be accessed by many fields, including parties' names, locations, type of transaction, and date, and that these sites often actually encourage users to download the entire database to maximize utility and minimize the strain on government.³¹ Far fewer environmental enforcement actions have been undertaken since the data have been kept than real estate transactions that occur in a medium-sized county in a single year.

Another possible reason for poor enforcement data availability is that regulated industries disfavor the release of data and exert political pressure to prevent its release. Industry representatives complain that the public might "misuse" the data.³² In some jurisdictions, such as Oregon, 30% to 40% of the regulated community has already been penalized, so one might argue that since "everybody does it" there is less utility for it. Prof. Clifford Rechtschaffen contends that since 1994, for example, some 25% of national pollutant discharge elimination system permit holders are in "significant non-compliance," a term of art.³³

A related explanation is that states that need industry jobs to sustain local economies believe that they will not attract new industry if they are perceived to be unfriendly to industry interests, although there is research that indicates that states with healthy economies often have meaningful environmental protection. In fact, many states now refer to members of the regulated community as "customers."³⁴

Other commentators note that agencies themselves may not want to be judged by objective measures. Certainly more sophisticated methods to link enforcement and compliance data to actual environmental indicators, EPA national ambient air quality standards (NAAQS), for example, would be useful. As a counterbalance, allowing company responses would be both fair and illuminating.

These concerns may explain the lack of data but do not justify withholding individual company performance. One might question the management of any agency that would fail to keep such data. We know the data exist in most states because our survey included several candid comments—on the condition of anonymity—that the data are available behind computer firewalls. In fact, several states indicated that their goal was to link enforcement and compliance data across media and in real time. One state official confided that the funding for the effort would be more forthcoming if there were a public benefit as opposed to an internal management benefit. Our point is that the public, including consumers, investors, and the regulated community, would indeed benefit from free access to the data.

These are public data and without them, neither the public nor capable researchers can make sense or use of them. We will not get better analyses until the raw data are available. As a counterbalance, allowing company responses would be both fair and illuminating. We believe that the situation is similar to the field of open-source software. One can follow the Microsoft® model and keep the source codes secret, or one can follow the Linux model and allow the genius of the collective community to unlock the best uses of the system. In this case, the data already belong to the public, so we see no reason not to release it and allow the market and NGOs to present it in the most useful ways, much as Environmental Defense has done with Scorecard.

A. Consumer Behaviors

Personal consumption expenditures on durable and nondurable goods in the United States for 2002 were close to \$3 trillion dollars.³⁵ These expenditures translated into 70% of the U.S. gross national product, demonstrating the immense power that consumers wield in the U.S. economy.³⁶ Consumer purchase choices drive industry decisions as to what and how products are produced (though producers also attempt to create and channel demand through marketing strategies). Environmental sensitivity in the production process (how the product is made, what resources are consumed, and what wastes result) and in the nature of the product or service (is it made from recycled materials or is it recyclable) can affect consumer choice. Organic produce, dolphin-safe tuna, and the emergence of green marketing are evidence that consumers consider the environment in their consumption choices. "Green marketing" has become so valuable that the Federal Trade Commission was forced to issue specific advertising regulations to ensure some mea-

30. New Jersey Department of Environmental Protection, *DEP Data Miner*, at http://datamine.state.nj.us/dep/DEP_OPRA (last visited Oct. 17, 2005).

31. See, e.g., New Hanover County, North Carolina, *Register of Deeds*, at <http://srvrodweb.nhc.gov/default.asp> (last visited Nov. 21, 2005) [hereinafter *Register of Deeds*]. The website permits online searching and downloading of the entire online database for free to avoid congestion on its servers.

32. Abkowitz et al., *supra* note 26.

33. Clifford Rechtschaffen, *Enforcing the Clean Water Act in the Twenty-First Century: Harnessing the Power of the Public Spotlight*, 55 ALA. L. REV. 775 (2004).

34. See, e.g., Texas Commission on Environmental Quality, *Customer/Customer Reference Number*, at <http://www.tceq.state.tx.us/>

permitting/central_registry/customer.html (last visited Nov. 21, 2005) ("A customer is a business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a 'regulated entity.'").

35. U.S. CENSUS BUREAU, *THE STATISTICAL ABSTRACT OF THE UNITED STATES*: 2003 §13, No. 659 (2003).

36. *Id.*

sure of truth in environmental claims.³⁷ Consumers armed with information concerning the real costs of products could hold producers accountable for negative environmental externalities, which could be ascertained through TRI and enforcement records. Thus, consumers cognizant of the environmental costs of products could drive industry environmental compliance through purchase decisions.³⁸ The Oregon DEQ found, for example, that 65% of Oregonians would stop or reduce buying from a company that was “taking action that was bad for the environment.”³⁹ Consumer action could thus become a potent tool for environmental protection, especially since consumers make decisions concerning the pocketbook far more often than they do at the ballot box. Full disclosure of information such as the health costs or crop losses resulting from air pollution is one of the criteria essential to the success of a free market.⁴⁰ However, negative environmental externalities must be made public for consumers to be effective agents of positive environmental change. The initial market failure (the *externalities themselves*) is compounded because consumers cannot easily obtain information about environmental performance to become “informed” and make purchase decisions accordingly.⁴¹ For example, the Oregon DEQ study found that 72% of the public was unaware of enforcement actions.⁴² It also found that the newspaper was the principal medium through which consumers became aware, but that few DEQ press releases actually made it into print.⁴³

37. See, e.g., Federal Trade Commission, *Guides for the Use of Environmental Marketing Claims (Green Guides)*, at <http://www.ftc.gov/bcp/gnrule/guides980427.htm> (last visited Oct. 17, 2005).

38. A report by the Council on Environmental Quality states:

Our price system fails to take into account the environmental damage that the polluter inflicts on others. Economists call these damages . . . “external social costs” [externalities]. They reflect the ability of one entity, e.g., a company, to use water or air as a free resource for waste disposal, while others pay the cost in contaminated air or water. If there were a way to make the price structure shoulder these external costs—taxing the firm for the amount of discharge, for instance—then the price for the goods and services produced would reflect those costs. Failing this, goods whose production spawns pollution are greatly under priced because the purchaser does not pay for pollution abatement that would prevent environmental damage. Not only does this failure encourage pollution but it warps the price structure. A price structure that took environmental degradation into account would cause a shift in prices, hence a shift in consumer preference and, to some extent, would discourage buying pollution-producing products.

THE COUNCIL ON ENVIRONMENTAL QUALITY, THE STATE OF THE ENVIRONMENT 5-18 (1970). See also Jerome Foulon et al., *Incentives for Pollution Control: Regulation or Information*, 44 J. ENVTL. ECON. & MGMT. 169-87 (2002). See also STEVEN D. LYDENBERG ET AL., *RATING AMERICA’S CORPORATE CONSCIENCE* (Council on Econ. Priorities, Addison-Wesley 1986), and BENJAMIN HOLLISTER ET AL., *SHOPPING FOR A BETTER WORLD* (Sierra Club Books 1994).

39. CARLOUGH, *supra* note 10.

40. Robert Cutting & Lawrence B. Cahoon, *Thinking Outside the Box: Property Rights as a Key to Environmental Protection*, 22 PACE ENVTL. L. REV. 55-90 (2005).

41. Timothy N. Cason & Lata Gangadharan, *Environmental Labeling and Incomplete Consumer Information in Laboratory Markets*, 43 J. ENVTL. ECON. & MGMT. 113-34 (2002); see also James L. Huffman, *The Public Interest in Private Property Rights*, 50 OKLA. L. REV. 377, 383-84 (1997), and J.H. DALES, *POLLUTION, PROPERTY & PRICES* 7-8 (Univ. of Toronto Press 1968).

42. CARLOUGH, *supra* note 10, at 37.

43. *Id.* at 38, 61.

Compliance and enforcement information may also be one of the few methods to address firms that utilize offshore production that does not meet the environmental criteria of the consuming nation. It is commonly understood that companies move offshore to cut labor costs and costs of compliance with environmental laws. Some nations would like to equalize the playing field or prevent worldwide environmental degradation, much as the CAA restricts movement of polluting companies within the United States to areas with better air quality, thus reducing the air quality in that locale (the prevention of significant deterioration program), and the CWA encourages the reduction of discharges rather than movement of discharges to areas with better water quality, thereby degrading them by additional pollution (the concept of nondegradation). However, laws that directly prohibit or impose tariffs on products produced in a manner unacceptable to the consuming nation have run afoul of the World Trade Organization (WTO). The WTO, for example, declared application of the U.S. Marine Mammal Protection Act to constituted an unfair trade practice since it excluded from the U.S. market all tuna produced without fishing gear that protected dolphins.⁴⁴ Laws that require disclosure of the means or environmental effects of production would provide another tool and are less vulnerable to attack under existing treaties.

B. Investor Behavior

Investors’ actions could be affected by access to environmental information. Environmental liabilities can potentially put an enormous strain on corporate profits. Companies that face Superfund cleanup costs can be liable for millions. Tort liability for injuries or damage to receptors’ property, fines and penalties, reduction in the value of generators’ assets, and decline in goodwill are all potent economic costs of which investors should take note.⁴⁵ These costs are not always considered in valuing publicly traded companies (although the Securities Exchange Commission requires that many “contingent liabilities” be disclosed in annual filings), even though environmental liabilities may have a detrimental effect on future profits and asset value. The availability of enforcement data could be an extremely valuable tool in determining possible future environmental liabilities.⁴⁶ Although past profits are not an adequate indicator of future profitability, the compliance history and attitudes of a company may well be. Some commentators suggest that the quality of environmental compliance indicates the quality of management in general. At the very least, the existence of the record would require management to address methodologies to minimize future violations and costs.⁴⁷

44. General Agreement on Tariffs and Trade, *Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna*, 30 I.L.M. 1594 (1991). See also, e.g., Donald McRae, *Trade and the Environment: Competition, Cooperation, or Confusion?*, 41 ALBERTA L. REV. 745, (2003), and Sierra Club, *Responsible Trade: A Fair Trade Bill of Rights*, at <http://www.sierraclub.org/trade/ftaa/rights.asp> (last visited Oct. 17, 2005).

45. James T. Hamilton, *Pollution as News: Media and Stock Market Reactions to the Toxics Release Inventory Data*, 28 J. ENVTL. ECON. & MGMT. 98-113 (1995).

46. Perry E. Wallace, *The Potential of Securities-Market-Based Incentives for Pollution Control*, 50 WASH. & LEE L. REV. 1093-98 (1993).

47. Hamilton, *supra* note 45.

The emergence of “green investing” demonstrates that environmental stewardship has become a component in investment decisions.⁴⁸ Funds like the Domini Social Equity Fund, Paxworld Fund, and the Ariel Fund, which all claim more than \$1 billion in assets, screen out companies with negative environmental records.⁴⁹ And many retirement plans offer “social choice” investment options.

Most of the “green” investment funds use various “screens” such as whether the company produces hazardous materials after the firm has been identified as a sound investment. For example,

social researchers at [Domini] look at two broad categories: (i) the extent to which the company is involved in businesses or activities that help protect the environment (e.g., alternative energy, non-polluting technologies); and (ii) the extent to which the company is involved in activities that damage the environment (e.g., companies that produce ozone-depleting chemicals, that are the worst contributors to climate change, that have a history of being fined by the US Environmental Protection Agency, or that are heavily involved in the extraction of nonrenewable natural resources).⁵⁰

Others use basic business sectors, such as the “FTSE4Good” Indices from the Ethical Investment Research Service.⁵¹

The availability of such information could also result in an increase in compliance with environmental laws for the same reasons companies are motivated to retain consumer support.⁵² These investors could benefit from more precise and complete data, yet they are not currently easily available.

Of course, environmental agencies could make these data available. Better yet, trade regulators could simply require any company interested in operating within a jurisdiction to post these data in a prescribed, easily understandable format. Ideally, these data could be merged with data provided by environmental agencies. Secretaries of state, trade regulation officials, many attorneys general, as well as environmental agencies normally have ample authority to require what is in fact minimal disclosure in exchange for

the liability protections and other privileges accorded business entities.

C. Utility to Regulators

The assemblage of environmental enforcement data from all regulatory agencies nationwide could benefit regulators in at least two ways: (1) better understanding of the national record of the regulated community provides context for current regulatory decisions; and (2) making the record easily accessible may result in improved compliance. Many regulators find it difficult to track the environmental records of global businesses, particularly interlocking corporate entities, which would be of great utility in working with the entities in their own jurisdictions. In some states, it is even difficult to track the records of firms within the state because the subdivisions within the agency or other related environmental agencies do not have centralized data repositories.⁵³ Information on a permittee’s history of compliance and ready access to real-time data, such as are available in the realm of street crime⁵⁴ would be useful in issuing permits and efficiently focusing compliance monitoring resources.

Unfortunately, much environmental data are still unavailable and, in many instances, regions and agencies within a given state do not or cannot share information. Some states, like North Carolina, now make past history part of the application process, but data are not always easy to obtain from other agencies, whether within the state or not, making it difficult to find omissions from an application. Data that would be useful include information on ownership, parent-subsidiary relationships, predecessors, operators, and environmental history, all supplied under penalty of perjury. This information could be linked to each state. At present, data release, including the timing and content of press releases, is an important factor in the resolution of regulatory actions. In some jurisdictions, fines and penalties have been substantially increased for promises of confidentiality by the agency or prosecutors. Nearly always, the text of the press release (and even the content of the legal pleadings) is at issue.

III. Methods

Our initial design was to highlight the data that we thought would already be available on the Internet given the global availability of web resources. Such resources would ideally

48. William Greider, *The Greening of American Capitalism: Could Wall Street Become the Vanguard of Environmental Activism?*, ONEARTH, Fall 2003, at 20, available at <http://www.nrdc.org/onearth/03fall/capitalism.asp> (last visited Nov. 21, 2005).

49. The entire industry is rapidly expanding, with institutional funds like TIAA-CREF now including environmental concerns in its socially responsible funds. For a good bibliography of materials, see Union of Concerned Scientists, GreenTips, *Socially Responsible Investing*, at <http://www.ucsusa.org/publications/greentips/0105-socially-responsible-investing.html> (last visited Oct. 17, 2005). For a good screening table, see Social Investment Forum, *Social Responsible Mutual Fund Screens*, at <http://www.socialinvest.org/areas/srguide/mfsc.cfm> (last visited Oct. 17, 2005). For additional resources, see COUNCIL ON ECONOMIC PRIORITIES, *THE CORPORATE REPORT CARD* (E.P. Dutton 1998); Domini Social Investments, *Environment: Our Approach*, at <http://www.domini.com/Social-Screening/Environment/index.htm> (last visited Nov. 18, 2005) [hereinafter *Environment*]; Citizens Funds, *Citizens Social Screens*, at <http://www.efund.com/individual/philosophy/screens.asp> (last visited Oct. 17, 2005); Ecoworld, *Investments*, at <http://www.ecoworld.org/Funds/GreenFunds.cfm> (last visited Oct. 17, 2005); and an excellent table at Social Investment Forum’s website at <http://www.socialinvest.org/areas/srguide/mfsc.cfm> (last visited Nov. 1, 2005).

50. See *Environment*, *supra* note 49.

51. Visit the Ethical Investment Research Service website at <http://www.eiris.org> (last visited Oct. 17, 2005).

52. Swaminathan G. Badrinath & Paul Bolster, *The Role of Market Forces in EPA Enforcement Activity*, 10 J. REG. ECON. 165-81 (1996).

53. For example, environmental agencies within many states generally keep paper records only, and those records are physically kept in the originating office’s region. Agencies operating in different media rarely share data. An umbrella organization, R@IN, The Regional Environmental Enforcement Associations, can be found at <http://www.regionalassociations.org/> (last visited Nov. 21, 2005), but even member states do not always utilize the resource.

54. See, e.g., the National Crime Information Center:

[A] computerized database for ready access by a criminal justice agency making an inquiry . . . of information in the system from other criminal justice agencies about crimes and criminals. This information assists authorized agencies in criminal justice and related law enforcement objectives, such as apprehending fugitives, locating missing persons, locating and returning stolen property, as well as in the protection of the law enforcement officers encountering the individuals described in the system.

National Crime Information Center, at <http://www.fas.org/irp/agency/doj/fbi/is/ncic.htm> (last visited Nov. 21, 2005).

contain searchable, interlinked data on environmental compliance and enforcement actions in all categories, including data on the identity of violators, past and present ownership, prior violations, the technical details of violations, and disposition of enforcement actions, e.g., injunctions lifted, etc. Preliminary research revealed several efforts at the federal or interstate level to disseminate enforcement data, but no single source of enforcement data that contains data from all 50 states and EPA existed.

We initially selected a few states representing varying size, geographic location, and hypothesized degree of environmental protection: California, New Jersey, Texas, Vermont, and Wyoming. Based on research within these states' environmental agency websites, we realized that the disclosure of enforcement data varies considerably in content, format, and organization. Some states release enforcement data by area of regulation, such as air quality, while other states consolidate enforcement data agencywide. Other states did not disclose any enforcement data to the public via the Internet. Based on these preliminary research results, a survey of all 50 states would be needed to identify trends, patterns, and gaps in enforcement data disclosure.

We then created a spreadsheet or matrix organized by state and enforcement regulation area. The matrix, which is available online,⁵⁵ provides links to the data sources presented by the state agencies and is organized by the most common areas of enforcement: Air; Water; Toxic/Pesticides/Insecticides; Hazardous Waste; and Solid Waste. Once a standard was set for researching the data, we reviewed all 50 state agency websites and searched for enforcement data. We tried to exhaust all possible areas where agencies might post enforcement data: Enforcement Departments; Water and Air Quality Divisions; Hazardous and Solid Waste Departments; Agency Data clearinghouses; etc. Additionally, we assigned codes to entries to identify the time period of the data, how the data were organized, and whether the data were downloadable or searchable.

To refine the accuracy of our results, we utilized a recently updated roster of chief information officers compiled by the Environmental Council of the States (ECOS), an umbrella organization of states' environmental programs.⁵⁶ We e-mailed each of the links we found and requested that the state officer verify the information and supply any "missing links" to enforcement data. We received replies from 12 states and made minor adjustments to a handful.

IV. Why Enforcement Data?

The focus of this Article is on the dissemination of information on compliance history, as indicated by enforcement actions against *firms or other permitted entities*. Other data systems address: (1) total discharges by industry or substance class; or (2) the records of state or federal regulatory programs themselves. Compliance of firms or other permitted entities could be gauged in several ways: (1) time in compliance, in cases where such data are available⁵⁷; (2) re-

leases, emissions, and discharges, where available (such as TRI); or (3) enforcement data. At the present time, we argue that performance can be most readily measured by those seeking information on a given industry or regulated entity through *enforcement data*,⁵⁸ although, ideally both compliance and enforcement data should be readily available. Given the limited resources to mine the other data (if they are available at all), enforcement data were selected because enforcement cases are relatively rare and usually filed only in egregious cases after most other avenues of behavior modification have been attempted (often numerous times). Thus, those on the lists are notable. The roster of cases, charges, dispositions, and dates is an accepted and essential management tool for prosecutors (and has been for decades). The data format should not be a significant problem because translation into one of the database-to-web applications is largely a minor clerical exercise. The volume of environmental enforcement data is also small compared with that facing the average urban prosecutor. Consider, for example, the numbers of enforcement actions reported by EPA:

Criminal: EPA referred fewer than 300 cases *per year* nationwide from 1983 to 2002⁵⁹

Civil: Between 1973 and 2002, EPA referred 7,938 cases to the U.S. Department of Justice for civil proceedings; during the last several years the range was between a high of 253 in 1998 to just 216 in 2002.

Administrative Orders: In the recent past, the number per year ranged from 3,388 in 2000 to 1,251 in 2002. Administrative penalties ranged from 1,730 in 2000 to 1,279 in 2002.

Field Citations: Ranged from 311 in 1999 to 138 in 2002.

Informal Actions: Ranged from 5,302 in 2000 to 2,710 in 2002.

Citizen Suits: Between 1995 and 2000, only 287 citizen suits were brought, of which 252 were CWA cases.⁶⁰

Enforcement data are also generally public, though perhaps not readily available. To illustrate the problem of data access, the numbers above were taken from EPA's official

ment program is ineffective: the compliance rates could appear high because no violators were being caught (although the CWA's requirement of daily monitoring reports provides an automatic measure—if the permittee is honest). Rechtschaffen, *supra* note 33.

58. Evaluation of the effectiveness of environmental programs often focuses on the efficacy of regulatory programs, such as the number of enforcement cases (criminal, civil, and administrative), informal actions, supplemental environmental projects, inspections, and the like. Commentators such as the Environmental Compliance Consortium, composed of 15 member states, suggest that beyond the "bean-counting" approach lies the promise of more meaningful data measured by the indicators of environmental quality in a state, such as compliance with the CAA's NAAQS and the CWA's state water quality standards. Shelley Metzenbaum, *More Nutritious Beans*, ENVTL. F., Mar./Apr. 2003, at 18. We agree that *states* should be assessed by indicators keyed to national performance standards, but consumers and investors need firm data.

59. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, MEASURE OF SUCCESS FY 2002 (2003), available at <http://cfpub.epa.gov/compliance/planning/results/mos/fy2002/index.cfm> (last visited Oct. 17, 2005) [hereinafter EPA MEASURE OF SUCCESS].

60. Kristen Smith, *Who's Suing Whom?*, 29 COLUM. J. ENVTL. L. 349, 386 (2004)

55. University of North Carolina Wilmington (UNCW), *EVS State Enforcement Matrix*, at http://fire.bear.uncw.edu/EVS/full_state_enf.php (last visited Nov. 21, 2005).

56. See their website at <http://www.ecos.org> (last visited Oct. 17, 2005).

57. Prof. Clifford Rechtschaffen, for example, notes that compliance rates do not give an accurate picture of a state's performance if the permit system is weak or outdated. The same is true if the enforce-

publication, *Measures of Success, FY 2002*. EPA required a FOIA request even to discover the names behind its own published numbers, however.⁶¹ Since the states maintain that 90% of enforcement is conducted at the state level,⁶² much of which is through informal actions not counted by EPA, the total numbers nationwide should be approximately 10 times the EPA figures. This is still a manageable volume of information in comparison to the complicated documentary data handled by the average county recorder or registrar of deeds on a daily basis, for example, all of which must be quickly searchable through multiple fields by the general public within days of entry (and now usually online).⁶³

V. Results

A. Sources Currently Available or in Process

1. Federal Efforts

EPA tracks and discloses enforcement data using ECHO.⁶⁴ ECHO contains significant useful information and could be

adapted to provide data we think most consumers and investors would find useful, especially if state enforcement information were also incorporated. ECHO can be searched for: (1) compliance histories by class of data (All Data, Air Data, Water Data, Hazardous Waste Data, EPA Cases, SEPs, or Multiple ID Search); and (2) for EPA Enforcement Cases. The Compliance History function allows searches by numerous categories: industry code (standard industrial classification (SIC)⁶⁵); geographic area; facility name; type of law; and type of action (ranging from inspection to formal action). Unfortunately, much of the data exist behind “firewalls” within EPA—non-public databases such as the Integrated Data for Enforcement Analysis, the Integrated Compliance Information System, and the Online Tracking Information System.⁶⁶

A typical return from a Compliance History search contains the following fields that can be downloaded using “comma delimited” format (for translation into a spreadsheet or database by those who know how to do it):

Facility Information <i>Select Name to Read Report</i>	Program ID#	Inspections (3 yrs.)	Quarters in Alleged Non-compliance (3 yrs. back)	Alleged Current Significant Violations	Informal Enforcement Actions/Notice of Violations (3 yrs. back)	Formal Enforcement Actions (3 yrs.)
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One can also search by Enforcement Cases per se and the search results by SIC sector are returned as:

Case Number	Case Name	Case Type	Primary Law/Section	Filed/Issued	Settlement Date	Federal Penalty Assessed	SEP Amount
02-2001-9108	CHEVRON PRODUCTS COMPANY Case Report Facility Report	Administrative - Formal	TSCA/6-PCBS	02/07/2001	05/16/2001	\$4,950	
02-2001-9113	MOBILE CHEMICAL COMPANY - CHEM PRODUCTS DIV Case Report Facility Report	Administrative - Formal	TSCA/6-PCBS	09/26/2001	01/11/2002	\$4,125	

61. 5 U.S.C. §552.

62. BROWN, BUDGET, *supra* note 8.

63. See, e.g., *Register of Deeds*, *supra* note 31.

64. See *supra* note 19.

65. The Occupational Safety and Health Administration (OSHA) has been transitioning since 2003 to the North American Industry Classification System, a six-digit industry grouping system developed by Canada, Mexico, and the United States, although ECHO is still using the SIC system. See <http://www.osha.gov/oshstats.index.html> (last visited Nov. 2, 2005).

66. A “firewall” is an electronic shield against viruses, hackers, and other invasions of information technology systems.

The ECHO data are currently limited as a tool for consumers and investors, regulators, and NGOs for several reasons. First, of course, the data available through ECHO are limited because the state data are only those filed through the Air Facility System (AFS), Permit Compliance System (PCS), and Resource Conservation and Recovery Act System (RCRA Info), which does not include all state data (notably the 80% of state cases that are handled informally). Second, the system is not user-friendly to the groups with which we are concerned—investors, consumers, and regulators. It is more useful if one is interested in searching known geographic areas. For example, the compliance search can be conducted by firm. Thus, if the owner is clearly identified, all facilities clearly owned by that entity are adjacent to one another, but if the company has subsidiaries or business combinations under other names, or the name is common, determining ownership becomes more difficult. A consumer might be interested in the records of petroleum firms, but a search by the major common names yields all related names, including refineries, port facilities, and retail gas stations without any direct method to detect common or interlocking ownership. An SIC search requires that the SIC be determined, which is another step that could be eliminated with a “plain English” menu of consumer products linked to the firms that produce them.

Enforcement cases can be searched by defendant name with similar results. One can search by SIC category, but since the result is available only by facility, the owner or controlling entity cannot always be easily identified. If an SIC search is utilized, the user is also compelled to enter a three-digit SIC, which is much more specific, but requires more effort to determine.⁶⁷ SIC categories also do not always correspond to common understanding by consumers of product categories.

The numbers for multi-region or large SIC category searches can also easily exceed the number of results that can be displayed (1,000), forcing the researcher to perform regional or other more limited searches and then re-assemble the data.

The cases search returns civil judicial and formal administrative cases, but not *criminal* filings, which require a search on an entirely different search engine. The cases search also returns only alleged *Current Significant Violations* rather than all violations for all time periods. Most agencies use some measure to break cases into “significant” or “minor” cases, but all such cases ought to be available and the editorial standard clearly set out.

Efforts to search multiple layers at once require EPA “ID numbers” from other searches.⁶⁸ It is not likely that the average consumer or even investor will do all that is presently required within ECHO.

The TRI, Environmental Defense’s Scorecard program,⁶⁹ EPA’s Envirofacts Data Warehouse,⁷⁰ and the new

“TOXMAP” available through the U.S. National Library of Medicine⁷¹ provide basic environmental quality data for toxic releases (from TRI), hazardous materials, and air/water quality, as well as some very useful mapping tools.⁷² These sources are generally keyed to location and facility. The Scorecard can be searched by firm name, but the problem is that neither EPA nor other sources provide overall ownership (parent, subsidiary, joint venture, etc). Thus, as with ECHO, above, a return for “AJAX CORP” will return every discharger with AJAX in the name, but data are organized by: (1) facility (plant), not company; and (2) ownership. Patterns of behavior, therefore, are difficult to establish, although of course it could be required by nearly any agency. Regulated community critics also contend that “total tonnage” of pollutants does not correlate to harm, so Environmental Defense links information on the health hazards of each discharge to the data. Environmental Defense has also contended for years that while the TRI is very valuable, it has several key deficiencies. The news here is that EPA has just announced a rulemaking to modify the requirements for TRI reporting which Environmental Defense and other environmental groups contend would substantially weaken this database by exempting thousands of firms from annual reporting requirements.⁷³ Thus the Bush Administration is moving in the opposite direction to restrict information.

Other agencies with enforcement data include the U.S. Army Corps of Engineers for wetlands and water pollution, and the U.S. Department of the Interior for mining, grazing, and Endangered Species Act data, but those are beyond the scope of this Article. Our conclusion is that most of these sources are best suited for site-specific inquiries, such as known facilities, or to find facilities within a known geographic area, which are well suited for inquiries related to real estate transactions. However, consumers and investors are more interested in the firm data.

2. State Activity

ECOS is an association of state environmental agencies and serves as an environmental information clearinghouse. The

71. See U.S. National Library of Medicine, *TOXMAP*, at <http://toxmap.nlm.nih.gov/toxmap/home/welcome.do> (last visited Nov. 21, 2005).

72. Environmental Defense, *Descriptions of Environmental Release Report Contents*, at http://www.scorecard.org/env-releases/er-report-descriptions.tcl#pollution_rank_health_impact (last visited Nov. 14, 2005).

73. For the EPA memorandum, press release, and rule, see: <http://www.epa.gov/tri/> (last visited Nov. 14, 2005). See also the Environmental Defense critique:

While TRI is the most comprehensive national source of information about toxic chemical releases, it has critical limitations: (1) TRI does not cover all toxic chemicals that have the potential to adversely affect human health or the environment[;] (2) TRI does not require reporting from many major sources of pollution releases[;] (3) TRI does not require companies to report the quantities of toxic chemicals used or the amounts that remain in products[;] and (4) TRI does not provide information about the exposures people may experience as a consequence of chemical use.”

at <http://www.environmentaldefense.org/article.cfm?ContentID=1543> and <http://actionnetwork.org/campaign/toxics/855eg7415x7n65/> (last visited Nov. 14, 2005). See also the Right-to-Know network, which has some EPA databases available for search, but most have data that is older. <http://www.rtknet.org/rtkdata.php> (last visited Nov. 14, 2005).

67. ECHO includes a three-step link to the U.S. Department of Labor SIC Manual. See U.S. Department of Labor, *SIC Division Structure*, at http://www.osha.gov/pls/imis/sic_manual.html (last visited Nov. 21, 2005).

68. U.S. EPA, *ECHO Multiple ID Search*, at http://www.epa.gov/echo/search_multiple_ids.html (last visited Nov. 14, 2005).

69. A user-friendly database that transcribes TRI data into a format that allows users to identify toxic polluters in their area. See Environmental Defense, *Scorecard*, at <http://www.scorecard.org> (last visited Oct. 17, 2005).

70. See U.S. EPA, *Envirofacts Data Warehouse*, at <http://www.epa.gov/enviro/> (last visited Oct. 17, 2005).

ECOS website provides links to each state's environmental agencies.⁷⁴ ECOS researches the exchange of data between EPA and individual state environmental agencies and notes data discrepancies and conflicts between state definitions and data storage.⁷⁵

EPA is working with ECOS to implement the national Environmental Exchange Network (EEN) in response to the data exchange challenges between the states and EPA noted above.⁷⁶ Commentators have been critical of what some perceive to be EPA's lack of interest in developing more than the data flow required to implement the various federal-state environmental compacts, such as those that currently flow to one of the huge mainframe systems under the AIRS/AFS (Air), PCS (Water), RCRIS (Waste), and SDWIS (Drinking Water) databases.⁷⁷ The EEN uses standardized data exchange methods called "nodes" to potentially solve environmental data flow problems. Although the EEN will provide some public access to environmental data, it is in fact designed to facilitate data exchange between the states and EPA required by existing law. Whether and when enforcement data will be available to the public is undetermined, but apparently it will be several years from now at a minimum.⁷⁸ Among the comments on the EEN we garnered from those in the field were that much of the creative activity would be seen *among the states*. This is because states are free to set up data exchange among themselves, whereas EPA is primarily interested in uploading data required by the major environmental acts. For example, states in the Northwest have created a "real-time" system to track the movement of hazardous materials within the member states' boundaries via the data nodes.

The Regional Environmental Enforcement Association⁷⁹ is an informal network of law enforcement agencies and provides data available only to regulators and law enforcement agencies, such as prosecutors. While the data shared are supposed to include real-time information on generators, they are often unavailable (actually even unknown) to regulators within member states. The data are not available to the public and were not used in our study. Organizations such as the California Attorney General's Office do find great utility in the organization, however.

The Environmental Compliance Consortium (ECC) is a voluntary collaboration among state environmental agencies to improve the effectiveness of their compliance and en-

forcement programs.⁸⁰ The ECC has developed a portal to help states and the public find and use state-level environmental information.⁸¹ Included in this portal are links to enforcement data, but not all states are represented. Nor are the data available by firm or product—the links simply connect to the states themselves.

B. The Enforcement Data

As noted earlier, we compiled a matrix from the available state and federal enforcement data and it is available online.⁸² The enforcement data matrix is intended to determine what data are available to consumers. It serves as a starting point for the eventual goal of providing the public with all enforcement data in an accessible format.

Our conclusion, though, bolstered by the responses to our survey of states, is that while states possess enforcement data, they are often behind a firewall and are not easily available to anyone outside the jurisdiction—sometimes not even within the jurisdiction. The most shocking conclusion from our research is that numerous states do not currently publish enforcement data. Eighteen states do not currently publish enforcement data via the Internet. Among the states that did report data, we found 97 separate sources, because many states have multiple sources within agencies and even within single departments. These sources vary in the organization of data, type of data, program responsible for data, and data range. Of the 97 sources, most (47) released data in the form of lists (see Table 1). Lists, although an organized and easy way to express data, are less valuable to consumers in that they are difficult to search. Of the data source lists, six were organized alphabetically while the remaining were accessible only chronologically. If lists must be used to present data, lists organized alphabetically by violator (including subsidiaries and parents) provide a more valuable and thus preferable means of searching the data.

Table 1: Enforcement Data Disclosure Formats

Format	Number of Sources
Lists	47
Databases	20
Reports	15
Charts	14

Databases, the most frequent format after Lists, would be the favored format for conveying data to consumers because this format can be searched by multiple fields. Some states, such as Arkansas, made their databases downloadable in common programs like Microsoft Access. Others, such as Texas, offer only "zipped" files organized by county that could be downloaded into Microsoft Excel, but could not

74. ECOS' website can be found on the Internet at <http://www.ecos.org> (last visited Nov. 18, 2005).

75. For example, states contend that upwards of 80% (or more) of compliance is achieved through informal action, such as a telephone call, which EPA does not consider an "enforcement action." BROWN, CONTRIBUTIONS, *supra* note 8. Moreover, states contend that they have great difficulty uploading data, that there are errors in the process that the states consider significant, and that downloading data from EPA is even more difficult. *Id.*

76. EEN's website can be found on the Internet at <http://www.exchange-network.net> (last visited Oct. 17, 2005).

77. BROWN, BUDGET, *supra* note 8.

78. EPA and the states compile new sources in a form called the "Information Product Bulletin," accessible at <http://www.epa.gov/ipbpages/index.htm> (last visited Oct. 17, 2005). The website states an intent to make it available to the public, but nowhere is there a timeline and interviews with the authors indicated that it is years away.

79. The Regional Environmental Enforcement Association's website can be found on the Internet at <http://www.regionalassociations.org/> (last visited Oct. 17, 2005).

80. The ECC's website can be found on the Internet at <http://www.complianceconsortium.org> (last visited Oct. 17, 2005).

81. ECC, *State Environmental Information Portal*, at <http://www.complianceconsortium.org/cgi-bin/StateReports.asp> (last visited Oct. 17, 2005).

82. See *supra* note 55.

easily be manipulated further by the average consumer or investor. Downloadable data offer the public the option of interpreting and reorganizing the data as they see fit. Offering downloadable data could assist outside organizations, such as Environmental Defense with Scorecard, in adding context to the data and increasing its value to consumers. Even local governments make enormous quantities of data available to download or on compact disk—partly to avoid tying up servers. Among the databases observed, multiple search options existed (see Table 2).

Table 2: Observed Database Search Options

Search Options	Number of Occurrences
County/City	13
Program/Agency Name	12
Facility Name	11
Date Range	11
Facility Number	7
Enforcement Action	5
Zip Code	4
Violator/Company Name	4
Case Number	3
Keyword Search	2
Inspector Name	2
Permit Number	1
SIC Number	1
Docket Number	1
Penalty	1

The most common search options were by facility, date, county, and program. These options are useful for research, but options like company name (owner and operator) occurred only four times, SIC only once, and product not at all. Zip code only occurred a few times. These options would give the public more ability to determine the records of specific companies and industries, particularly those in their area. Some databases offered pull down menus to select search options. These menus are preferred because they act as a guide in organizing searches. However, among the databases with pull down menus, only Michigan's database for Administrative Orders provided violator name as a menu option. Other pull down menu options consisted of county, program, and enforcement type.

Twenty five states consolidated enforcement data into agencywide information sources—a one-stop source for researching a particular enforcement topic. Thirteen of these states had an enforcement department in charge of enforcement throughout all state programs, but of these, only New

Jersey has a single data portal, called a “Data Miner.”⁸³ Maine and New York also had enforcement departments, but provided no publicly accessible data. The rest of the data sources, if not consolidated agencywide, were organized by program (see Table 3). In our opinion, a single data portal for all information is far preferable to the other options we found.

Table 3: State Regulatory Agency Programs Reporting Enforcement Data

Program	Number of Data Sources
Air Quality	15
Water Quality	9
Hazardous Waste	9
Solid Waste	6
Toxics/Pesticides/Insecticides	4

Table 4: Content of Observed Enforcement Data Sources

Content	Number of Sources
Enforcement Actions	48
Cases/Settlement Agreements	18
Annual Reports	15
Compliance Inspections	3
Hazardous Sites	1

The content of the data sources varied, but “enforcement actions” was the leader with 48 sources (see Table 4). Within the category of enforcement actions, one can sometimes isolate the type of action. States emphasize their reliance on “informal” actions, such as telephone calls or letters, as an important method that achieves compliance in over 80% of instances.⁸⁴ Other classifications represented under the enforcement actions category include notice of violations, significant noncompliance, and administrative action. The “cases/settlements” category included criminal or civil sanctions, and disposition of the case by conviction, settlement, fine or penalty, injunction, or other remedy such as a SEP. The least useful sites included only case summaries or worse, cases judged by the editors to be “significant” or noteworthy. The “reports” category is not particularly useful for supplemental enforcement, since the reports consist generally of compilations of data (often cumulative data without much explanation) and press releases. Within the

83. New Jersey Department of Environmental Protection, *DEP Data Miner*, at http://datamine.state.nj.us/dep/DEP_OPRA (last visited Oct. 17, 2005).

84. BROWN, BUDGET, *supra* note 8.

various data categories, several common data fields appeared. Most data sources contained date, facility name, location information, and organizational numbers such as SIC number or permit numbers. The most valuable data field, company/operator name, appeared only sporadically.

The temporal range of data available is also important. Most states reported data from the past five years, with a few outliers reporting earlier data (see Table 5). California data for enforcement advisories went back to 1984, while Michigan and Ohio had enforcement case data dating back to the early 1990s. Generally, the more data years available, the better the picture of the discharger's behavior. Past data collection methods and agency resource limitations may drive the common five-year date range, but there is little question that the data exist within these agencies in some form all the way to the beginning of the agency. EPA also has data back to the 1970s and 1980s.⁸⁵

Table 5: Time Range of Available Data

Time Period	Number of Sources
Past 5 Years	38
Past 5-10 Years	22
Data Beyond 10 Years	0

VI. A Proposed Model

Constructing the matrix demonstrated the difficulty in obtaining hard data on enforcement cases, especially by firm name. Hopefully, with current efforts by EPA, the EEN, the ECC, and individual states, enforcement data will soon be disclosed to the public in an accessible format that promotes its use as a tool to assist in purchase and investor decisions. To aid in the development of formats of data disclosure and to facilitate user understanding, we suggest a web-based de-

sign that promotes accountability (see Table 6). It is offered as something that real people and researchers alike could actually use. It is also something that could be incorporated into an existing system such as ECHO with appropriate modifications. The data could easily be required by agencies of the regulated community by regulation, and EPA could require the states to provide state data to the EEN.⁸⁶ Data on new cases could be added easily and with minimal cost. Historic data are in different formats and could take more time to implement, but most of the data already exist: it is just not organized in ways that are useful to the target audiences.

Included would be information about the responsible party, such as parent company, industry (not simply SIC), product, and location. For each of these categories, the nature of violations (including type and severity) would be included, as well as the ultimate disposition (see Table 7). Additionally, an ideal format would include databases that offer pull-down menu fields, which make data more obtainable. Allowing users to download data adds even more value and could lead to further data applications. If this policy effort is successful, enforcement data can become a significant tool for environmental protection.

Table 6: Suggested Data Disclosure Design

Category	Suggested Design
Firm	Menu with names and trade names alphabetized by ownership (linked to Industry, Product, and Geography categories for that Firm).
Industry	Pull-down menu with common terminology (linked to Firms within that Industry).
Product	Pull-down menu with common terminology (linked to Firms that make that Product).
Geography	Menu to entry city, state, and zip code (linked to Firm, Industry, and Product).

Table 7: Detail of Firm Data

<u>Fines/Penalties</u>							
Firm	Air	Water	RCRA/CERCLA	All Other	Significant Noncompliance	Informal	Result, e.g.
ABC	2			2		2	\$5,000 Admin.
BCA		5					
CBA			6		1		\$15,000

85. EPA MEASURE OF SUCCESS, *supra* note 59.

86. EEN, at <http://www.exchangenetwork.net> (last visited Oct. 17, 2005).

Each entry could have data in the following format (linked to the data source):

Table 8: Firm Violation Detail

VIOLATIONS - ABC Corporation	
1. Facility	Gold Mine #2
Violation	Clean Water Act permit violated on Clear Run Creek
Date	1/1/99 concluded 11/2001
Agency	Cal. EPA
Action	Civil Action for injunction and civil penalty
Result	Stipulated injunction and \$15,000 civil penalty
Firm Response	LINK to ABC company website response

The ECHO Enforcement search format could certainly be adapted. In addition, the agency would be identified and a link would be provided to that agency so that anyone interested could scroll down to more information on a given case (all the way to pleadings, presumably, since so much of the case record is electronic). We would also suggest that a link be provided to the violating entity so it can give a limited response and list the appropriate contact person(s). As a caveat, this information should be accurate and verified under penalty of law. This could easily be accomplished through the general laws that regulate filing false information with a governmental entity.

We reorganized the FOIA data we obtained from EPA⁸⁷ into a format that offers some of these features, and it is

available in beta format on the University of North Carolina, Wilmington, website at <http://fire.bear.uncw.edu/EVS/databases.php>. Translating the data from *all* of the states into anything like the format of the proposed model proved to be well outside the scope of our project, but it could be done with adequate resources.

VII. Conclusion

We began this exercise to showcase information sources. Instead, we found that while the basic technical infrastructure exists within the current state and federal databases, there are few sources of enforcement information that are truly accessible and useful to the consumer, investor, and even the regulatory community—both regulator and regulated. We have heard informal estimates from those in the system (on condition of anonymity) that it would cost less than \$50 million for the United States and the states combined to create a project that would provide the public with all the data on U.S. and state enforcement activity. We think this amount is probably more than necessary to post largely existing data onto current agency websites. We may be incorrect, but given the indications of the cost-effectiveness of this information, at the very least we suggest that a national advisory panel be established to review the subject. There is little question that shrinking state and federal funds mean fewer cases, and that fewer cases may well mean less useful data rather than more complete compliance. However, until the data are available, it is difficult to discern the actual state of affairs. Until the data are available, the effect on consumers and investors cannot be gauged, but the research and anecdotal evidence from the regulated community indicates it could be very effective—especially given that the political climate to increase enforcement efforts is not favorable. After all, how can one expect market-based strategies to work without the data necessary for sound decisions?

87. FOIA Request No. HQ-RIN-00767-05.