

2000

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Recommended Citation

30 ELR 10803 (2000)

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Competing Visions: EPA and the States Battle for the Future of Environmental Enforcement

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The author is Professor and Co-Director, Environmental Law and Justice Clinic, Golden Gate University School of Law. This Article is excerpted from a book on the evolving federal/state environmental enforcement relationship that Professor Rechtschaffen is writing with Professor David Markell. It will be published by the Environmental Law Institute in 2001. Portions of this Article previously appeared in Clifford Rechtschaffen, *Deterrence vs. Cooperation and the Evolving Theory of Environmental Enforcement*, 71 S. CAL. L. REV. 1181 (1998), and are reprinted with permission of the Southern California Law Review. Thanks to Golden Gate law student Kristin Henry for valuable research assistance. Thanks also to David Markell and Joel Mintz for their comments on an earlier draft of this Article.

[30 ELR 10803]

An important battle is currently taking place over the future direction of environmental enforcement in the United States. The conflict is in part between businesses and government; more fundamentally, however, it is between the U.S. Environmental Protection Agency (EPA) and the states. EPA's vision of effective enforcement is one grounded in deterrence, the theory that generally underlies societal efforts to control unlawful behavior. Many states, by contrast, have been shifting to a more conciliatory, cooperation-oriented approach. Since environmental law rests on a federalism model giving states authority to implement federal statutes but only under federal oversight, and since the states' brand of enforcement does not follow EPA's deterrence-based policies, the area is rife with tension.

Several recent Articles in the *Environmental Law Reporter* have discussed significant enforcement issues, including research about the efficacy of deterrence-based policies and efforts by EPA to tweak its traditional enforcement approach. Those Articles, however, address only part of the current ferment about environmental enforcement. This Article looks at the broader canvas of enforcement issues today: the debate between the states and EPA over deterrence versus cooperation as a means to achieve compliance with environmental law.

First, the Article describes the enforcement approach being advocated by many states. To some, it represents an innovative, superior way to achieve compliance. To others, the states' vision is a pretext for weakening enforcement that will result in more widespread violations by regulated facilities. The Article also examines how EPA has shifted its own enforcement policies in response to state pressures.

Next, the Article discusses what we know empirically about which system works better. There is relatively little evidence about compliance assistance programs, more for deterrence-based approaches. The evidence shows that deterrence-based approaches work, and that in the absence of meaningful sanctions, compliance suffers. The Article then examines a few of the leading theoretical arguments for shifting to a cooperative-oriented strategy. Finally, it details some elements of a reformed deterrence-based system that will work most effectively to assure compliance with environmental law. This approach includes more compliance assistance, more flexible deterrence-based approaches, and mandatory disclosure as an adjunct to enforcement.

Deterrence vs. Cooperation

What are the competing models of environmental enforcement? Broadly speaking, there are two different philosophies that regulators can follow to achieve compliance. One is a deterrence-based approach, sometimes referred to as a "sanctioning," "penal," "by the book," or "enforced" strategy. The competing strategy is one based on cooperation,

variously termed a "negotiated," "flexible," "compliance-based," or "conciliatory" approach.¹ In shorthand, deterrence relies on sticks to achieve compliance, while cooperation emphasizes carrots. In reality, most enforcement systems are a combination of the two approaches rather than pure versions of either deterrence or cooperation.

Deterrence-Based Enforcement

Deterrence-based enforcement is the approach that Americans are most familiar with; it is the prevailing societal strategy for regulating unlawful conduct. The deterrence model is premised on the idea that regulated entities are rational economic actors that act to maximize profits. Decisions regarding compliance are based on self-interest; businesses comply where the costs of noncompliance outweigh the benefits of noncompliance. The benefits of noncompliance with environmental regulations consist of money saved by not purchasing pollution control equipment, training workers, abating contamination, or taking other required measures. The costs of noncompliance include the costs of coming into compliance once a violation is detected, plus any penalties imposed for being found in violation, multiplied (discounted) by the probability that the violations will be detected. These costs can also include damage to the business' [30 ELR 10804] reputation, potential tort liability, legal system expenses, and increased regulatory scrutiny.² They also include the less quantifiable but even more potent costs of going to jail and the stigma of criminal conviction.

Under a deterrence model, the essential task for enforcement agencies is to make penalties high enough and the probability of detection great enough that it becomes economically irrational for regulated entities to violate the law. (Indeed, some economists have argued that since it is the product of fines and probability of detection that matters in deterrence theory, enforcement costs could be minimized by raising fines as high as possible and lowering detection resources proportionately, while still maintaining the same level of deterrence.) Deterrence theory identifies several additional elements necessary to achieve both specific deterrence (detering an individual violator from failing to comply again) and general deterrence (detering the broader regulated community from noncompliance). First, there must be a credible likelihood that violations will be detected. Second, sanctions must be swift and certain. Third, sanctions must be appropriate. Finally, regulated entities must perceive the presence of the first three factors.³

Deterrence-based enforcement has as its central goal the punishment of wrongdoers. If there is a breach of a legal requirement, it deserves sanctioning. Inspections are designed to detect noncompliance and gather evidence to build an enforcement case and use in judicial proceedings. Agencies respond to violations through legalistic and adversarial processes. Imposing fines or taking other enforcement action is seen as a mark of success.

EPA's enforcement system traditionally has been grounded in deterrence theory (although as noted below in actual practice EPA enforcement has been closer to a hybrid of deterrence and cooperation). Writing in 1995, Professor Joel Mintz explains:

With the brief exception of the [EPA administrator Anne] Gorsuch era of the early 1980's, both the EPA's written enforcement policies and its actual practices have consistently emphasized the initiation of *formal* enforcement actions against violators of federal environmental standards The formal, legalistic nature of EPA's enforcement efforts is reflected in the agency's system for measuring and publicizing enforcement success. It is also evident in the EPA's sizeable legal staff, the high volume of cases it regularly refers to the Justice Department for civil action or criminal prosecution, the monetary value of the civil and administrative penalties it has assessed against violators, and the large body of enforcement policies, guidance documents, and studies it has issued that require or urge the use of formal enforcement methods.⁴

Thus, for example, EPA's *Policy Framework for State/EPA Enforcement Agreements* provides that "quality enforcement programs ensure that there is a timely and appropriate enforcement response to violations," and that "civil penalties and other sanctions play an important role in an effective enforcement program."⁵ Another EPA policy document explains that full compliance with environmental laws is most likely achieved when "awaiting governmental (or citizen) response to noncompliance results in adverse consequences significantly greater than any economic advantage gained by delaying compliance."⁶

Cooperation-Based Enforcement

A cooperation-based system of enforcement is premised on a different set of assumptions about why individuals and

corporations comply with the law. It views corporations not as economic actors solely interested in maximizing profits, but as influenced by a mix of civic and social motives, and generally inclined to comply with the law. Therefore, if corporations are found in violation of regulatory requirements, they should be treated like partners, and they will respond positively to suggestions and advice about how to achieve compliance. If the response to noncompliance is sanction-oriented enforcement, regulated entities will become resentful and less cooperative with agency inspectors. Since most businesses have a generalized commitment to abiding by the law, sanctioning noncompliance is generally inappropriate and unnecessary.

Generally speaking, a cooperation-based system emphasizes securing compliance rather than punishing wrongdoing. It disfavors legalistic responses. Inspectors are not primarily concerned with gathering evidence of violations for later enforcement actions; they provide advice about compliance and engage in informal bargaining with regulated entities to resolve violations. A cooperative system prefers variable rather than uniform rules; inspectors are given considerable latitude in determining whether a facility is out of compliance and how to respond. Personal relationships between agency staff and regulated facilities are considered important. A cooperative approach, moreover, uses rewards and incentives rather than penalties for achieving compliance. Penalties are seen as threats rather than sanctions, and are typically withdrawn if compliance is achieved. In fact, levying penalties, and indeed initiating formal enforcement actions, is seen as a mark of the system's failure to otherwise obtain compliance.

While it is useful to distinguish between the theoretical models of deterrence-based and cooperation-based enforcement, in practice most environmental enforcement systems are a combination of the two approaches. This has been historically true, and it is true to a greater extent now as a result of recent reforms adopted by EPA and the states, discussed below. It is an important point to make, however, because many of the recent calls for reforming environmental enforcement attack the theoretical model of rigid deterrence-based enforcement, as opposed to the more flexible model implemented in practice. In fact, numerous studies demonstrate that EPA and the states have always used a hybrid strategy that includes elements of both coercion and cooperation, rarely relying on a strictly legalistic model.⁷

[30 ELR 10805]

Background: The Push for Devolution

The states' drive to change enforcement practices is part of a larger effort to devolve greater environmental authority to the states. This theme is certainly not unique to environmental law; the 1990s witnessed a strong anti-federal government sentiment and a revitalized movement to diminish the role of the federal government and enhance state power.

The states have been dissatisfied with aspects of their relationship with EPA for almost as long as federal environmental laws have been in place. In 1975, for example, an EPA task force reported:

The deeply held belief [among state officials] that the joint State-EPA partnership, which is often cited in the EPA program documents, is little more than a slogan. . . . Several State officials referred to program delegation as a system in which the States do all the work and EPA retains the authority and takes the credit.⁸

EPA has been trying to improve its relationship with the states for just about as long as well.

In the 1990s, however, state tensions with EPA and the demand for devolution intensified considerably, for a variety of reasons. One is the fiscal crunch faced by state environmental agencies in the late 1980s and early 1990s. Resentment over unfunded federal mandates exploded as an issue after amendments to the Safe Drinking Water Act (SDWA) in 1986, Clean Water Act (CWA) in 1987, and Clean Air Act (CAA) in 1990 imposed a host of new regulatory mandates on local and state governments, without new funding to implement them. These additional demands on the states came at a time when many states were experiencing budgetary shortfalls because of a recession and the federal government's relative contribution to state environmental budgets was decreasing. From 1986 to 1996, EPA funding to the states decreased by about 17%, and its contribution to state environmental spending declined from 58% to 20%.⁹

States and their allies also began calling for greater state autonomy on the ground that states can be more responsive to

local conditions than the federal government. State leaders argue that they are closest to the regulated entities and have the most interaction with them; states therefore can be more flexible and tailor enforcement priorities to address the most pressing problems in their jurisdiction, rather than follow a nationally uniform, "one-size-fits-all" model prescribed by the federal government. Other state leaders contend that the states are leading the way in experimenting with innovative regulatory reforms, and that EPA's efforts at change have accomplished very little, demonstrating "that a top-down, centralized system of reinventing environmental protection has not been successful in generating the comprehensive reform we need."¹⁰ For example, the head of strategic projects for Florida's Department of Environmental Protection told Congress in 1998 that "across the country, states are leading a revolution in how environmental protection programs are managed and measured."¹¹

State environmental agencies also maintain that they are far more sophisticated and capable than in the past, and indeed, there is little question that state agency staffs are far more professional and competent now than in the 1970s. State agencies administer over 75% of the major federal delegable environmental programs, and 65% of all delegable programs, compared to just under 40% in 1993.¹² State spending on environmental protection jumped from \$ 5.2 billion in 1986 to \$ 12.5 billion in 1996.¹³ (These figures mask considerable differences in spending and capacity among the various states.)¹⁴ The size of states' environmental staff has increased by approximately 60% over this period. State agencies now conduct about 80% of civil enforcement activity each year.

At the same time that state capabilities have improved, state agencies have grown increasingly frustrated with many aspects of EPA oversight of their programs. A 1995 U.S. General Accounting Office (GAO) survey found that over 60% of program managers found the level of control exercised by EPA to be a significant barrier to effective program implementation, and concluded that "many state managers continue to believe that the association more closely resembles a parent/child relationship than a true 'partnership.'"¹⁵ Professor Denise Scheberle found similar concerns in her detailed study of federal/state workings relations in five environmental programs.¹⁶ State environmental officials expressed unhappiness about inflexible EPA oversight, burdensome reporting requirements, insufficient attention to program outputs, and lack of significant input into EPA program decisions.

Calls for devolution have gained support from other quarters as well. Some proponents advocate greater state autonomy as a means to take power out of the hands of EPA and transfer it to more sympathetic state fora. Environmental [30 ELR 10806] regulation has generated intense opposition among regulated entities, and for many EPA has become the focal point of criticism—the source of unduly restrictive and economically burdensome regulation—and thus the subject of vitriolic attacks. One extreme, if nonetheless influential, strain of this argument is represented by the comments of Republican leaders like Majority Whip Tom DeLay (R-Tex.), who compared EPA to the Nazis: "The EPA, the Gestapo of government, pure and simply has been one of the major claw-hooks that the government has maintained on the backs of our constituents."¹⁷ Likewise, support for devolution has come from some recent (although strongly contested) scholarship questioning the underlying rationales for federal environmental regulation,¹⁸ and from public policy reports advocating devolution.¹⁹

The State Approach to Environmental Enforcement

Enforcement issues have generated perhaps the most intense frictions between EPA and the states. One state official testified to Congress that, "I think there is no EPA-state partnership in some areas of environmental enforcement. EPA's perspective appears to be that they own the ranch and that we, the states, are the hired ranch hands."²⁰ A primary reason, therefore, that states want more autonomy is to pursue their preferred approach to enforcement. States traditionally have been less enthusiastic about deterrence-based enforcement than EPA and more willing to forego or reduce penalties. The difference now is that the states have developed a more affirmative and unified vision of what enforcement should look like, and have been aggressively championing it. What is the approach being advocated by the states?

While there are significant differences among individual states, and it risks oversimplification to discuss them collectively, there nonetheless are many important similarities in how most approach enforcement issues. Generally speaking, the states advocate a more cooperation-based enforcement strategy. Many states paint a picture of EPA's model of enforcement as inflexible, mainly concerned with punishment, and focused on "enforcement for enforcement's sake." They also contend that it is not effective. The Secretary of Delaware's Department of Natural Resources and Environmental Control, for instance, wrote:

For the past two decades, environmental enforcement has been rigid, focusing almost exclusively on the letter of the law. . . . Over the years, the command-and-control approach to environmental enforcement has resulted in a regulated community that fears environmental agencies.

This fear impedes potential partnerships that could hasten movement toward environmental objectives. Instead, critical information is withheld, and environmental improvements are delayed.²¹

Many states argue that the appropriate response to noncompliance in almost all cases is working with violators to achieve compliance, rather than initiating enforcement actions. Virginia's Secretary of Natural Resources told Congress:

The truth is that enforcement action means "failure" not success. It is certainly not the best tool to improve the quality and condition of the resources which make up our environment . . . Policies which focus on compliance with environmental laws are better for the natural resources than policies which focus on enforcement.²²

Likewise, an official of the Ohio EPA characterized the state agency as "not an enforcement agency."²³ Thus, many states believe that resources should be shifted away from traditional enforcement activities toward compliance assistance programs. They do not believe in the central role of enforcement actions or penalties in securing compliance. And many have sought to provide maximum incentives for self-auditing through audit privilege and immunity measures.

Enhanced Compliance Assistance

States start from the premise that education and technical assistance is the preferred tool for achieving compliance. One state agency chief explains:

In Delaware, we work with violators to get them back into compliance as quickly as possible. Using compliance assistance as an option of first choice, we can usually achieve that goal much faster, cheaper and with far greater goodwill than through aggressive enforcement.²⁴

Thus, over the past 5 to 10 years the states have sought to develop and expand compliance assistance programs, particularly programs aimed at small businesses. These include workshops, newsletters, fact sheets, web page information, technical assistance visits, and "plain-English" guides explaining regulatory requirements.²⁵ In the states' view, many small businesses lack the expertise and resources needed to fully comprehend what environmental requirements apply to them and what they need to do to comply. Moreover, compliance assistance programs, especially **[30 ELR 10807]** those provided on an industrywide level, can more efficiently reach larger numbers of small facilities than traditional permitting and enforcement approaches. Many programs offer technical assistance in exchange for a commitment by firms to promptly correct any violations or take other actions in exchange for site-specific evaluations. The Illinois Clean Break project is one such example. States have also developed compliance assistance programs aimed at small towns and communities. Others have sought to combine technical assistance with special recognition for facilities who achieve compliance (or go beyond compliance). Another idea being implemented by a number of states is trying to make regulations easier to understand (something Congress mandated in 1996 for all federal rules in the Small Business Regulatory Enforcement Fairness Act). Ohio's EPA, for instance, is redrafting portions of the state's rules dealing with removal of hazardous substances from abandoned facilities in "easy to understand plain English," and including in the rules a troubleshooting guide, helpful examples, and references.²⁶

Fewer Inspections, Enforcement Actions, and Penalties

At the same time that states have expanded compliance assistance programs, they have cut back on the use of deterrence-based tools—traditional inspections, administrative and civil enforcement actions, and penalties.

Thus, for example, very rough EPA data shows that the number of Resource Conservation and Recovery Act (RCRA) inspections conducted by states declined by 50% from fiscal year 1996 to 1998, and that state inspections for all federal environmental programs declined about 12%.²⁷ Likewise, a series of audits by EPA's Inspector General and the GAO in the late 1990s found that states were not carrying out the monitoring and inspection activities required by EPA

policy. For example, a 1998 audit found that over one-third of major air facilities in New Mexico had not been inspected in the prior seven years.²⁸ EPA's audit of Idaho's air program found that many source emission reports were not timely reviewed by the state (almost 25% were two to six years old), and that only one-third of facilities were inspected as often as EPA required.²⁹ In a review of the air programs in Maryland, Massachusetts, Pennsylvania, and Washington, EPA found that about 18% of the inspections were not thorough enough to determine whether facilities were in compliance—because of failure to conduct requisite tests or evaluations, or to follow up on problems identified during the inspection—and that an additional 17% failed to contain adequate documentation.³⁰ EPA concluded that there were "fundamental weaknesses with state identification and reporting of 'significant violators' of the [CAA] that extended to all elements of the process, from inspection to entry of data used to track noncompliance."³¹ In 1996, state auditors found that the Virginia Department of Environmental Quality (DEQ) did not have an adequate system for reviewing discharge monitoring reports filed by facilities under the CWA.³²

On the other hand, the number of inspections in some states has increased as a result of state efforts to streamline and improve traditional inspection practices. For example, Illinois reported a tenfold increase in the number of RCRA generators it inspected in the latter part of the 1990s; Nevada similarly reported a "dramatic" increase in hazardous waste inspections.³³ More generally, a survey of state hazardous waste program managers found that the great majority had modified traditional RCRA inspection procedures in one of several ways: reducing the scope or frequency of inspections, including for historically compliant facilities or those that conducted audits; modifying mandatory inspection checklists, or reducing post-inspection reporting requirements.³⁴

Likewise, the survey reported that 29 states conduct compliance assistance inspections that have no enforcement repercussions for regulated entities. In some states these inspections are not part of the states' enforcement program. In a number of other states violations detected during the inspections are not sanctioned so long as they are minor. Eleven states reported that the compliance assistance inspections were geared toward small or new businesses, providing them with a period of time after inspection to come into compliance.³⁵

Many states now greatly temper or forego entirely enforcement actions in response to violations. EPA reported a 50% decline in the number of the state enforcement actions initiated under RCRA between 1993 and 1997.³⁶ Other internal evaluations by EPA in 1998 found dramatic drops in overall state enforcement of federal statutes—in some cases up to 75% or 95%—over the course of several years in the mid-1990s.³⁷ (States contend that the data—which was not directly published by EPA but came out in response to a Freedom of Information Act request made by journalists—is highly inaccurate; EPA argues that it is generally reliable. While the data is clearly imperfect, it seems useful as a very rough approximation of enforcement activity trends.)³⁸ Regardless of the dispute over these EPA numbers, the overall trend toward fewer actions under RCRA and other statutes is unmistakable (and indeed not contested by the states). Apart from foregoing actions, in many instances **[30 ELR 10808]** actions taken by the states are not "timely and appropriate"—characteristics which, according to deterrence theory described above, are necessary to deter future violations. In Virginia, for example, a harshly critical audit by the State's Legislative Audit and Review Commission in 1996 found that the DEQ repeatedly failed to take meaningful enforcement action against chronic and serious violators.³⁹ In separate audits of Arkansas, Idaho, Louisiana, New Mexico, Pennsylvania, and Texas, EPA's Inspector General found that actions against significant violators were not timely.⁴⁰ An audit of New York's air program found that the state did not file timely and appropriate actions against a number of significant violators.⁴¹ EPA also found that local air districts in California did not escalate enforcement actions in response to repeat violations.⁴² Another review found that Rhode Island regularly failed to take timely and appropriate enforcement actions against RCRA violators or ensure that violators complied with enforcement compliance schedules, and concluded that the state's "failure to dedicate available resources to RCRA indicated a lack of management commitment to effective enforcement."⁴³

Many states also have chosen to de-emphasize penalties as a means of securing compliance. Several have adopted amnesty programs that expressly prohibit sanctions for minor violations. Under New Jersey's "grace period" law, for instance, when state or local enforcement agencies detect minor violations of environmental laws, a facility will not be penalized if the violation is corrected within 30 to 90 days. The law also bars regulators from imposing penalties against persons who voluntarily disclose minor violations within 30 days of discovery, immediately remedy them, and achieve compliance.⁴⁴ Likewise, recent California laws mandate that minor violations of state hazardous waste, air, and water pollution requirements result in "notices to comply"—informal agency notices that instruct the facility to correct the violations within a given time period—rather than penalties.⁴⁵ Washington has a similar amnesty law, while Missouri has promulgated a "grace period" regulation within its CWA program.⁴⁶ As noted above, moreover, numerous states

give firms, often small businesses, a certain time after receiving compliance assistance to come into compliance without fear of enforcement.⁴⁷ Other states have initiated expedited enforcement processes, such as reducing penalties in exchange for prompt settlement of violations.⁴⁸

Beyond these initiatives, many states have stopped imposing penalties on violators, including significant violators, or now impose only very limited fines.⁴⁹ (Some states never assessed large penalties in the first place.) An EPA survey of 13 states found that from 1991 to 1996, only 2 imposed RCRA penalties that were at least 50% of their EPA region's average; in some states the penalties were as low as 4% to 6% of what the regions assessed.⁵⁰ In Virginia, the state imposed \$ 4,000 in fines for water quality violations in fiscal year 1996, a 98% drop from three years earlier.⁵¹ In New York in the mid-1990s, fines and penalties collected by the Department of Environmental Conservation fell by 45%.⁵² EPA's auditors found that Idaho failed to take enforcement action or impose any penalties against 75% of the significant air quality violators identified. In many instances, the sources had a history of repeated and continuous violations of permit conditions that had lasted for years.⁵³ In a review of enforcement records for facilities in five industrial sectors in Michigan, Ohio, and Pennsylvania, the Environmental Working Group found that penalties were imposed on only 1 facility out of 38 major facilities that violated the CWA between 1997 and 1999.⁵⁴

When penalties are imposed, according to a host of studies, they frequently are inconsistent with EPA's penalty policies. Many states fail to recover economic benefit when assessing penalties—a core element of deterrence theory designed to ensure that companies do not gain from noncompliance and that there is a level playing field among regulated entities. (This issue has been a long-standing EPA concern about state programs.) A California environmental group found that from 1992 to 1997, out of over 9,000 violations of water quality requirements in Los Angeles and Ventura counties, the local regional water quality control [30 ELR 10809] board assessed fines in 14 cases, less than 0.5% of the total; routinely waived or reduced penalties if a facility agreed to come into compliance; and failed to capture the economic benefit of noncompliance.⁵⁵ EPA reviews found that only one of six states surveyed regularly assessed economic benefits for air quality violations; another audit reached similar conclusions about several states and RCRA violations.⁵⁶ In some states, the economic benefits of noncompliance are not even documented⁵⁷; other states do not have procedures for determining it.⁵⁸ Some states do not even have the authority to request the financial information needed to calculate economic benefit,⁵⁹ while others contend that legal precedent prevents them from calculating or assessing economic benefit.⁶⁰

Not only are state penalties frequently inadequate by EPA standards, they fluctuate by jurisdiction. EPA's study of RCRA enforcement in 13 states, for instance, found a "wide variation" in the average size of penalties assessed, and "inconsistent penalty practices that can result in inconsistent enforcement" from one state to another.⁶¹ A study of CAA enforcement in several states likewise noted that average penalties assessed ranged from over \$ 68,000 in Michigan to under \$ 2,500 in California.⁶²

Idaho is an instructive, if perhaps unusual, example of the states' distaste for penalties. EPA's audit of Idaho's air enforcement program identified a major stationary source (a mining and processing facility) that had a long history of air quality violations and was identified by the DEQ as a significant violator in July 1996. The DEQ made numerous attempts to get the facility in compliance through the administrative process, without success. The facility owner took the position that the facility could never be brought into compliance because of its age but that he needed to continue to intermittently operate it. In August 1997, the DEQ referred the case to the state Attorney General's office for civil enforcement, stating that the owner continued to operate the mill knowingly and willfully violating Idaho's rules and the terms of a consent order. After discussions with the Attorney General, the owner agreed to stop operations of the mill until it could be operated lawfully. The Attorney General then wrote to the facility, confirming the agreement, and stating that as a good-faith gesture, and to encourage compliance, the DEQ was *returning* a \$ 3,250 check that the facility had made as a partial payment for numerous penalties incurred for violations of the consent order. At the time of the EPA audit in December 1997, other outstanding penalties from the past two years had not been paid, and the facility was still out of compliance.⁶³

Before concluding this discussion, it is worth reiterating that the states are not monolithic, and that not all of them have discarded deterrence-based approaches or strayed from EPA's enforcement policies. As noted above, numerous states have sought to simplify and improve traditional inspections, enabling them to inspect more facilities. EPA Inspector General audits found that the Illinois EPA and New Jersey Department of Environmental Protection (DEP) were taking appropriate enforcement action against significant noncompliers under RCRA.⁶⁴ The Washington Department of

Ecology significantly increased the number of water quality penalties and administrative orders it issued from 1989 to 1999. It also slightly increased the number of enforcement actions it took, although the number of permitted facilities increased by about fourfold during this period.⁶⁵

In addition, some states also have adopted tougher penalty regimes. In 1999, for example, California adopted legislation requiring mandatory minimum fines of \$ 3,000 for serious or repeat violations of state water pollution control requirements.⁶⁶ Serious violations are discharges that are 20% or 40% in excess of effluent limits, depending on the pollutant.⁶⁷ The bill was prompted by a series of studies showing a pervasive lack of enforcement by the state's local water boards.⁶⁸ The California legislation was modeled after a 1991 New Jersey statute that similarly imposes mandatory minimum penalties for clean water violations.⁶⁹

Finally, it bears emphasis that many states are unapologetic about their curtailment of traditional inspections, penalties, and enforcement actions. Some dispute the accuracy and significance of EPA (and other) data, arguing, for example, as in the case of Pennsylvania, that disagreement with EPA over what constitutes a "significant violation" explains supposed state failures to follow EPA's policies. More generally, the states contend that their departure from these deterrence-based enforcement practices is appropriate given their different vision of how best to achieve compliance.

[30 ELR 10810]

Audit Privilege and Immunity Laws

A central element of the states' enforcement approach is greater reliance on industry self-policing and self-regulation, particularly voluntary audits. An environmental audit is a systematic review of a facility's compliance with environmental requirements.⁷⁰ Companies, especially larger firms, began auditing with some frequency in the 1980s due to increasingly aggressive enforcement activity by the government, including stepped up criminal enforcement, as well as the recognition that audits can save money by identifying production efficiencies, ways to reduce waste generation, and so forth.

As companies began auditing more regularly, they began lobbying the states for audit privilege and immunity provisions, arguing that without such protections firms would forego audits because of fear that the information discovered would be used against them in enforcement actions or tort lawsuits. The movement for privilege legislation gained momentum due to a well-publicized case in Colorado in which the government supposedly relied on information discovered during an audit to prosecute Coors for violations of the CAA. (In fact, agency use of audit information in this manner has been the very rare exception, and even in Colorado, state officials maintain that the violations came to light because of a government-ordered inventory, not a voluntary self-audit.)⁷¹ In 1993, Oregon passed the first audit privilege law, and since then, virtually every state has considered some type of related legislation or policy. Twenty four states currently have audit privilege or immunity statutes; another one, Oklahoma, has a rule providing for penalty immunity under certain conditions. (Idaho had a law that was sunset at the end of 1997.) An additional 14 states have administrative policies to encourage voluntary audits and self-disclosure of violations, in most cases akin to EPA's audit policy, discussed below.

The privilege measures generally bar the use of audit documents as evidence in litigation over compliance with environmental laws, and otherwise allow them to be withheld from public or governmental disclosure. The scope of the privilege varies by state.⁷² The immunity laws protect companies from sanctions for environmental violations if the violations are discovered pursuant to the audit, voluntarily reported, and corrected within a certain time. (A few states do not require the identification of a violation to have come from an audit.) Almost all of the measures provide immunity in civil and administrative actions; around one-third of them also grant immunity in criminal proceedings.⁷³

EPA's Enforcement Reforms

For its own part, EPA has made an important effort to "reinvent" its own enforcement program, although its core enforcement messages have remained the same. In 1993, EPA changed (and substantially expanded) its headquarters' enforcement office, as well as the name of the office. The change in title, from the Office of Enforcement to the Office of Enforcement and Compliance Assurance (OECA), signaled EPA's intention to expand its reliance on compliance assistance and compliance incentive programs. EPA's reforms have been motivated by some of the same considerations prompting state initiatives, including a recognition of the limited resources available for deterrence-based enforcement.

As explained by one top administrator: "The widening gap between government's compliance assurance mandate and the resources it can apply to it means there will simply never be enough inspectors and government attorneys to achieve significant levels of compliance through enforcement actions alone."⁷⁴

While expanding its menu of compliance-promotion activities, EPA has regularly asserted its continuing commitment to the central role of traditional, deterrence-based enforcement. In the agency's view "[a] strong and vital enforcement program is critical to the success of EPA's environmental programs, including compliance assistance and compliance incentive programs."⁷⁵ According to EPA, "for at least three reasons a vigorous enforcement effort is vital to the success of alternative compliance strategies." First, "enforcement motivates regulated entities to comply with the law. . . . The prospect of sanctions for noncompliance compels regulated entities to make an effort to comply. They come forward to use compliance assistance or various audit and incentive policies to avoid sanctions." Second, "enforcement provides specific and general deterrence." Third, "enforcement ensures economic fairness among regulated entities."⁷⁶

[30 ELR 10811]

Compliance Assistance

EPA began actively expanding its own compliance assistance programs in the mid-1990s. It has established nine compliance assistance centers for various industrial sectors, each of which provides "plain English" guides about compliance requirements, technical assistance, and pollution prevention training to regulated entities. EPA also has developed "sector notebooks" for 30 industries, to "help owners and operators of regulated industries understand their regulatory obligations through comprehensive plain-English guides." EPA also recently announced that it would provide compliance assistance information within 90 days of issuing any economically significant rule so that it is available before the new requirements become effective.⁷⁷ Additionally, under a directive issued by President Clinton in 1998, EPA (and all other federal agencies) are required to use "plain language" in all rules issued after January 1, 1999.⁷⁸ According to EPA, in Fiscal Year (FY) 1999, its compliance assistance programs reached 330,000 entities through on-site visits, hotlines, workshops, training, and distribution of checklists and guides.⁷⁹

EPA has also sought to encourage state compliance assistance programs through policy guidance, joint initiatives, and financial assistance. For example, in 1995, it adopted a *Policy on Flexible State Enforcement for Small Community Violations* that accepts compliance assistance as an alternative to traditional enforcement against small communities (small communities are defined as having fewer than 2,500 residents).⁸⁰ The policy provides that EPA will not initiate its own enforcement actions against small community violators where a state has waived all or partial penalties, provided that the community has requested compliance assistance from the state and takes steps to achieve compliance promptly. (Criminal violations and violations that pose imminent threats are excepted.) EPA reports that this policy has prompted several states to develop small community compliance assistance programs, and it has provided grants to several states to help them pilot such programs.⁸¹

Compliance Incentives

EPA has sought to encourage voluntary corporate auditing and other self-regulatory efforts with its policy on *Incentives for Self-Policing*, first adopted in 1995.⁸² The policy rejects the privilege and immunity approach adopted by many states and instead grants enforcement leniency to firms that voluntarily disclose and correct violations that they discover. For firms that conduct audits or have systematic compliance management systems in place, EPA will not seek gravity-based penalties for violations found that are promptly disclosed and corrected. For other entities, EPA will reduce gravity-based penalties by 75% for violations that are promptly disclosed and corrected. The Agency will, however, seek to recover any economic gain the firms have realized from noncompliance unless the benefit is insignificant. As of October 1999, a total of 670 companies had used the policy to disclose violations at 2,700 facilities; EPA reports that the number of participating companies has doubled each year since the policy was issued in 1995. After completing an evaluation of the policy in 1999, EPA declared that it was working effectively, and proposed only very minor revisions to it.⁸³

In its small business policy *Final Policy on Compliance Incentives for Small Business*, EPA makes the most significant departure from its penalty policies in an effort to promote environmental compliance among small businesses.⁸⁴ Under the policy, EPA will forego penalties entirely (economic benefit recoupment as well as the gravity component of a

penalty) when a small business makes a "good-faith" effort to comply with environmental requirements by either receiving on-site compliance assistance or conducting an environmental audit and promptly disclosing any violations detected. Small businesses are defined under the policy as companies employing 100 or fewer persons on a companywide basis.⁸⁵ In FY 1999, 76 businesses disclosed violations under this policy.⁸⁶

EPA also has been seeking to promote the use of environmental management systems (EMS), although thus far in a very cautious fashion. EMS refer to systems that treat environmental issues as a management concern that should be addressed in the same systematic manner as other management issues such as cost and quality. They seek to reduce the environmental impacts of a firm's activities by instituting various internal management systems. EPA conducted a one-year pilot project to encourage EMS, the Environmental Leadership Program, and several regions have adopted policies to encourage EMS. For example, under Region I's "Star Track" Program, companies agree to implement EMS similar to the International Organization for Standardization (ISO) 14001 management system (discussed below), conduct an annual compliance and EMS audit, prepare and publish an annual environmental performance report, and triennially have their audit results reviewed and certified by an independent third party. In exchange, the companies receive [30 ELR 10812] public recognition, a reduction in EPA inspections and penalties for self-corrected violations, and expedited permitting.⁸⁷ EPA's Region IX has initiated a "Merit" program to encourage EMS among small businesses and metal finishing firms, and EPA is also funding a pilot EMS program focusing on municipalities. In 1998, EPA issued a policy statement supporting EMS and announcing that it would do more to promote their use, both to help firms increase compliance and achieve superior environmental performance.⁸⁸ EPA has funded a number of state and local EMS pilot programs, and is supporting an ongoing study of EMS pilot projects in 10 states (and 2 of its own pilot projects) to determine the effectiveness of EMSs.⁸⁹

Improving Traditional Enforcement

EPA has also taken steps to tweak its traditional enforcement strategies. One example is its *Supplemental Environmental Project (SEP) Policy* that allows companies to reduce penalties in exchange for environmentally beneficial projects.⁹⁰ Environmentally beneficial projects "must improve, protect, or reduce risks to public health or the environment at large," and can include pollution prevention, facility assessments and audits, compliance promotion, or other activities. Notably, however, the *SEP Policy* adheres to a core principle of EPA's penalty policy: settlements involving SEPs must recoup economic benefit, plus at least a small percentage of gravity-based penalties. EPA's rationale for this requirement reiterates the principles articulated in its penalty policies concerning the importance of penalties for deterrence and fairness:

Penalties promote environmental compliance and help protect public health by deterring future violations by the same violator and deterring violations by other members of the regulated community. Penalties help ensure a national level playing field by ensuring that violators do not obtain an unfair economic advantage over their competitors who made the necessary expenditures to comply on time⁹¹

EPA's use of SEPs has been growing; it obtained \$ 236.8 million in SEPs in fiscal year 1999, up from \$ 90 million the previous year.⁹²

Interestingly, while EPA is promoting a broader range of compliance tools, its regional offices appear to be doing a somewhat better job of following EPA's deterrence-based policies in their own enforcement programs. Recent GAO and Inspector General studies documented shortcomings in regional enforcement, including failure to recover economic benefit, take timely and appropriate action against significant violators in certain cases and flaws in enforcement data and information management systems,⁹³ but these problems were far fewer than those associated with state programs. Moreover, the audits show that the regions have improved considerably in their implementation of EPA's enforcement policies, particularly penalty policies, during the 1990s.⁹⁴

Is Major Reform Appropriate?

Is the shift in enforcement philosophies advocated by the states warranted? Should we shift away from deterrence, as the states have been demanding, and rely more on cooperative strategies?

This section is divided into two parts. First, it examines what we know empirically about what works best to promote compliance with environmental laws. To date, there is little evidence about the efficacy of cooperation-oriented

strategies, and even less that directly compares deterrence and compliance strategies. There is more, although still relatively limited, empirical research about deterrence-based policies; these studies show that traditional enforcement activity improves compliance, and that in its absence, compliance suffers.

Second, it discusses some of the prominent theoretical justifications advanced in support of greater reliance on cooperative strategies. These arguments highlight some significant limitations of a pure deterrence model, but they do not prove the desirability of radically departing from deterrence-based strategies and relying solely or primarily on cooperative methods.

[30 ELR 10813]

The Empirical Evidence

Research on Cooperative Strategies

What evidence exists about the relative efficacy of alternative approaches? Despite the widespread calls for moving away from a deterrence-based enforcement, there is relatively little data to support the argument that cooperation works better to achieve compliance with environmental law.

Thus, for example, researcher Kathryn Harrison has noted that "past studies that have hailed the merits of cooperative enforcement have offered surprisingly little by way of empirical support," and also that "it is quite remarkable how little we know about the environmental effectiveness of voluntary programs, although that has not stopped some proponents of cooperative approaches from drawing positive conclusions."⁹⁵ Two other leading academics likewise have observed that:

scholarly attention has focused much more on building credible arguments for particular points of view than on evaluating their effectiveness based on actual experience in the field. As a result, there is little in the way of empirical evidence that can be used in deciding which enforcement techniques [approaches based on deterrence or cooperation] are most likely to achieve regulatory goals.⁹⁶

Another recent report concludes that "[a] vigorous debate continues about what really works, but there is still no objective way to determine which techniques for compliance assurance are most productive, either for creating deterrence or for improving the environment."⁹⁷

In part, the lack of data about cooperative methods reflects the fact that some of these approaches, such as comprehensive compliance assistance programs, or incentives for environmental auditing, are relatively new. More fundamentally, the dearth of data is due to the fact that until very recently, little attention has been devoted to examining the effectiveness of cooperative strategies, and to the difficulties inherent in evaluating how well different enforcement strategies work. Thus, to date many evaluations of cooperative approaches report the level of program activities, such as the number of entities reached through compliance assistance programs or the number of facilities that conducted environmental audits under audit privilege laws or self-policing policies.⁹⁸ This situation is starting to change, as the states and EPA have made the development of expanded performance criteria a key element of the new federal/state partnership system launched in 1995 to replace the traditional system of EPA oversight of the states known as the National Environmental Performance Partnership System (NEPPS). EPA also is supporting pilot projects in 12 states to evaluate the effectiveness of compliance assistance (and other enforcement) programs, and is funding an ambitious research agenda to determine what motivates corporate compliance and environmental performance, including the effectiveness of various cooperative-based (as well as deterrence-based) approaches.⁹⁹ EPA likewise is sponsoring research by the Environmental Law Institute (ELI), the University of North Carolina, and the Multi-State Working Group on Environmental Management Systems to determine the effectiveness of EMS in improving environmental compliance and performance.¹⁰⁰

A few studies indicate improvements in compliance rates after cooperative strategies were substituted for traditional practices. For example, a pilot cooperative compliance program conducted by the California Occupational Safety and Health Administration (Cal/OSHA) in the early 1980s resulted in significantly lower accident rates at the participating job sites than at comparable company projects or comparable projects by other firms in California.¹⁰¹ Under the program, Cal/OSHA largely refrained from traditional enforcement activities at some large construction sites in favor of

self-regulation by a joint labor-management safety committee. Cal/OSHA stopped its routine compliance inspections at these sites, and instead assigned a compliance officer to assist the safety committee in devising solutions to problems at the sites.¹⁰²

In another instance, federal OSHA similarly has found benefits from its Voluntary Protection Program (VPP). Employers who have outstanding safety records and a program for identifying and correcting workplace hazards assume primary responsibility for compliance monitoring and are exempted from routine agency inspections.¹⁰³ In 1992, with 150 worksites participating in the program, injury incidence rates averaged from 35% to 65% below the expected average [30 ELR 10814] for similar industries, and workday injury rates were 60% below the expected average in similar industries. In 1996, OSHA reported that in the prior three years participation in the program had doubled, and that injury rates at participating companies were 45% below the industry average.¹⁰⁴ Likewise, a study by John Scholz of OSHA enforcement suggests that the level of cooperation employed by enforcing agencies increases the effectiveness of their enforcement efforts, as measured by lower injury rates among workers.¹⁰⁵

A compliance incentive program implemented in the auto repair industry in Santa Rosa, California, also reported positive results. In place of traditional enforcement practices, local regulators began an intensive program of providing information and technical assistance to businesses. (In addition, the regulators awarded recognizable stickers to complying businesses, and attempted to raise consumer awareness about the program.) Whereas before the campaign the compliance rate hovered near zero, nearly three-quarters of the repair shops were fully compliant after two inspections.¹⁰⁶ Since then, according to city officials, compliance rates have remained quite high.¹⁰⁷

We also are starting to see some data analyzing the effectiveness of compliance assistance programs being implemented by the states and EPA. For instance, in a 1998 survey of state hazardous waste officials, several states reported demonstrable improvements from various compliance assistance or other alternative enforcement activities.¹⁰⁸ (One state reported contrary results: in Maine, these alternative activities did not improve compliance or environmental performance.) For example, North Carolina reported higher levels of compliance for facilities that attended a workshop or received other forms of assistance than for facilities which did not (94% compliance vs. 75%). Nevada and Illinois also both reported improvements in compliance from alternative compliance approaches, but did not separate out the effects of compliance assistance activities from other reforms, such as shorter and streamlined inspections, that allowed for a greater enforcement presence (for instance, a tenfold increase in the number of RCRA generators visited annually in Illinois).

There are only a handful of studies directly comparing the effectiveness of deterrence and cooperative-oriented strategies. A study by Kathryn Harrison of the pulp and paper industries in the United States and Canada, where enforcement has been more aligned with the cooperative school, found that rates of compliance with effluent limitations in Canada are significantly lower than in the United States.¹⁰⁹ In particular, the study found that rates of compliance with biological oxygen demand (BOD) requirements for Canadian mills were around 69%, compared to an average in the United States ranging from 86% to 98%, and that compliance with total suspended solids (TSS) requirements was 59% compared to an estimated 92% compliance in the United States. The evidence also suggests that the U.S. firms would have a substantially higher rate of compliance with toxicity standards.¹¹⁰ Noting that the regulatory systems of the two countries are very similar except for the divergent approaches to implementation, Harrison concludes that "the findings thus constitute prima facie evidence that cooperative enforcement is less effective than the more prosecution-oriented approach, at least in North America."¹¹¹

Raymond Burby has conducted two studies comparing enforcement approaches. In his review of the nonpoint source control programs in 20 states, he found that the degree of coercion that programs apply to the private sector and to local governments is the critical element in explaining the program's effectiveness. Factors such as the frequency of inspections, use of permit revocation as sanction for noncompliance, and a requirement of local regulation positively impacted compliance. Cooperative approaches were less effective than deterrence, particularly those that relied on building capacity and public awareness without providing technical assistance to regulated entities.¹¹² In an earlier study of local environmental enforcement in North Carolina, Burby and his colleague Robert Paterson found that both deterrence-based and cooperative strategies were necessary to ensure adequate compliance with the state's sedimentation and erosion control program by private developers. They concluded that deterrence-based aspects of the enforcement system, including more frequent and lengthier inspections, were the key factors in ensuring greater compliance with the more expensive requirements that approved plans be installed and maintained.¹¹³ On the other

hand, a cooperative approach worked better at ensuring compliance with the performance standard of the regulations—that all sediment be retained on site.¹¹⁴

Also instructive is a case study by Environment Canada comparing a voluntary compliance approach with more traditional enforcement for three forest sector industries in British Columbia. The agency found that a period of voluntary compliance resulted in "negligible or unsatisfactory changes in the quantity of pollutants discharged" by mills, while after government enforcement efforts, discharges declined dramatically. It also reported similar, if less striking **[30 ELR 10815]** results for 19 industrial sectors in the region: those that relied solely on self-monitoring or voluntary compliance had a compliance rate of 60%, while those subject to federal regulation and subject to enforcement activity had a compliance rate of 94%.¹¹⁵

Research on Deterrence-Based Approaches

We have considerably more research examining the impacts of traditional enforcement activities. Nonetheless, this data is relatively limited; as leading enforcement scholar Mark Cohen writes, "until recently, there have been surprisingly few empirical studies of environmental enforcement," in part because facility-level data about monitoring and enforcement activities has not been easily available to researchers.¹¹⁶ EPA also recognizes this gap, and a significant part of the previously mentioned research agenda it is pursuing is designed to determine how and why deterrence works, and which deterrence-based tools are most effective.¹¹⁷

Thus, a series of studies of the pulp and paper industry in both the United States and Canada show that increased levels of traditional enforcement activity—including inspections, the threat of inspections, timely and appropriate enforcement responses, or other enforcement actions—tends to increase the rate of industry compliance (measured at the plant level). For example, analyzing CWA compliance among U.S. pulp and paper mills, Wesley Magat and Kip Viscusi found permanent improvements in discharge levels as a consequence of regulatory inspections and associated enforcement activities. These activities substantially reduced discharges of BOD chemicals after about three months and helped permanently reduce an individual firm's future pollution levels. They also had a major impact on compliance rates; firms not subject to inspections and enforcement activities were twice as likely to be in noncompliance as those subject to the activity. The firms were also more likely to report emission levels.¹¹⁸ An analogous study of the pulp and paper industry in Canada found that both inspections and the threat of inspections had significant impacts on BOD discharges; past inspections reduced BOD discharges by 28%.¹¹⁹ Inspections also increased the likelihood that plants self-report their level of emissions.¹²⁰ Eric Helland similarly documented that pulp and paper mills in the United States that are inspected and have violations detected are more likely to self-report violations.¹²¹ Another related study showed that EPA's policy of making a timely and appropriate response to violations resulted in sources in the pulp and paper industry returning to compliance more rapidly than in the absence of agency activity. Specifically, a 10% increase in monitoring activity led to a 4.2% reduction in the length of time that plants violated EPA regulations; a 10% increase in enforcement responses led to a 4% to 4.7% reduction in the length of violation.¹²² The only somewhat inconsistent study found that routine inspections of U.S. pulp and paper mills, as opposed to discretionary inspections targeted at firms with previous violations, did not reduce the number of known violations at the plants. This may reflect the fact that increased monitoring not only deters violations but also leads to increased detection and reporting of violations; in some cases, the detection effect can outweigh any deterrent effect.¹²³

A number of studies in other contexts reach similar conclusions about deterrence-based measures. Wayne Gray and Mary Deily found in their analysis of the steel industry that enforcement activities—whether measured as total enforcement actions or inspections only—increased compliance by steel mills with air pollution requirements.¹²⁴ Very preliminary results from an ongoing study show that compliance monitoring and enforcement activities reduce pollutant loadings in the petroleum refining sector.¹²⁵ An analysis of the environmental performance in a large sample of Mexican factories found that regulatory inspections and enforcement were more important than any other single factor in determining whether a plant was in compliance.¹²⁶ An informal EPA review of RCRA inspections from 1990 to 1996 found that facilities which went longer periods without inspections (three or more years) tended to have more violations detected per inspection.¹²⁷ A California study found that due to stepped up enforcement by the State Department of Toxic Substances Control (DTSC) over a five-year period the number of violations per facility inspection dropped two-thirds, from 3.3. to 1.1, and that the percentage of facility inspections finding multiple violations dropped from 63% to 33%.¹²⁸ The Indiana Department of Environmental Management found that in 65% to 70% of cases in which enforcement actions were taken against facilities, follow-up inspections showed that the facilities complied **[30 ELR**

10816] with environmental requirements.¹²⁹ A 1998 study of the San Francisco Bay Area Air Quality Management District's enforcement program found that noncompliance rates at nonretail gasoline stations were three times higher than that found at retail stations. The study attributed this differential to the fact that the local district inspected nonretail stations only one-third as frequently as commercial stations.¹³⁰ Other studies have found that pollutant emissions have declined as the probability of detection of a violation, and the size of fines levied for a violation, increases.¹³¹

Likewise, several empirical studies have demonstrated that increased monitoring activities by the U.S. Coast Guard reduces both the frequency and size of oil spills from oil tankers and barges.¹³² Notably, several of these studies measured compliance at an aggregate level, as opposed to compliance by specific firms targeted for inspections, demonstrating the general deterrent effect of monitoring activities. One study found no link between penalties and oil spill impacts; however, as Mark Cohen points out, this may be due to the fact that in the context of oil spills, penalties are a small fraction of cleanup costs.¹³³ Another study of deep draft vessels (vessels with over 100 tons displacement) determined that increases in Coast Guard inspections reduced the frequency of pollution incidents.¹³⁴

Professor Evan Ringquist, in his detailed study of state and federal environmental programs, similarly concluded that the strength of enforcement programs makes a significant difference in reducing pollutant emissions. He specifically found that federal enforcement efforts, which generally tend to be more aggressive than state efforts, and state enforcement efforts that were "consistent, focused and well-supported," resulted in greater reductions than weak and inconsistent state programs.¹³⁵ Professor Hilary Sigman found that states with greater enforcement activity had fewer reported incidents of illegal dumping of used oil.¹³⁶ Anecdotal evidence indicates that New Jersey's deterrence-oriented Clean Water Act Enforcement Act has significantly improved compliance since it was adopted in 1990. The statute provides for mandatory minimum penalties for serious violations and significant noncompliance and requires that penalties recover the economic benefit resulting from violations.¹³⁷ It also requires annual inspections of permitted facilities and inspections of facilities at which significant noncompliance is identified within 60 days. According to the New Jersey DEP, since the early 1990s, the number of total violations, serious violations, and instances of significant noncompliance have dropped by amounts ranging from 80% to 90%. The law's general deterrent effect is demonstrated by the fact that in this period enforcement actions also have declined by 73%, and penalties collected have declined by 88%.¹³⁸ (Notably, the DEP also credits its expanded compliance assistance activities for playing a significant role in improving compliance.) New Jersey also has significantly improved its comparative compliance ranking with other states (as measured by the percentage of major facilities in significant noncompliance with the CWA), going from the bottom third in 1995 to the top fifth in 1998.¹³⁹ On the other hand, in their detailed study of the CWA, Professors Susan Hunter and Richard Waterman concluded that higher levels of enforcement activity did not translate into improved water quality outcomes, as measured by the percentage change in average pollutant concentrations of phosphorous, dissolved oxygen, and dissolved solids between 1973-1975 and 1986-1988.¹⁴⁰

A set of studies of occupational safety and health enforcement have documented similarly positive results from OSHA enforcement activities. For instance, Ann Bartel and Lacy Glenn Thomas found that doubling inspection rates raised compliance levels among regulated firms by approximately 25%; likewise, increasing the size of penalties imposed led to a significant improvement in compliance rates.¹⁴¹ Another study of all manufacturing plants that received two or more OSHA health inspections between 1972 and 1983 (a total of 35,426 inspections of 12,592 plants) estimated that plants experienced a reduction of 50% in violations and 42% in worker overexposures to hazardous substances following the initial agency inspection.¹⁴² Another examination of OSHA enforcement demonstrated that between 1979 and 1985, inspections imposing penalties resulted in a 22% decline in injuries in the inspected plant during the following few years.¹⁴³ Scholz and Gray found that **[30 ELR 10817]** OSHA enforcement has a significant effect on injuries in a substantial portion of the manufacturing sector; specifically, a 10% increase in enforcement reduces injuries by approximately 1% for large, frequently inspected firms. They report similar results from other empirical studies of OSHA enforcement.¹⁴⁴ The authors posit that their findings are consistent with the "bounded rationality" perspective of corporate behavior, which emphasizes the limited ability of corporations to achieve all the goals they desire and their consequent focus on the most obvious and immediate risks. Often these will not be those involving environmental harm. Inspections improve safety records because they focus managerial attention on risks previously overlooked.¹⁴⁵ Finally, and indirectly confirming the above research, a study by the Associated Press reviewing 778,000 OSHA inspections from 1990 to 1995 found that 75% of the sites at which workers suffered serious accidents in 1994 and early 1995 had not been inspected in the prior five years.¹⁴⁶

Conversely, we have considerable evidence showing that the absence of deterrence-based enforcement, that is, the absence of a threat of meaningful sanctions, often translates into noncompliance. Thus, EPA and the states proved singularly unsuccessful in bringing municipalities into compliance with SDWA requirements and municipal-treatment plan violations using solely a compliance promotion approach.¹⁴⁷ In the mid-1980s, close to 1,500 publicly owned treatment works (POTWs) were out of compliance. One important reason for this was that many industrial users—41% according to one GAO survey—were exceeding their limits on discharges to POTWs, and the efforts of POTWs to coax compliance from these discharges through a voluntary approach were unsuccessful.¹⁴⁸ Regulators then initiated a major enforcement effort against the municipalities and filed judicial or administrative actions against almost 80% of noncomplying facilities. This resulted in dramatic increases in compliance rates.¹⁴⁹ Likewise, a study of enforcement of underground fuel tank laws in northern California found that the conciliatory enforcement style of the local agency failed to bring most regulated facilities into compliance.¹⁵⁰ Out of over 1,000 instances of unauthorized releases from underground fuel tank sites between 1985 and 1990 in Alameda County, California, the agency failed to take enforcement action at 834 sites; out of these, 726 had not taken any voluntary steps to remediate the release 4 to 9 years after its occurrence (70% of which had affected or threatened groundwater).

A great deal of additional, more anecdotal evidence abounds. In Virginia, the legislative auditor concluded in 1996 that the failure of the state to take meaningful enforcement actions resulted in persistent violators failing to come into compliance.¹⁵¹ In the San Francisco Bay area, where the average fine imposed by the local air district against oil refineries from 1989 to 1999 was in the modest range of \$ 625 to \$ 699 per offense, the three major oil refineries in the area each committed approximately 115 violations during the last 3 1/2 years of this period.¹⁵² More generally, EPA, the GAO, and environmental groups have assembled considerable evidence suggesting that weak enforcement and a shift to cooperative-based approaches by state agencies has contributed to significant rates of industry noncompliance in the 1990s. EPA estimated that in FY 1998, the rates of *significant* noncompliance for major facilities (by definition those subject to the most regulatory attention) were 20% under the CWA, 21% to 28% under RCRA and at least 7% (and probably higher) under the CAA.¹⁵³ The overall noncompliance rate under the CWA for major facilities was 50%. EPA also noted evidence suggesting widespread violations of its new source review requirements under the CAA.¹⁵⁴ Reports by the GAO and others also demonstrate considerable levels of noncompliance. For instance, the GAO found that in fiscal years 1992-1994, one in six major facilities was in "significant noncompliance" of the discharge limits in their national pollutant discharge elimination system (NPDES) permits, and that the actual number could be twice as high.¹⁵⁵ Another review by the U.S. Public Interest Research Group (PIRG) found that during a 15-month period from 1995 to early 1996, close to 20% of the major industrial, municipal, and federal dischargers nationwide were in significant noncompliance with their CWA permits in at least one quarter. The study additionally found that 21% of major industrial dischargers exceeded their discharge limits by 50% or more during the first quarter of 1996.¹⁵⁶ Likewise, a 1999 study shows that more than 39% of all major facilities in five large industrial sectors violated the CAA in the two-year period starting in January 1997, and on average were out of compliance half the time during this period.¹⁵⁷ Another recent report found that nearly 30% of major facilities examined [30 ELR 10818] were in significant noncompliance with their CWA permits during at least one quarter from September 1997 to December 1998.¹⁵⁸

To be fair, one of the limitations in viewing this past experience is that the lack of punitive enforcement measures often has not been accompanied by a corresponding increase in compliance assistance measures or compliance incentives—there has simply been lax enforcement. Moreover, not all of the evidence shows that *higher* penalty amounts necessarily improves facility compliance. For example, in a review of close to 300 settled RCRA enforcement actions, EPA Inspector General's found no difference in the average penalty imposed on those facilities that returned to compliance versus those facilities that remained out of compliance despite being sanctioned.¹⁵⁹ Scholz and Gray likewise found in their study of OSHA enforcement that firms responded more to changes in the probability of being fined than in increases in the amount of the fine imposed; Montserret Vildrach-Grau and Theodore Groves found that the size of penalties did not effect the frequency of oil spills.¹⁶⁰ Nonetheless, the clear weight of existing evidence supports the view that lack of meaningful sanctions has a significant adverse effect on compliance rates. The GAO, which has conducted multiple studies about compliance with federal environmental statutes over the past two decades and whose findings therefore merit substantial weight, has concluded that penalties "play a key role in deterring violators. . . . The [CWA] and other environmental statutes have been violated repeatedly when penalties have not been applied."¹⁶¹

The Theoretical Bases for Rejecting Deterrence-Based Models

Critics have advanced a number of theoretical arguments as to why a cooperative approach is superior to a deterrence-based model. These include arguments that environmental law is unduly complex; that deterrence is counterproductive and inefficient; that sanctions are inappropriate because of societal ambivalence toward pollution; and that deterrence-based approaches inexorably lead to "bean counting" of enforcement actions as a way to evaluate enforcement success. I have discussed these arguments and counter arguments at length in an earlier article.¹⁶² This section focuses on several other arguments that are at the core of the complaint about deterrence-based environmental enforcement: that firms comply because of adherence to social norms; that firms comply because of market forces; and that enforcement efforts can be curtailed because of firms' self-policing practices.

Compliance Because of Adherence to Social Norms

Critics dispute the view of corporations as driven only by economic factors, and contend that corporate actors are instead motivated by a variety of social, civic, and other considerations. Some argue that corporations conceive of themselves as political citizens, who are ordinarily inclined to comply with the law, partially because of their belief in the law, and partially as a matter of their long-term self-interest.¹⁶³

The critics of deterrence-based enforcement are correct to reject an economically deterministic model as the only explanation for voluntary compliance. Scholars Ian Ayres and John Braithwaite are closer to the mark in arguing that firms have different "lexical orderings" of money and responsibility; that is, the behavior of regulated entities ranges from those exclusively motivated by money to those for whom this goal is constrained to a greater or lesser degree by ideals of social responsibility (some firms will insist on satisfying a minimum level of care before pursuing maximum profits; others will engage in as much socially responsible activity as they can before it affects profitability, etc.).¹⁶⁴

But bottom-line profitability still matters a great deal in industry choices about compliance, and often overcomes even good-faith efforts to comply, especially for small- and medium-size businesses. Shameek Konar and Mark Cohen, for example, found that firm size and financial ability were the most important determinants in whether firms reduced their emissions from 1989 to 1992 of toxic chemicals required to be reported by the federal Emergency Planning and Community Right-To-Know Act (EPCRA) (known as toxic release inventory (TRI) data); larger firms and those with more resources are more likely to reduce emissions.¹⁶⁵ A recent wide-scale investigative report of the mining industry's compliance with safety requirements also underscores the central role of profitability in compliance decisions. The investigation found massive fraud in mandatory tests for dust in underground coal mines. At close to half of the all underground mines in the country, at least 15% of the air samples had so little dust that they were obviously fraudulent; scores of miners and two dozen mine owners interviewed said that cheating on dust tests is common.¹⁶⁶ The testing is largely self-policed; industry operators are in charge of taking tests in their own mines with government supervisors monitoring only one of every four tests taken by operators.¹⁶⁷ The report asserts that fraud has been widespread [**30 ELR 10819**] since the 1970s because testing cuts into the slim profit margins of mining and because traditionally there has been very little enforcement of testing requirements, by the federal government.¹⁶⁸ The top federal mine safety official commented that expecting operations to effectively police themselves "defies human nature."¹⁶⁹ Other research shows a direct link between compliance costs and rates of compliance. For example, one study found that the number of incidents of illegal used oil dumping responds directly to the costs of legal waste management. A ban on usedoil increases the frequency of illegal dumping in a state by 28%; conversely, as the price of salvage used oil increases, unlawful dumping decreases. A review of pulp and paper mills found that as the cost of compliance rises, a plant is more likely to violate its permit (a one standard deviation in the cost of compliance adds 2.8% to the probability of a violation).¹⁷⁰

Likewise, a number of observers have noted that environmental programs often hit a "green wall," a point at which an organization refuses to move forward with its strategic environmental management program. The lack of progress results from an uneasy fit of environmental management with traditional business functions and traditional business culture. Environmental management programs still are largely judged on their ability to make money for the company rather than their intrinsic merits.¹⁷¹

Moreover, many critics understate the role that ideological resistance to regulation plays in undermining compliance. Absent deterrence, corporate actors are far more likely to adhere to laws that in their eyes are legitimate, particularly when compliance is expensive. As Peter Yeager notes, corporations more frequently violate environmental protection

laws and other social legislation than laws designed to protect the integrity of the marketplace (such as tax, securities, unfair trade laws) because these laws do not enjoy the same legitimacy in the eyes of businesses.¹⁷²

There is no question that many businesses remain philosophically opposed to some substantial portion of the current regime of environmental regulation, and indeed, consider it illegitimate. This opposition has been fueled over the past 5 to 10 years by a drumbeat of intense criticism of EPA and other regulatory agencies. During the early days of the 104th Congress in 1995, when the political climate seemed most sympathetic to corporate concerns, regulated entities proposed radically weakening the major environmental statutes. In response, members of Congress, among other things, sought to drastically rewrite the CWA and the Endangered Species Act (ESA), repeal the 1990 CAA Amendments, and attach numerous riders to EPA's appropriations bill severely restricting the agency's ability to enforce existing laws. Given this strong hostility to environmental regulation, it is naive to suppose that a deterrence orientation should be abandoned because businesses will comply with these laws because of their identity as law-abiding citizens.

Compliance Because of Market Forces

Others emphasize that market forces make it a matter of self-interest for business to voluntarily comply with environmental requirements. This argument has three related strands. First, compliance can often generate significant savings for businesses. Some of these result because steps taken to adhere to regulatory requirements can also make a firm more efficient, such as by reducing the costs spent on managing or disposing of wastes, reducing purchases of raw materials or lowering energy costs. Professor Michael Porter prominently has argued that pollution is a form of economic waste and that there are substantial savings to be realized through using resources more productively and finding new uses for discarded materials.¹⁷³ Indeed, there are now many case studies documenting impressive savings achieved through pollution prevention (a term that refers to the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source). Compliance can also save money in other ways. A firm's insurance premiums may be discounted based on its compliance record; likewise, investors and lending institutions may perceive the firm as less risky and provide it with capital at lower cost. Being in compliance with environmental regulations may lessen the likelihood that a firm will face third-party liability suits for environmental exposures. Likewise, firms with a positive compliance history may have better relations with the surrounding community and government agencies, making it less costly to obtain permits or other regulatory approvals.

Second, compliance and a reputation for superior environmental performance can lead to marketing and other competitive advantages. Corporations see important benefits from being publicly perceived as environmentally responsible entities, as evidenced most notably by the blitz of green products marketed over the past decade. Not surprisingly, one study found that firms in industries with the greatest consumer contact were significantly more likely to voluntarily reduce their emissions under EPA's voluntary 33/50 reduction program than other firms.¹⁷⁴ Another study, however, which examined the degree to which firms voluntarily reduced TRI emissions from 1989 to 1992, failed to find any linkage with closeness to the consumer.¹⁷⁵ In general, however, corporations that depend on consumer relations may feel market pressure to comply with environmental regulations and be perceived as "clean" or "green."

Third, the stock market can provide an important impetus to improved environmental performance. There is a growing socially responsible investment movement that evaluates the environmental record of companies as a basis for investment in the stock market. According to one estimate, over \$ 2 trillion is invested in firms based on social criteria; a large majority of social investors (79%) screen assets for environmental issues.¹⁷⁶ Additionally, several studies have **[30 ELR 10820]** shown that capital markets react significantly to the release of environmental information: upward when information reveals superior performance; downward when poor performance is revealed, including high levels of routine emissions, the initiation of enforcement actions against a company, or oil or chemical spills.¹⁷⁷ For example, James Hamilton found that firms suffered statistically significant negative stock returns of between 0.2% and 0.3%, an average loss per firm of \$ 4.1 million in stock value, when TRI data was first disclosed in 1989.¹⁷⁸ Konar and Cohen found that the 40 firms with the largest decline in stock value on the date that the TRI data was publicized in 1989 subsequently lowered their emissions more than other firms in the same industrial sector, even those firms with the largest emissions. These firms also were less likely to receive large fines from the government in subsequent years (and had made more significant efforts to reduce the number and severity of oil spills). Madhu Khanna and his colleagues also determined that chemical firms experienced statistically significant losses in market value on the day following disclosure of TRI data in the years 1990 to 1994; firms with more releases had more negative returns.¹⁷⁹ A study in Mexico likewise found that publicly traded Mexican firms are significantly cleaner (and more likely to be in compliance

with environmental laws) than their privately held counterparts.¹⁸⁰ Moreover, some emerging research indicates that better environmentally performing firms may generate higher returns than their dirtier competitors. A study by the Alliance for Environmental Innovation, for instance, concluded that superior performing environmental firms outperformed their peers on the stock market by as much as 2%.¹⁸¹ Likewise, an ICF Kaiser Consulting Group study of 327 Standard and Poor's 500 firms found that companies could increase stock prices by up to 5% by improving their environmental management systems and their performance.¹⁸²

While all of the above market forces—pressures to avoid economic waste, pressures to be "green," and stock market forces—have changed the dynamics of environmental compliance, critics are mistaken in suggesting that these considerations by themselves will result in widespread compliance with environmental laws.

First, as described above, compliance and pollution prevention will often avoid economic waste and thus improve profitability. While this will motivate some companies to voluntarily obey regulations, it is incorrect to assume that this will occur across the board. Quite simply, not all compliance measures translate into economic gains; many, to the contrary, will directly increase a corporation's expenses. This is true of environmental improvements more generally; as Professor Forest Reinhardt recently explained:

"Does it pay to be green?" Many business school academics and environmental leaders have answered yes. Yet businesspeople are skeptical—and rightly so, since they instinctively reject such all-or-nothing propositions in other contexts The answer, of course, is "It depends." . . . The truth is, environmental problems do not automatically create opportunities to make money." At the same time, the opposite stance—that it never pays for a company to invest in improving its environmental performance—is also incorrect.¹⁸³

In some instances, the benefits of compliance measures—such as steps taken to reduce risk or prevent accidents—may be difficult to predict or quantify economically. Likewise, Professor Michele Ochnser points out that while many pollution prevention projects may be the most cost-effective approach to regulatory compliance, they are not necessarily *profitable* by themselves. She notes that a number of recent studies have suggested that regulatory compliance, rather than economic incentives, is the most important factor in motivating pollution prevention measures.¹⁸⁴

Even environmental improvements that improve profitability sometimes are resisted by firms. Some may result in savings in 5 to 10 years but cause short-term financial losses that cash-poor companies are hesitant to incur, or that clash with the short-term profit orientation of many businesses.¹⁸⁵ Other cost-saving steps may not be acted on because they are not considered as high a priority as other business spending. This was the finding, for example, of an interesting case study at a Dow Chemical facility in Texas. There, an independent pollution prevention assessor identified strategies that would save the company more than \$ 1 million a year, eliminate 500,000 pounds of waste, and allow the company to shut down a hazardous waste incinerator. The strategies were not implemented, however, because other investment opportunities were deemed more important.¹⁸⁶

Moreover, some corporate managers and business consultants believe that many of the relatively easy gains from pollution prevention or waste minimization have been made and that future environmental investments will be costly.¹⁸⁷ Noah Walley & Bradley Whitehead, for instance, contend [**30 ELR 10821**] that "win-win" situations in which environmentally beneficial projects create financial value are "very rare and will likely be overshadowed by the total cost of a company's environmental program."¹⁸⁸ A recent study conducted for Enterprise for the Environment confirms this sentiment: it found that for most business managers, meeting traditional business targets were far more important than meeting environmental goals. The survey also found that business managers do not generally perceive environmental performance as a factor that increases business value.¹⁸⁹ Professor Rena Steinzor makes a similar point. Citing evidence such as a McKinsey & Company survey showing that many corporate executives believed that environmental costs outweighed environmental opportunities, she concludes that publicly stated support for environmental policies "have yet to overcome the perception that such efforts can be very costly and are not at the heart of the corporate mission."¹⁹⁰

Second, the reputational benefits of being perceived as green or environmentally responsible are important for firms that directly market consumer products; indeed, consumers report that they consider the environmental reputation of a

product or manufacturer to be an important purchasing factor.¹⁹¹ But there are significant limits to relying on the consumer product marketplace as a way to reward positive environmental performance. As noted environmental writer Frances Cairncross observes, consumers think "green" only when buying a limited range of products.¹⁹² Moreover, for some products there are no readily available substitutes for consumers if they are dissatisfied with the record of a manufacturer, or, perhaps more typically, available substitutes at comparable prices. Additionally, many consumers will not have the time or interest to affirmatively seek out information about products; even if they do, judging among competing claims of environmental performance may depend upon information that is complex, uncertain, and difficult to obtain. Moreover, claims of superior environmental conduct are easily subject to manipulation by businesses; as two observers note "the firm has enormous power to influence its environmental reputation, in part because objective measurement of a firm's total environmental performance is practically impossible," and also because, as compared to the general public, "it has vastly superior resources, controls most of the data, and often controls who does the analysis."¹⁹³

Likewise, for most regulated entities—those that do not sell consumer products—there are relatively few tangible gains that come from being perceived as an environmental leader. Few commercial purchasers or suppliers use a firm's environmental record as a criteria for doing business; likewise, few government programs provide direct rewards to business for achieving environmental compliance. Finally, by itself, the market is unlikely to generate unfavorable information about a firm's environmental record or the risks from a product. Individual firms will not produce or release such data because of the negative implications surrounding such information, and third parties are not likely to produce it because of the "public good" nature of such information.¹⁹⁴

Third, capital markets cannot be heavily relied on to prompt environmental compliance or improved environmental performance. First, and most fundamentally, the great majority of regulated firms are not publicly traded, but are small- or medium-size businesses. Moreover, for publicly traded firms, market reactions tend to be most significant when investors are provided with new information about a firm that leads them to revise their expectations regarding the firm's profitability; the market reacts much less to disclosures about firms that are expected to be high polluters. Konar and Cohen, for example, discovered that firms with the largest absolute TRI emissions were not those that suffered the largest stock decreases. In turn, emissions reductions by the largest emitting firms were less significant than for those which suffered the largest stock decreases.¹⁹⁵ Hamilton also found in his study that the effects on stock value were smaller for firms where investors had previous information about the firm's pollution patterns (such as where firms were involved with Superfund sites).¹⁹⁶

Additionally, as Cohen points out, the studies that show a decline in stock value when bad environmental news about a firm is announced have not compared these losses to the cost of cleanup or penalties occasioned by the underlying incident or enforcement action. In other words, they have not measured whether the decline in stock value reflects an additional "reputation" penalty the market is imposing beyond a firm's actual costs, an additional penalty that could be a deterrent to noncompliance in the first place. If instead the stock decline is only equal to or less than the cost of compliance, it provides no financial motivation to comply. Two recent analyses found that stock price declines *do not* exceed expected compliance costs. As Cohen argues, these studies call into question the effectiveness of the stock market as an enforcement mechanism.¹⁹⁷

Finally, investors may react less significantly to disclosure of a firm's noncompliance status if they do not believe that the noncompliance will result in strong governmental enforcement. This is the conclusion of researchers who examined the response of Canadian investors to disclosure of such information. In one study, the researchers found that **[30 ELR 10822]** unusual stock market losses resulted only when fines for environmental violations were imposed by the government, and not when enforcement actions were announced.¹⁹⁸ A later study showed that only when firms were included twice on the environmental ministry's list of noncomplying or potentially risky facilities did the market react significantly. The researchers suggest that Canadian investors may require stronger signals than investors in the United States because of the conciliatory approach toward enforcement Canadian regulators have adopted in comparison to that of the United States. They conclude that the ability to use information-oriented approaches to harness the power of the marketplace "appears to be a function of the regulator's willingness to undertake strong enforcement actions," as well as the capital markets ability to rank and compare firms with respect to environmental performance.¹⁹⁹

Internal Regulatory Systems

Commentators also argue that traditional enforcement approaches should be modified because many corporations have adopted extensive internal regulatory programs and effectively police themselves. Self-regulation can take a number of forms, ranging from relatively simple procedures for regularly monitoring for compliance, to sophisticated internal programs or codes of conduct that some observers contend are more comprehensive and more effective than government enforcement efforts.²⁰⁰

Two environmental self-policing practices have become particularly prominent in recent years. The first is environmental auditing; many large-size firms now regularly conduct environmental audits to assure compliance with regulatory requirements. A 1995 survey by Price Waterhouse, for instance, found that 75% of survey respondents reported that they perform environmental audits.²⁰¹ Some observers suggest that audits now are commonplace for most large firms in the United States.²⁰² The second is the adoption of EMS. EMS use has increased since the adoption of an ISO EMS standard in 1996, ISO 14001 (which is part of a broader series of voluntary standards adopted by the ISO). In Europe, the European Union has adopted a voluntary management system, the Eco-Management and Audit Scheme (EMAS). One source very roughly estimates that 700 U.S. firms have been certified by registrars as in compliance with ISO 14001²⁰³; another suggests that most large U.S. manufacturing firms and thousands of small- and medium-size firms are working toward ISO certification.²⁰⁴

Related, some industries and other groups have adopted private, voluntary codes of environmental practice that rely on EMS and similar systems-like approaches. The codes outline for participating firms environmental objectives broader than compliance with regulatory standards (and indeed they do not include performance standards or mandate compliance, as discussed below). The most prominent code is the Chemical Manufacturers Association's (CMA's) Responsible Care(R) program, adopted in 1988, which consists of six codes encompassing 100 management practices. Some others include the Coalition for Environmentally Responsible Economies (CERES) (formerly the *Valdez*) principles, the International Chamber of Commerce (ICC) Business Charter for Sustainable Development, and Natural Step.²⁰⁵

The growth in auditing, EMSs, and other internal regulatory programs is very positive, and as discussed further below, enforcement policies should provide significant incentives to encourage these self-policing efforts. Deterrence-based enforcement policies should not be discarded, however, simply because of the increasing use of such systems.

First, there is little hard data demonstrating the degree to which these self-policing policies, in particular EMS and codes of conduct, have actually enhanced compliance. As researcher Shelley Metzenbaum recently noted, "surprisingly we are far from a clear answer [about] whether EMSs predictably improve environmental performance."²⁰⁶ Likewise, Jennifer Nash and John Ehrenfeld conclude that as of yet, it is unclear whether codes of conduct have altered or will be capable of altering the management culture and environmental consciousness of firms.²⁰⁷

At least a couple of studies have found that use of an EMS does not necessarily lead to better environmental performance. For example, Jennifer Howard, Nash, and Ehrenfeld surveyed 16 firms that had adopted the CMA's Responsible Care(R) program. In a majority (10 of 16) of these firms, respondents reported that the program had not significantly changed the firm's internal behavior: either it had little impact on the firm's practices, or it was an adjunct to and reinforced existing programs, used primarily to promote the firm's programs to outside stakeholders. The study also found that Responsible Care(R) elicits the strongest response from companies in what the authors describe as the "area of image manipulation." Firms were most uniform in adopting practices that are visible externally, such as community relations and monitoring the practices of their distributors, while the firms differed on changes made to their internal activities.²⁰⁸ The authors conclude that "adoption of the codes does not necessarily imply that a company is complying with a new set of institutional standards."²⁰⁹

Another study by Andrew King and Michael Lennox found that firms that implemented the Responsible Care(R) program did not improve their environmental performance [**30 ELR 10823**] (as measured by facility-level, toxicity-weighted TRI emissions) any more than nonparticipating firms. The authors submit that some firms adopt the management practices to burnish their image while failing to make behavioral changes, an outcome made possible by the lack of explicit sanctions for noncomplying firms.²¹⁰

Second, many firms—certainly the great majority of regulated entities—cannot afford environmental audits or

management systems and do not have sophisticated internal regulatory programs. The Price Waterhouse survey, for instance, found a direct correlation between the size of the company and the likelihood of an audit program; every company with sales over \$ 1 billion conducted audits, while less than half of companies with sales under \$ 50 million did.²¹¹ Management systems such as ISO 14001 likewise cost up to tens of thousands of dollars, even for medium-size businesses.²¹² Similarly, thus far participation in the voluntary codes of conduct has been relatively limited, and most of the participants have been large firms.²¹³

Third, merely because a firm conducts an environmental audit does not ensure that it will correct any violations detected, or of greater concern, take appropriate measures to prevent new violations from occurring. Environmental groups who oppose extensive reliance on audits have pointed to instances in which corporations failed to correct violations revealed to them during audits.²¹⁴ Likewise, management systems are designed not to evaluate compliance with regulatory requirements but to ensure that regulated entities have appropriate training, decisionmaking, and other management systems in place. The ISO 14001 standard, for example, does not expressly guarantee compliance with environmental requirements; moreover, it does not require any emission or discharge reductions, and by its own terms, does not necessarily expect immediate, tangible improvements from the management system.²¹⁵ The same is true for most other voluntary industry codes, which do not set quantitative performance standards or mandate regulatory compliance. Likewise, while EMS and other codes require firms to self-audit their adherence to internal systems, most do not also require third-party verification of these audits. One study of Responsible Care(R) implementation (where outside verification is not required) found that firms' self-reporting tends to mask significant differences in how they have implemented the program.²¹⁶ (Some observers, moreover, have questioned how knowledgeable many of the outside auditors are with EMS and the quality of the third-party reviews that have been occurring.)²¹⁷

Finally, and perhaps most fundamentally, the growth in self-policing by companies is directly linked to strong governmental enforcement; without such enforcement, the incentives for companies to spend money on internal compliance programs is greatly reduced. Thus, EPA has concluded that its strong enforcement efforts have played a major role in the growth of environmental auditing in recent years. More than 90% of respondents in the Price Waterhouse survey, for example, reported that they conduct audits at least in part to find and correct violations before they were discovered by agency inspectors.²¹⁸ These findings were replicated in a 1998 survey of auditing conducted by the National Conference of State Legislatures.²¹⁹ Another study by EPA found that environmental enforcement actions were among the most important factors in getting businesses to consider environmental issues in the performance of their duties.²²⁰ Likewise, a top compliance official with the California Air Resources Board reported that the number of companies conducting environmental audits increased in direct proportion to the level of civil and criminal enforcement by the agency.²²¹ This sentiment is echoed as well by corporate environmental attorneys: one opined that without the threat of a strong federal hand in enforcement, the company's environmental health and safety officer would return to a lowly part of the corporate hierarchy and be staffed by a person "close to retirement, with no real power base in the organization, and no staff—just window dressing."²²²

The Proper Balance of Deterrence and Cooperative Enforcement Strategies

Given the empirical evidence and competing theoretical arguments, what does the optimal enforcement approach consist of? It is one that integrates constructive features of a cooperative system, such as compliance assistance programs, and incentives for self-policing, but that is backed up by elements of a traditional deterrence approach, reformed to be more creative and flexible. In addition, such a scheme **[30 ELR 10824]** would be aided by mandatory disclosure requirements that generate market pressure for compliance.²²³

Integration of Constructive Features of a Cooperative System

Enhanced Compliance Assistance

One essential tool for improving compliance is enhanced technical and compliance assistance efforts. As described above, the states and EPA have sharply expanded such programs over the past decade.

Compliance assistance programs should be directed largely at small businesses, many of whom lack the expertise and resources needed to fully comprehend and comply with environmental regulations. Without doubt, environmental law has grown quite technical and complex, posing great challenges for small businesses. The Massachusetts DEP, for

example, estimated in the mid-1990s that two-thirds of its small- and medium-size businesses were out of compliance with environmental laws.²²⁴ Likewise, an Illinois small business environmental task force found "a widespread and pervasive 'fear factor' among small businesses. . . . [This includes] a fear by small businesses that they cannot determine whether they need a permit or multiple permits from the [Illinois EPA]. They cannot determine how to determine what regulations apply to them. And they cannot understand the multitude of regulations that may apply to them."²²⁵ Even major firms acknowledge that full compliance with all environmental requirements is largely impossible.

Agencies should have separate inspectors carrying out these "advice and consultation" functions as opposed to the agencies' traditional inspection and enforcement activities, or at least not assign inspectors to carry out these traditional activities at the same facilities where they have provided special technical assistance. This will help minimize the risk (and appearance) of preferential treatment by agency staff who have devoted considerable time and energy consulting with a firm. The separation of function will also promote business confidence that the compliance assistance program will not be used to gather evidence for later agency enforcement actions, and thus should prompt greater openness by participating firms.²²⁶ Another alternative is for agencies to fund local trade associations to carry out compliance assistance programs. For example, EPA partnered with several states and the Korean Dry Cleaners Association of the Greater Washington, D.C. Area to develop a mentoring program in which experienced dry cleaners teach less sophisticated owners about applicable requirements. A number of states also have used this approach. Agencies also should employ aggressive outreach efforts in connection with their technical assistance programs, such as in Illinois, where regulators carried out a publicity and ad campaign, organized workshops with trade associations, and contacted facilities several times to enlist their participation in the state's "Clean Break" program.²²⁷

Incentives for Self-Regulation

To encourage regulated entities to develop internal regulatory systems, firms that conduct audits, implement management systems, and carry out other self-policing efforts should be rewarded with meaningful enforcement benefits. But self-policing systems should supplement, not replace, traditional enforcement activities, and audit privilege and immunity laws should be resisted.

Proponents of privilege and immunity provisions argue that these laws create a vital incentive for firms to conduct audits. Without them, many firms will forego audits because of fears that the information discovered will be used against them in enforcement actions or in third-party lawsuits. In fact, the audit reports will provide a road map of violations for enforcing agencies. Moreover, the argument goes, self-audits uncover and result in the correction of many violations that the government would never discover on its own. Thus, absent protection from future enforcement, firms will be exposing themselves to greater risk by conducting audits.

Critics of such laws argue they are not necessary to stimulate auditing. First, firms will voluntarily conduct audits for self-interested business reasons: to avoid or reduce liability or cleanup costs, identify cost-saving pollution prevention opportunities, obtain lower insurance rates, attract investors, generate favorable publicity, and so forth. Additionally, government enforcement policies and practices provide very strong incentives for conducting audits.²²⁸ **[30 ELR 10825]** Moreover, even in the absence of such formal policies, state and local agencies inevitably consider a firm's auditing practices when calculating penalties or making other enforcement decisions.²²⁹

This argument has been discussed at length and with great vigor for the past five years. Notably, the one systematic study on this issue to date supports the view that privilege and immunity laws are *not* what motivates most firms to audit. In a survey of close to 1,000 manufacturing facilities in 30 states with and without such measures, the National Conference of State Legislators found that state audit and privilege laws do not encourage firms to begin auditing, increase the number of audits they perform, or disclose more violations to regulators.²³⁰

Beyond the fact that privilege and immunity measures are unnecessary to promote voluntary auditing, they are undesirable for several additional reasons. First, they complicate and increase the costs of enforcement. They make certain categories of relevant information and witnesses unavailable to government enforcers, or available only after litigation over what material is or is not privileged.²³¹ These measures also undermine the incentives for facilities to take preventative steps to achieve compliance. To varying degrees, they permit firms to sit back and wait until an audit is conducted before coming into compliance. Then, so long as a firm corrects and discloses the violations, its sanctionable behavior will be excused, and it will be allowed to retain the economic benefit they obtain from noncompliance.

Additionally, privilege laws keep information of a public character, reflecting whether a firm is in compliance with publicly enacted requirements designed to protect the environment, secret and out of the public's reach. Regulated entities are already required to monitor, record, and in many cases, report extensive aspects of their compliance with environmental laws to government agencies. (A few European countries go further and mandate that companies prepare public reports documenting environmental conditions at their facilities.)²³² There are numerous benefits from keeping audit information public. Such information can help investors in the securities markets make more intelligent investment decisions. It is at least as relevant to some investors as financial audits, or information about environmental enforcement actions and liabilities, which publicly traded corporations are already required to disclose. Likewise, audit data can help consumers make better-informed decisions about whether to purchase a firm's products, allow workers to negotiate for better working conditions or improved pay, and help local residents bargain with corporations and exert pressure to improve their environmental practices. Moreover, disclosure of noncompliance itself can have an additional (and important) deterrent effect, as discussed below. EPA has aptly concluded that "in the final analysis, an audit privilege invites secrecy and breeds distrust."²³³

EPA's self-policing policy and similar state initiatives strike a better, albeit not perfect, balance between promoting self-policing and retaining a meaningful deterrent component of enforcement. The policies provide strong encouragement to audit by waiving all gravity-based penalties and generally not recommending criminal enforcement when violations are voluntarily disclosed and corrected, but do not grant any privileges to audit documents. The policies contain insufficient incentive, however, for firms to take steps to prevent violations before the audits are conducted. The only sanction facing a firm that does not act proactively to achieve compliance is that EPA (or the states) may seek to recover the economic benefit gained from noncompliance. But this merely puts a firm back in the position it would have been if it had originally complied; it does not alter the firm's basic cost-benefit calculation in a way to deter the violations in the first place. A better approach would be to not waive all penalties, but to allow enforcing agencies to consider the fact that violations were voluntarily disclosed and corrected when determining enforcement responses and the size of penalties imposed. Audits should also be the basis for agencies to provide firms with other enforcement and permitting benefits, such as less frequent inspections or inspections that are reduced in scope, accelerated permit reviews, and eligibility to participate in other flexible regulatory initiatives.

Likewise, firms with EMS in place should be granted enforcement benefits, if a number of conditions are met: The system requires compliance with environmental requirements and prophylactic measures to prevent violations in advance of any self-audits; adherence to the system is verified by outside third parties, to ensure the system's integrity to agencies, the public, and other private parties (i.e., firms and consumers doing business with the firm); and the EMS provides the public with access to environmental information. In these circumstances, meaningful enforcement benefits are appropriate, such as reducing facility inspections for these firms, and waiver of gravity-based civil penalties for the violations, provided that the firms promptly correct any detected instances of noncompliance.

Basic Grounding in Deterrence, Made More Flexible

While expanding compliance assistance and incentive programs, agencies must maintain a strong, credible threat of enforcement. As noted above, strong enforcement strengthens the internal regulatory systems of many companies, and promotes voluntary compliance. To take one recent illustration, [30 ELR 10826] a Massachusetts survey of printing firms found that 68% identified anticipation of an agency visit or enforcement action as a "strong motivation for behavioral change and highly influential in their decisions to improve environmental practices."²³⁴ Conversely, enforcement without the threat of meaningful sanctions often directly translates into noncompliance. As long-time enforcement analyst Cheryl Wasserman notes, "it is now generally recognized that if the polluter expects no consequence from noncompliance (except having to meet with government officials to agree to do what was required in the first place), he has little incentive to undertake any costs of compliance before getting caught."²³⁵

Thus, agencies should continue to impose meaningful sanctions on violators, including recovery of economic benefit. Amnesty laws and other provisions that automatically preclude sanctions for certain classes of violations or against small businesses are generally undesirable. These measures remove any incentive for entities to comply *prior* to being found in violation. (They are also unnecessary, since repeated empirical studies show that environmental requirements are enforced in a pragmatic way.)

While a credible threat of sanctions for noncompliance is a necessary backdrop, there is room for more flexible and

hybrid enforcement strategies. One of the consistent findings of the empirical research about enforcement is that enforcement presence matters; more frequent inspections promote compliance. Thus, agencies should utilize streamlined enforcement practices that allow them to conduct more inspections. For instance, a number of states have shortened their traditional RCRA inspections, and expanded the number of facilities visited, by concentrating on more significant areas of compliance, reducing checklist items, and reducing inspection reports. Such sacrifices in the breath of inspections are desirable to significantly increase inspection coverage.

Likewise, agencies should make greater use of expedited enforcement approaches that save staff (and regulated firms') resources. One example is field citations. These are citations issued in the field that address a clear-cut violation, require the violator to correct the violation, carry a small penalty, and provide for some type of appeal.²³⁶ They have proven effective in a variety of contexts. For instance, in New Mexico, when the state relied on traditional methods to enforce its underground storage tank requirements, only 14% of the owners/operators who were found in violation complied with the agency's orders. By contrast, 82% of owners/operators cited as part of the field citation program corrected their violations and achieved compliance.²³⁷ A related concept is to cut penalties in exchange for immediate correction of violations discovered during inspections. OSHA's "Quick Fix Program," for example, provides reductions in penalties of 15% to employers that abate certain hazards within 24 hours of an inspection.²³⁸

Agencies should also employ hybrid approaches that combine compliance assistance and traditional enforcement techniques. One example is Massachusetts' Environmental Results Program. For targeted sectors, the program replaces the existing state permitting system with industrywide performance standards, supplemented by workbooks, training sessions, and other compliance assistance to regulated entities. Each facility must certify annually that it is in compliance with all applicable standards; a company out of compliance must disclose its status and submit a "return to compliance" plan. All facilities are subject to regular inspections and the state's standard enforcement protocol, including actions for failure to comply with certification requirements. Disclosing a violation to the state along with a return to compliance plan does not shield a company from enforcement. Early results from the program show some success; a survey of printers found that for those participating in the program, their scores on 19 "environmental business practice indicators"—which include compliance with regulatory requirements, pollution prevention techniques, and environmental management practices—were 50% higher than for the same facilities before participation in the program, as well as 50% higher than nonparticipating facilities.²³⁹

In another project, Illinois EPA replaced its standard inspections of RCRA generators with fewer than 200 employees with "compliance assistance surveys." During these modified inspections, inspectors both conduct an abbreviated inspection focusing on key RCRA requirements and provide compliance assistance to facilities. If significant violations are detected, inspectors convert the visit into a full-blown inspection, and firms are subject to standard sanctions. All other firms are given the opportunity to remedy any violations detected either during the inspection or within the subsequent 90 days. If they fail to do so, they are subject to sanctions. Through use of these shortened inspections, the Illinois EPA has been able to increase by almost tenfold the number of generators it visits. It also reports that the combination of more inspections, compliance assistance, and sanctions in the event of noncompliance has increased the level of compliance among these generators from 65% at the time of initial inspection to 95% three months later.²⁴⁰

Another effective technique is to offer and heavily promote compliance assistance and/or compliance incentive opportunities for designated facilities, immediately followed by enhanced inspection and enforcement activities. EPA recently has done this with a couple of industrial sectors in order to encourage firms to conduct voluntary audits, with some apparent success.²⁴¹ A different variant is to provide a targeted sector with a penalty cap if facilities disclose **[30 ELR 10827]** and correct violations within a limited time frame, again followed by increased enforcement for nonparticipating facilities. EPA reports positive results from several such efforts. In one case, when EPA capped penalties for facilities required to report risk information under the Toxic Substances Control Act (TSCA), the agency received over a hundred fold increase in the number of mandatory reports submitted.²⁴²

There are other innovative combinations of deterrence and cooperative-based tools. These combined tools will work best if they are backed by a credible threat of sanctions in the event of noncompliance.

Mandatory Disclosure of a Firm's Compliance Status

One interesting and heretofore little tried alternative that merits close attention is compelled public disclosure of the

compliance and performance status of regulated entities. As discussed above, exclusive reliance on market pressures, including the capital markets, to ensure compliance is insufficient. Nonetheless, mandated disclosure as an *adjunct* to other enforcement activities could generate important pressure for compliance and improved performance.

As noted earlier, disclosure of a firm's emissions or exposures can generate pressure for improved environmental performance. The most prominent example is the TRI program; facilities subject to this program from 1988 to 1998 have reported a 45% decline in their releases of covered chemicals. (In 1998, seven additional industries were required to report releases, and as a result, the total toxic releases reported rose nearly threefold from the amount reported previously.)²⁴³ California's Proposition 65, which requires warnings prior to exposures to listed carcinogens and reproductive toxins, also has generated considerable product reformulations and emission reductions. Moreover, as also noted, a number of studies show reductions in the market value of poor environmental performers when information about their performance is released. Notably, this includes information about their compliance status, including the initiation of enforcement actions. S.G. Bandrinath and P.J. Bolster found that between 1977 and 1986, stockholders suffered a statistically significant loss of 1.2% in market value when lawsuits or settlements (generally involving a penalty) under RCRA or Superfund were announced. Another study of stock market reactions to 730 EPA judicial actions for a sample of publicly traded firms from 1972 to 1991 found that the market value of the average affected firm dropped 0.43% during the week of settlement. The estimated market penalty was larger for more recent actions and for repeat offenders.²⁴⁴ (The authors argue that better information, if available, would elicit a stronger market reaction.)²⁴⁵ Susmita Dasgupta et al. found in a study of developing countries that stock values rise when positive environmental performance is publicized by the government, and fall in response to citizen complaints about firms.²⁴⁶ As noted above, Cohen correctly cautions that without more particular research, it is difficult to tell whether the decline in stock value measured by some of these studies reflects an additional "reputation" penalty that the market is imposing beyond a firm's actual costs.

Nonetheless, even apart from stock market impacts, public disclosure of environmental performance can create additional and strong incentives for pollution control. Some preliminary support for this idea comes from three interesting, if limited, studies.

In one project, Indonesia's environmental agency developed a four color-coded rating system for "grading" the environmental performance of industrial facilities: the scale included facilities making no effort to control their pollution discharges (black), just satisfying applicable standards (blue), performing substantially better than regulations required (green) and performing truly exceptionally (gold). (The colors were chosen because they had cultural connotations in Indonesia analogous to the environmental performance levels they signified.)²⁴⁷ The grades for the facilities were publicly disclosed (although there was a six-month delay in disclosing firms in the worst two categories to allow them an opportunity to improve their performance). One year after the project began, 34 of 120 factories that were initially listed in the worst two noncompliance categories had progressed to one of the two higher grades, reflecting at least compliance with all criteria in applicable regulations. This represents an increase in compliance of 29%. Moreover, the plants subject to the first public disclosure in 1995 reduced their emission of BOD by approximately 45% within a period of 18 months.²⁴⁸

A study of compliance and emission levels by 15 pulp and paper firms in British Columbia from 1990 through 1996 likewise found significant impacts from the disclosure of firms' environmental performance. During this period, the regional environmental agency published twice a year a list of firms that did not comply with existing water pollution regulations (and until 1994, also a list of firms whose environmental performance was "of concern" to the agency). To be included in the noncompliance section of the list, a firm had to be "significantly" out of compliance. (Firms were listed as "of concern" if they were technically in compliance but their operations nonetheless posed potential environmental threats.) The agency also pursued traditional enforcement approaches for those out of compliance. The study shows that being on the public list of noncompliers led to improvement rates of 20% for BOD emissions and around 8% for TSS emissions, and absolute decreases in the amount of emissions by around 1,100 kilograms (kg)/day and 1,250 kg/day, respectively. (These impacts were actually greater than those generated by enforcement orders and penalties; the study predicted that a doubling of fines would lead to a 15% improvement in the BOD compliance rate, but have no effect on TSS emissions.)

Conversely, one analysis attributes substantial improvements in the compliance rates of auto service and repair **[30 ELR 10828]** shops in Santa Rosa, California (discussed above) in part to a program of positive public recognition for

shops certified as being in compliance with five environmental programs. From 1994 to 1998, only 4% of facilities certified as "green" committed significant violations of any environmental requirement; moreover, city inspectors also reported a sharp drop in the number of inspections required to confirm compliance.²⁴⁹ (As noted above, city officials believe that the city's enhanced technical assistance programs also substantially contributed to improved compliance rates.)

EPA recently has begun providing information about the compliance status of facilities with its Sector Facility Indexing Project (SFIP). The SFIP provides public access to detailed environmental profiles on approximately 650 facilities in 5 major industrial sectors, including their compliance history under the CWA, the CAA, and RCRA, and their record of spills and releases. This includes information within the past two years about noncompliance, permit exceedances, inspections, and closed enforcement actions, as well as whether the facility is currently in significant noncompliance. It also includes data about TRI releases and off-site transfers, including releases of carcinogens, a firm's ratio of chemical releases to production capacity, and recent spills.²⁵⁰ EPA does not, however, rank or evaluate the facilities, or publicize noncomplying or superior performing firms, leaving it to outside organizations to draw such conclusions from the data.²⁵¹ EPA and other agencies should move in this direction, directly reporting, in easily understandable and accessible form, the relative compliance status of various firms. This type of disclosure should be an important spur for improved environmental performance. There has been enormous public interest, for example, in the Environmental Defense Chemical Scorecard website, started in 1998, which ranks facilities in local communities based on TRI emissions and selected criteria air pollutants and compares communities based on various emissions and risks from hazardous air pollutants.²⁵²

Conclusion

Considerably more research is necessary before we can definitively conclude what implements in the toolbox of cooperation and enforcement tools works best to promote compliance. In particular, we are just in the early stages of gathering empirical data about how effective compliance assistance and compliance incentive programs are. Our experience to date, however, suggests that it would be ill-advised to make a wholesale shift away from deterrence-based practices. Rather, the best approach is one grounded in deterrence theory but that includes constructive features of a cooperative system.

1. Raymond J. Burby, *Coercive Versus Cooperative Pollution Control: Comparative Study of State Programs to Reduce Erosion and Sedimentation Pollution in Urban Areas*, 19 ENVTL. MGMT. 359, 359 (1995).

2. Colin S. Diver, *A Theory of Regulatory Enforcement*, 28 PUB. POL'Y 257, 263 (1980).

3. Cheryl Wasserman, *An Overview of Compliance and Enforcement in the United States* in 1 INTERNATIONAL ENFORCEMENT WORKSHOP 7, 10 (1990); TOM B. TYLER, *WHY PEOPLE OBEY THE LAW* 21 (1990).

4. JOEL MINTZ, *ENFORCEMENT AT THE EPA; HIGH STAKES AND HARD CHOICES* 102 (1995).

5. U.S. EPA, *REVISED POLICY FRAMEWORK FOR STATE/EPA ENFORCEMENT AGREEMENTS* (Environmental Law Inst. 1986).

6. U.S. EPA, *Operating Principles for an Integrated Enforcement and Compliance Assurance Program (Interim Final Nov. 18, 1996)* 8 (last modified Feb. 25, 1998) <http://epa.gov/oeca/princip.html>.

7. See, e.g., SUSAN HUNTER & RICHARD W. WATERMAN, *ENFORCING THE LAW; THE CASE OF THE CLEAN WATER ACTS* 25, 37-42 (1996); CLIFFORD S. RUSSELL ET AL., *ENFORCING POLLUTION CONTROL LAWS* 25, 37 (1986).

8. The quote is from a December 1975 EPA Decentralization Task Force, cited in Robert Wayland, *Building an EPA/State Relationship for the Changing Management of Environmental Programs*, C352 A.L.I.-A.B.A. 83, 18 (1988). See also MINTZ, *supra* note 4, at 23, 31, and 50.

9. R. Steven Brown, *The States Protect the Environment* (last modified June 6, 2000) <http://www.sso.org/ecos/publications/statesarticle.htm>.

10. Peder Larson, *A Culture of Innovation*, ENVTL. F., Sept./Oct. 1998, at 21.

11. *States' Alternative Environmental Compliance Strategies: Hearings Before the House Comm. on Commerce*, 105th Cong. 38 (1998) (prepared statement of Michael Phillips, Director, Office of Strategic Projects and Planning, Florida Department of Environmental Protection).

12. Environmental Council of the States, *States Administer Most Environmental Problems* (press release) (visited Feb. 1, 1999) <http://www.sso.org/ecos/news.htm>.

13. See *The States Protect the Environment*, *supra* note 9.

14. One study of selected states, for example, demonstrates that in fiscal year 1996, per capita spending on environment and natural resources programs ranged from \$ 213 in Wyoming to \$ 18 in Arizona. As a percentage of total expenditures allocated to environmental and natural resources spending, the range among the states was 0.72% to 5.66%. Rena Steinzor, *Devolution and the Public Health*, 24 HARV. ENVTL. L. REV. 351, 405-07 (2000). A report by the National Academy of Public Administration in 1995 concluded: "A few states have as much technical capacity as EPA's regional offices, or more, and have developed programs that are more effective than those required by federal law. Some states, however, have been slower to build their capacity and have shown little interest in assuming greater responsibilities." NATIONAL ACADEMY OF PUB. ADMIN., SETTING PRIORITIES, GETTING RESULTS: A NEW DIRECTION FOR THE ENVIRONMENTAL PROTECTION AGENCY 86 (1995).

15. U.S. GAO, *EPA AND THE STATES: ENVIRONMENTAL CHALLENGES REQUIRE A BETTER WORKING RELATIONSHIP* 35-47, GAO/RCED-95-64 (1995).

16. DENISE SCHEBERLE, *FEDERALISM AND ENVIRONMENTAL POLICY: TRUST AND THE POLITICS OF IMPLEMENTATION* 59-64 (Georgetown Univ. Press 1997).

17. James Gerstenzang, *GOP Clouds the Future of Environmental Protection*, L.A. TIMES, Dec. 24, 1995, at A1.

18. For instance, some scholars have contended that extensive federal environmental regulation may not be necessary to prevent the "race to the bottom"—the destructive competition that results when states seek to attract industry by weakening environmental standards; to prevent spillover effects from pollution; or to realize economies of scale in scientific research on the effects of pollution and how to design appropriate pollution control technology, given the localized nature of many "second-generation" environmental problems.

19. See, e.g., NATIONAL ACADEMY OF PUB. ADMIN., SETTING PRIORITIES, *supra* note 14, at 86.

20. *The Relationship Between Federal and State Governments in the Enforcement of Environmental Laws: Hearings Before the Senate Comm. on Environment and Public Works*, 105th Cong. 199 (1997) (statement of Patricia S. Bangert, Director of Legal Policy, Attorney General's Office, Colorado).

21. Christophe A.G. Tulou, *Paternalism to Partnership: EPA and the States Getting Their Act Together*, 16 DEL. LAW, 10, 12 (1998).

22. See *The Relationship Between Federal and State Governments*, *supra* note 20 (statement of Becky Norton Dunlop, Secretary, Department of Natural Resources, Virginia).

23. Ohio Citizen Action, *Hidden From the Public: The Distortion of Ohio EPA's Mission* (last modified Aug. 5, 1999) <http://www.ohiocitizen.org/campaigns/prevention/auditprivilege/report.html>.

24. *The Relationship Between Federal and State Governments*, *supra* note 20 (prepared statement of Christophe A.G. Tulou, Secretary, Department of Natural Resources and Environmental Control, Delaware).

25. A recent survey of state hazardous waste officials found that 31 states use workshops, 28 use fact sheets, 23 use web pages, 12 use newsletters, and 3 use compliance schools. ASSOCIATION OF STATE & TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS, *ALTERNATIVE COMPLIANCE METHODS SURVEY* 4-6 (1999)

[hereinafter ALTERNATIVE COMPLIANCE METHODS SURVEY].

[26.](#) *Ohio Revising Environmental Rule Language to Boost Compliance*, INSIDE EPA WKLY. REP., Aug. 20, 1999, at 21.

[27.](#) *EPA Reports Show Three Year Decline in State Enforcement Inspections* INSIDE EPA WKLY. REP., Sept. 10, 1999, at I, 16.

[28.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, AIR ENFORCEMENT: REGION 6'S OVERSIGHT OF NEW MEXICO AIR ENFORCEMENT DATA 11, E1GAF7-06-0032-8100078 (1998).

[29.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, IDAHO'S AIR ENFORCEMENT PROGRAM 22, E1GAF8-10-0018-8100249 (1998).

[30.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, CONSOLIDATED REPORT ON OECA'S OVERSIGHT OF REGIONAL AND STATE AIR ENFORCEMENT PROGRAMS 14, E1GAE7-03-0045-8100244 (1998).

[31.](#) *Id.* at i.

[32.](#) Ellen Nakashima, *Report Pans Va. Efforts on Pollution; Agency Called Lax; Water Inspections, Fines Show Decline*, WASH. POST, Dec. 10, 1996, at A1. *See also* John H. Cushman, *Virginia Seen as Undercutting U.S. Environmental Rules*, N.Y. TIMES, Jan. 18, 1997, at A22 [hereinafter Cushman, *Virginia Seen*].

[33.](#) *See* ALTERNATIVE COMPLIANCE METHODS SURVEY, *supra* note 25, at A-49 to A-50.

[34.](#) *Id.* at A-42 to A-44.

[35.](#) *Id.* at 4.

[36.](#) *Drop in RCRA Enforcement Leads an Overall Decline in State Efforts*, INSIDE EPA WKLY. REP., May 28, 1999, at 3.

[37.](#) *Internal EPA Review Finds State, Regional Enforcement Activity Slumping*, INSIDE EPA WKLY. REP., May 14, 1999, at 13-15.

[38.](#) *Senior Officials Defend State Enforcement Record*, INSIDE EPA'S SUPERFUND REP., June 23, 1999, at 20; *EPA Tells States Enforcement Data Quality Is Acceptable Despite Flaws*, INSIDE EPA WKLY. REP., Aug. 20, 1999, at 3.

[39.](#) *See* Cushman, *Virginia Seen*, *supra* note 32, at A22; Nakashima, *supra* note 32, at A1.

[40.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, VALIDATION OF AIR ENFORCEMENT DATA REPORTED TO EPA BY PENNSYLVANIA ch. 2, E1KAF6-03-0082-710015 (1997); OFFICE OF INSPECTOR GEN., U.S. EPA, REGION 6'S OVERSIGHT OF ARKANSAS AIR ENFORCEMENT DATA, E1GAF7-06-0014-7100925 (1997); OFFICE OF INSPECTOR GEN., U.S. EPA, REGION 6'S ENFORCEMENT AND COMPLIANCE ASSURANCE PROGRAM 19, E1GAF5-06-0056-610039 (1996). *See also* U.S. EPA, REGION 6'S OVERSIGHT OF NEW MEXICO AIR ENFORCEMENT DATA, *supra* note 28, at 14; U.S. EPA, IDAHO'S AIR ENFORCEMENT PROGRAM, *supra* note 29, at i-ii.

[41.](#) Sarah Metzgar, *Federal Audit Faults DEC on Pollution Laws*, TIMES UNION (Albany), May 1, 1997, at B2. The figures on the number of inspections are from 1991 to 1996; the data on enforcement cases and penalties collected are from 1993-1994 to 1995-1996.

[42.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, AUDIT OF REGION 9'S ADMINISTRATION OF THE CALIFORNIA AIR COMPLIANCE AND ENFORCEMENT PROGRAM 5, E1GAD6-09-0023-710046 (1997).

[43.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, RCRA ENFORCEMENT: RCRA SIGNIFICANT NON-COMPLIER

IDENTIFICATION AND ENFORCEMENT BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT ii, E1GSD8-01-0006-9100078 (1999).

[44.](#) N.J. STAT. ANN. §§ 13:1D-127, -129, -130 (West Supp. 2000).

[45.](#) CAL. HEALTH & SAFETY CODE §§ 25187.8, 39152 (West Supp. 1999); CAL. WATER CODE §§ 13399-13399.2 (West 1996).

[46.](#) MO. CODE REGS. ANN. tit. 10, § 20-3.010 (2000); WASH. REV. CODE § 43.05.060 (2000).

[47.](#) See ALTERNATIVE COMPLIANCE METHODS SURVEY, *supra* note 25, at 4; U.S. GAO, ENVIRONMENTAL PROTECTION: EPA'S AND STATE'S EFFORTS TO FOCUS STATE ENFORCEMENT PROGRAMS ON RESULTS 27-28, GAO/RCED-98-113 (1998) [hereinafter U.S. GAO, ENVIRONMENTAL PROTECTION: FOCUS STATE].

[48.](#) See ALTERNATIVE COMPLIANCE METHODS SURVEY, *supra* note 25, at 4.

[49.](#) "Significant violators" are those that have committed the most serious violations and are specifically defined by each EPA program. For example, under RCRA significant violators are facilities that have caused actual exposure or a substantial likelihood of exposure to hazardous waste, are repeat or recalcitrant violators, or have deviated substantially from regulatory requirements. See CHERYL E. WASSERMAN, *Oversight of State Enforcement*, in 1 LAW OF ENVIRONMENTAL PROTECTION § 8-02 (Sheldon M. Novick et al. eds., Environmental Law Inst./West Group 2000).

[50.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES 19, E1DSF6-11-0002-7100146 (1997).

[51.](#) See Cushman, *Virginia Seen*, *supra* note 32, at A22; Nakashima, *supra* note 32, at A1.

[52.](#) Sarah Metzgar, *Brodsky Accuses DEC of Lax Enforcement*, TIMES UNION (Albany), Feb. 4, 1997, at B2.

[53.](#) See U.S. EPA, IDAHO'S AIR ENFORCEMENT PROGRAM, *supra* note 29, at 10.

[54.](#) Environmental Working Group, *Pollution Pays: An Analysis of the Failure to Enforce Clean Water Laws in Three States: Michigan, Ohio, Pennsylvania* (visited June 22, 2000) <http://ewg.org/pub/home/reports/pollutionpays/home.html>.

[55.](#) HEAL THE BAY, OMISSION ACCOMPLISHED: THE LACK OF A LOS ANGELES REGIONAL WATER BOARD ENFORCEMENT PROGRAM, 1992-1997 2 (1998).

[56.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, CONSOLIDATED REVIEW OF THE AIR ENFORCEMENT AND COMPLIANCE ASSISTANCE PROGRAMS 26-27, E1GAE5-05-0169-7100306 (1997); See also U.S. EPA, IDAHO'S AIR ENFORCEMENT PROGRAM, *supra* note 29, at 16-17; U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES, *supra* note 50, at 10-12.

[57.](#) This was true for RCRA violations in Maryland and West Virginia, for example. See U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES, *supra* note 50, at 7.

[58.](#) See CONSOLIDATED REVIEW OF THE AIR ENFORCEMENT AND COMPLIANCE ASSISTANCE PROGRAMS, *supra* note 56, at 28.

[59.](#) OFFICE OF INSPECTOR GEN., U.S. EPA, REGION 5'S AIR ENFORCEMENT AND COMPLIANCE ASSISTANCE PROGRAM, E1GAF5-05-0045-6100284 (last modified Feb. 9, 1997) <http://www.epa.gov/oigearth/enfoexsm.htm> (Indiana is one such state).

[60.](#) This is the position taken by officials from Louisiana and Illinois. See CONSOLIDATED REVIEW OF THE AIR ENFORCEMENT AND COMPLIANCE ASSISTANCE PROGRAMS, *supra* note 56, at 28.

[61.](#) See U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES, *supra* note 50, at 15.

[62.](#) See CONSOLIDATED REVIEW OF THE AIR ENFORCEMENT AND COMPLIANCE ASSISTANCE PROGRAMS, *supra* note 56, at 9.

[63.](#) See U.S. EPA, IDAHO'S AIR ENFORCEMENT PROGRAM, *supra* note 29, at 12-13.

[64.](#) See RCRA ENFORCEMENT: RCRA SIGNIFICANT NON-COMPLIER IDENTIFICATION AND ENFORCEMENT BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, *supra* note 43, at i-ii; OFFICE OF INSPECTOR GEN., U.S. EPA, REGION 2'S ENFORCEMENT OF THE RESOURCE CONSERVATION AND RECOVERY ACT ii, 1999-1-00224 (1999).

[65.](#) WASHINGTON STATE DEPT OF ECOLOGY, WATER QUALITY ENFORCEMENT REVIEW: REPORT OF THE ENFORCEMENT SUBCOMMITTEE OF THE WATER QUALITY PARTNERSHIP 15-17 (1999); WASHINGTON STATE DEPT OF ECOLOGY, BRIEFSHEET: WATER QUALITY POINT SOURCE ENFORCEMENT 2 (1999).

[66.](#) CAL. WATER CODE §§ 13385(h)-(i) (West 1999).

[67.](#) *Id.* § 13385(h)(2).

[68.](#) Jennifer Warren, *Davis Signs Law to Get Tough on Water Polluters*, L.A. TIMES, July 14, 1999, at A3.

[69.](#) See N.J. STAT. ANN. § 58:10A-10.1 (West 1999). The success of the New Jersey law is discussed below.

[70.](#) EPA has defined an environmental audit as a "systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements." U.S. EPA, Environmental Auditing Policy Statement, OPPE-FRL-3046-6, 51 Fed. Reg. 25004, 25006 (July 9, 1986).

[71.](#) Tom Arrandale, *Can Polluters Police Themselves*, 10 GOVERNING 36, 39 (1997).

[72.](#) A few states extend the privilege to the underlying facts of an audit or require that the auditing entity report the audit in order to assert the privilege; the majority of states do not. In most states, the privilege does not apply to information that is required by law to be collected and disclosed to government agencies, where the audit is conducted in bad faith or for fraudulent purposes, where the audit shows evidence of noncompliance and no attempts to correct the noncompliance, or where information in the audit report is necessary to protect the public health or safety and government agencies cannot obtain equivalent information by other means. Some states have extended the privilege to include a testimonial privilege for the owner or operator of a facility who performs or has the audit performed, the facility's employees, and anyone else associated with the audit. John A. Lee & Bertram C. Frey, *Environmental Audit Immunity Laws: A State-by-State Comparison*, 28 Env't Rep. (BNA) 331 (June 13, 1997).

[73.](#) See *id.* In general, the statutes do not grant immunity where there are repeated violations, willful violations, knowing criminal violations, violations involving serious harm, or where disclosure to the agency occurs after the violations have been discovered or enforcement action has been commenced by government agencies. Most of the laws, however, allow for immunity if the disclosed violation results in an economic benefit to the violator. While all of the measures require corrective action before immunity applies, only a minority require the regulated entity to take steps to prevent recurrence of the violation for which immunity is sought.

[74.](#) Michael Stahl, *Enforcement in Transition*, ENVTL. F., NOV./Dec. 1995, at 18, 20.

[75.](#) Steven A. Herman, *EPA's FY 1997 Enforcement and Compliance Assurance Priorities* (last modified Feb. 12, 1998) <http://www.es.epa.gov/oeca/naag97.html>; See U.S. GAO, ENVIRONMENTAL PROTECTION: FOCUS STATE, *supra* note 47, at 48.

[76.](#) *Environmental Regulation. State Innovative Compliance Strategies Implementation and EPA Response: Hearings*

Before the Subcomm. on Oversight and Investigations of the House Comm. on Commerce, 105th Cong. (1998) (prepared statement of Eric V. Schaeffer, Director, Office of Regulatory Enforcement, U.S. EPA).

[77.](#) U.S. EPA, *Aiming for Excellence: Actions to Encourage Stewardship and Accelerate Environmental Progress* (last modified Aug. 13, 1999) <http://www.epa.gov/reinvent/taskforce/report99>.

[78.](#) Plain Language in Government Writing, 63 Fed. Reg. 31885 (June 1, 1998).

[79.](#) OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, FISCAL YEAR 1999 ENFORCEMENT AND COMPLIANCE RESULTS (Jan. 19, 2000) [hereinafter OECA, FISCAL YEAR 1999].

[80.](#) U.S. EPA, POLICY ON FLEXIBLE STATE ENFORCEMENT RESPONSES TO SMALL COMMUNITY VIOLATIONS (last modified Sept. 16, 1996) (available at <http://es.epa.gov/oeca/ore/aed/comp/acomp/a24.html> and from the ELR Document Service, ELR Order No. AD-1296).

[81.](#) Environmental Council of the States, *Success Stories: Enforcement and Compliance* (visited July 15, 2000) <http://www.sso.org/ecos/stories8.html>.

[82.](#) U.S. EPA, INCENTIVES FOR SELF-POLICING: DISCOVERY, DISCLOSURE, CORRECTION AND PREVENTION OF VIOLATIONS, 65 Fed. Reg. 19618 (Apr. 11, 2000), ADMIN. MAT. 35763 (available at <http://www.epa.gov/oeca/auditpol.html> and from the ELR Document Service, ELR Order No. AD-3125). EPA first attempted to encourage auditing with a policy statement issued in 1986. *See* Environmental Auditing Policy Statement, *supra* note 70.

[83.](#) *See id.*

[84.](#) U.S. EPA, *Policy on Compliance Incentives for Small Business*, 65 Fed. Reg. 19630 (Apr. 11, 2000) (available at <http://www.epa.gov/oeca/smbusi.html>; superceding policy of June 3, 1996, 61 Fed. Reg. 27984 (June 3, 1996)).

[85.](#) The policy is not applicable to criminal violations; repeat violations, violations that cause a significant health, safety, or environmental threat or harm; or violations that are not remedied within the period set forth by the agency for corrections. EPA will not forego economic benefit where a business may have obtained an economic advantage over its competitors from a violation, but it "anticipates that this situation will occur very infrequently." *See id.*

[86.](#) *See* OECA, FISCAL YEAR 1999, *supra* note 79.

[87.](#) U.S. EPA, *Better Environmental Performance Through Environmental Management Systems and Third-Party Certification* (last modified Jan. 5, 2000) <http://www.epa.gov/region01/steward/strack/overview.html>.

[88.](#) U.S. EPA, *EPA Position Statement on Environmental Management Systems and ISO 14001 and a Request for Comments on the Nature of the Data to Be Collected From Environmental Management/ISO 14001 Pilots*, 63 Fed. Reg. 12094-102 (Mar. 12, 1998).

[89.](#) RICHARD ANDREWS ET AL., U.S. EPA, THE EFFECTS OF ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEMS ON THE ENVIRONMENTAL AND ECONOMIC PERFORMANCE OF ORGANIZATIONS PROJECT SUMMARY 1-2 (1999).

[90.](#) U.S. EPA, Supplemental Environmental Projects Policy, ADMIN. MAT. 35703 (Apr. 10, 1998) (also available from the ELR Document Service, ELR Order No. AD-3749). *See* William L. Thomas et al., *Using Auditing, Pollution Prevention, and Management Systems to Craft Superior Environmental Enforcement Solutions*, [30 ELR 10299, 10305-08](#) (May 2000) (describing use of SEPS).

[91.](#) *See* Supplemental Environmental Projects Policy, *supra* note 90. Professor David Dana argues that the use of SEPS can undermine deterrence by leading to settlements that in real terms cost violators considerably less than monetary penalties. He notes that the net costs of SEPS often will be less than the out of pocket (nominal) costs used to determine their value—because of resulting savings in costs of disposal, energy consumption, positive publicity, and elsewhere. David A. Dana. *The Uncertain Merits of Environmental Enforcement Reform: The Case of Supplemental*

Environmental Projects 1998 WIS. L. REV. 1181.

[92.](#) See OECA, FISCAL YEAR 1999, *supra* note 79.

[93.](#) See U.S. EPA, REGION 6'S ENFORCEMENT AND COMPLIANCE ASSURANCE PROGRAM, *supra* note 40, at 1-3; See U.S. EPA, VALIDATION OF AIR ENFORCEMENT DATA REPORTED TO EPA BY PENNSYLVANIA, *supra* note 40, at ch.1; OFFICE OF INSPECTOR GEN., U.S. EPA, REGION 10'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT PROGRAM 29-31, E1HWF7-10-0012-81000076 (1998); See U.S. EPA, CONSOLIDATED REVIEW OF THE AIR ENFORCEMENT AND COMPLIANCE ASSURANCE PROGRAMS, *supra* note 56, at iii-iv; U.S. EPA, REGION 2'S ENFORCEMENT OF THE RESOURCE CONSERVATION AND RECOVERY ACT, *supra* note 64, at iii-iv; OFFICE OF INSPECTOR GEN., U.S. EPA, IDENTIFICATION AND ENFORCEMENT BY THE EPA REGION III AND THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY ii-iii, 1999-P-00215 (1999).

[94.](#) See U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES, *supra* note 50, at 4, 22; OFFICE OF INSPECTOR GEN., U.S. EPA, RESOURCE CONSERVATION AND RECOVERY ACT SIGNIFICANT NON-COMPLIANT ENFORCEMENT i-ii, E1DSD8-05-0036-9100110 (1999).

[95.](#) Kathryn Harrison, *Is Cooperation the Answer? Canadian Environmental Enforcement in Comparative Context*, 14 J. POL'Y ANALYSIS & MGMT. 221, 223 (1995).

[96.](#) Raymond J. Burby & Robert G. Paterson, *Improving Compliance With State Environmental Regulations*, 12 J. POL'Y ANALYSIS & MGMT. 753, 757 (1993).

[97.](#) LEROY PADDOCK & SUELLEN T. KEINER, MIXING MANAGEMENT METAPHORS: THE COMPLEXITIES OF INTRODUCING A PERFORMANCE-BASED STATE/EPA PARTNERSHIP INTO AN ACTIVITY-BASED MANAGEMENT CULTURE 57 (Environmental Law Inst. Research Working Paper No. 11, 2000).

[98.](#) US. EPA, EPA Sets Enforcement Records in 1999 (Jan. 19, 2000) (press release); U.S. GAO, ENVIRONMENTAL PROTECTION: FOCUS STATE, *supra* note 47.

[99.](#) National Ctr. Env't. Resources, U.S. EPA, *Corporate Environmental Performance and the Effectiveness of Government Interventions* (last modified Apr. 10, 2000) <http://es.epa.gov/ncercqa/rfa/corpp00.html>.

[100.](#) See ANDREWS ET AL., *supra* note 89, at 2. ELI and the University of North Carolina (UNC)-Chapel Hill are engaged in a multi-year project involving the creation of the National Database on Environmental Management Systems (NDEMS). NDEMS includes more than 50 pilot facilities that are implementing EMS. The joint ELI-UNC project is supported by EPA and the Multi-State Working Group. The project will examine the effect EMS have on environmental performance, economic performance, compliance with regulatory requirements, pollution prevention, and involvement with external interested parties. NDEMS data collection and research will be continuing for several more years in order to analyze the effects of EMS implementation.

[101.](#) JOSEPH V. REES, REFORMING THE WORKPLACE—A STUDY OF SELF-REGULATION IN OCCUPATIONAL SAFETY 6-8 (1988).

[102.](#) It is worth noting that government enforcement of occupational health and safety standards has often been less aggressive than enforcement of environmental requirements. See generally THOMAS O. MCGARITY & SIDNEY A. SHAPIRO, *WORKERS AT RISK* (1993). Thus, some argue that traditional OSHA enforcement activity didn't work well because of the lack of meaningful deterrence-based enforcement, not because of it.

[103.](#) Douglas C. Michael, *Cooperative Implementation of Federal Regulations*, 13 YALE J. ON REG. 535, 559 (1996). There are three levels of VPP participation. For those companies that have the most comprehensive health and safety programs and have achieved the highest level "star status," minor violations reported to OSHA or detected during recertification inspections are resolved by requiring prompt correction or revoking the company's star status. Only cases involving knowing misconduct or serious injury at a star facility are referred to OSHA's enforcement staff.

Marshall J. Breger, *Regulatory Flexibility and the Administrative State*, 32 TULSA L.J. 325, 330 (1996).

[104.](#) Michael M. Stahl, *Promoting Voluntary Compliance: A Valuable Supplement to Environmental Enforcement*, in CONFERENCE PROCEEDINGS, THIRD INTERNATIONAL CONFERENCE ON ENVIRONMENTAL ENFORCEMENT 551, 554 (1994) [hereinafter CONFERENCE PROCEEDINGS]; *OSHA Head Says Programs of "New OSHA" Are Successful Ways to Improve Worker Safety and Health*, Sept. 16, 1996, available in WESTLAW, ALLNEWS.

[105.](#) John T. Scholz, *Cooperative Regulatory Enforcement and the Politics of Administrative Effectiveness*, 85 AM. POL. SCI. REV. 115, 120, 128 (1991). Scholz developed a rough "cooperation index" based on the percentage of citations issued that included serious violations, and the percentage of penalties imposed for serious violations. Under the index, percentages mean a high concentration of agency activities on egregious violators, which is consistent with a cooperative strategy.

[106.](#) John W. Garn et al., *The Compliance Incentive Experience in Santa Rosa, California*, in CONFERENCE PROCEEDINGS, *supra* note 104, at 544.

[107.](#) Dean C. Paige & John W. Garn, *Compliance Assistance and Environmental Enforcement in Sonoma County and the San Francisco Bay Area*, in CONFERENCE PROCEEDINGS, FIFTH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL ENFORCEMENT 555, 560 (1998) [hereinafter FIFTH CONFERENCE PROCEEDINGS]. The study's results should be viewed with some caution, since they do not separate the impact of expanded technical assistance from market pressure stemming from the public designation of firms as being in compliance.

[108.](#) See ALTERNATIVE COMPLIANCE METHODS SURVEY, *supra* note 25, at A-49 to A-52.

[109.](#) See Harrison, *supra* note 95, at 237-38.

[110.](#) *Id.* at 238.

[111.](#) *Id.* at 238-39.

[112.](#) See Burby, *supra* note 1.

[113.](#) See Burby & Paterson, *supra* note 96, at 763.

[114.](#) *Id.* at 763, 765-66.

[115.](#) Peter K. Krahn, *Enforcement vs. Voluntary Compliance: An Examination of the Strategic Enforcement Initiatives Implemented by the Pacific and Yukon Regional Office of Environment Canada 1983 to 1998* (last modified Jan. 8, 2000) <http://pyr.ec.gc.ca/ep/enforcement/envsvo98.htm>.

[116.](#) Mark A. Cohen, *Empirical Research on the Deterrent Effect of Environmental Monitoring and Enforcement*, [30 ELR 10245](#), [10245](#) (Apr. 2000).

[117.](#) Jon D. Silberman, *Does Environmental Deterrence Work? Evidence and Experience Say Yes, But We Need to Understand How and Why*. [30 ELR 10523](#), [10524](#) (July 2000).

[118.](#) Wesley A. Magat & W. Kip Viscusi, *Effectiveness of the EPA's Regulatory Enforcement: The Case of Industrial Effluent Standards*, 33 J.L. & ECON. 331, 353-54 (1990).

[119.](#) Benoit Laplante & Paul Rilstone, *Environmental Inspections and Emissions of the Pulp and Paper Industry in Quebec*, 31 J. ENVTL. ECON. & MGMT. 19, 30 (1996).

[120.](#) *Id.* at 20.

[121.](#) Eric Helland, *The Enforcement of Pollution Control Laws: Inspections, Violations, and Self-Reporting*, 80 REV. ECON. & STAT. 141, 152 (1998).

[122.](#) Louis Nadeau, *EPA Effectiveness at Reducing the Duration of Plant-Level Noncompliance*, 34 J. ENVTL. ECON. & MGMT. 54, 77 (1997).

[123.](#) This point is explained by Cohen, *supra* note 116, at 10248.

[124.](#) Wayne B. Gray & Mary E. Deily, *Compliance and Enforcement: Air Pollution Regulation in the U.S. Steel Industry*, 31 J. ENVTL. ECON. & MGMT. 96, 110 (1996).

[125.](#) See Silberman, *supra* note 117, at 10533 (citing an EPA-sponsored study of the petroleum refining and integrated iron and steel sectors by Louis Nadeau of Eastern Research Group).

[126.](#) SUSMITA DASGUPTA ET AL., WHAT IMPROVES ENVIRONMENTAL PERFORMANCE?: EVIDENCE FROM MEXICAN INDUSTRY (World Bank Working Paper No. 1877, 1997).

[127.](#) See Silberman, *supra* note 117, at 10531.

[128.](#) OFFICE OF WASTE PROGRAMS ENFORCEMENT, U.S. EPA, EVALUATION OF CHANGES AND PATTERNS IN RCRA VIOLATION RATES FOR TREATMENT, STORAGE, AND DISPOSAL FACILITIES IN CALIFORNIA (1999).

[129.](#) U.S. EPA, *National Performance Measures Strategy for EPA's Enforcement and Compliance Assurance Program* (last modified Feb. 23, 1998) http://es.epa.gov/oeca/perfmeas/march_17/meeting.html (testimony of Michael O'Connor, Commissioner, Department of Environmental Management, Indiana).

[130.](#) CALIFORNIA AIR RESOURCES BD., AN EVALUATION OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT'S AIR POLLUTION CONTROL PROGRAM vi (1998).

[131.](#) CLIFFORD S. RUSSELL ET AL., ENFORCING POLLUTION CONTROL LAWS 37, 95 (1986) (citing studies).

[132.](#) This literature is summarized in Cohen, *supra* note 116, at 10252.

[133.](#) Mark A. Cohen, *Optimal Enforcement Strategy to Prevent Oil Spills: An Application of a Principal-Agent Model With Moral Hazard*, 30 J.L. & ECON. 23, 37 (1987); Dennis Epple & Michael Visscher, *Environmental Pollution: Modeling Occurrence, Detection, and Deterrence*, 27 J.L. & ECON. 29, 56 (1984).

[134.](#) K. Gawande & T. Wheeler, *Measures of Effectiveness for Government Organizations*, 45 MGMT. SCI. 42 (1999).

[135.](#) EVAN J. RINGQUIST, ENVIRONMENTAL PROTECTION AT THE STATE LEVEL: POLITICS AND PROGRESS IN CONTROLLING POLLUTION 135-50 (1993).

[136.](#) Hilary Sigman, *Midnight Dumping: Public Policies and Illegal Disposal of Used Oil*, 29 RAND J. ECON. 157, 172 (1998).

[137.](#) N.J. STAT. ANN. § 58:10A et seq. (West 1999). A serious violation is an exceedance of an effluent limit by 20% or more for hazardous pollutants and 40% or more for nonhazardous pollutants. *Id.* § 58:10A-3v. A significant noncomplier is a permittee that (1) commits a serious violation for the same pollutant at the same discharge point in any two months of any six-month period; (2) exceeds the monthly average in any four months of the six-month period; or (3) fails to submit a completed discharge monitoring report in any two months of any six-month period. *Id.* § 58:10A-3w.

[138.](#) NEW JERSEY DEP'T OF ENVTL. PROTECTION, 1998 ANNUAL REPORT OF THE CLEAN WATER ENFORCEMENT ACT 19-34 (1999). The document reports decreases from 1992 to 1998 in serious violations, instances of significant noncompliance, and penalties assessed, and decreases from 1993 to 1998 in total violations and enforcement actions.

[139.](#) U.S. PUB. INTEREST RESEARCH GROUP, POISONING OUR WATER: HOW THE GOVERNMENT PERMITS POLLUTION ii (2000) [hereinafter PIRG, POISONING OUR WATER].

[140.](#) See HUNTER & WATERMAN, *supra* note 7, at 199-205.

[141.](#) Ann P. Bartel & Lacy Glenn Thomas, *Direct and Indirect Effects of Regulation: A New Look at OSHA's Impact*, 28 J.L. & ECON. 1, 20-22 (1985).

[142.](#) Wayne B. Gray & Carol Adaire Jones, *Are OSHA Health Inspections Effective? A Longitudinal Study in the Manufacturing Sector*, 73 REV. ECON. & STAT. 504, 507 (1991).

[143.](#) Wayne B. Gray & John T. Scholz, *Does Regulatory Enforcement Work? A Panel Analysis of OSHA Enforcement*, 27 L. & SOC'Y REV. 177, 198 (1993).

[144.](#) John T. Scholz & Wayne B. Gray, *OSHA Enforcement and Workplace Injuries: A Behavioral Approach to Risk Assessment*, 3 J. RISK & UNCERTAINTY 283, 296-97 (1990).

[145.](#) John T. Scholz, *Enforcement Policy and Corporate Misconduct: The Changing Perspective of Deterrence Theory*, 60 LAW & CONTEMP. PROBS. 253, 256 (1997).

[146.](#) Earle Eldridge, *Study Links Job Deaths to OSHA Failure*, USA TODAY, Sept. 5, 1995, at B1.

[147.](#) Cheryl E. Wasserman, *Federal Enforcement: Theory and Practice*, in INNOVATION IN ENVIRONMENTAL POLICY 21, 30 (T.H. Tietenberg ed., 1992).

[148.](#) U.S. GAO, WATER POLLUTION: IMPROVED MONITORING AND ENFORCEMENT NEEDED FOR TOXIC POLLUTANTS ENTERING SEWERS, GAO/RCED-89-101, 3, 25-31 (1989).

[149.](#) Robert Van Heuvelen & Peter Rosenberg, *Successful Compliance and Enforcement Approaches*, in CONFERENCE PROCEEDINGS, *supra* note 104, at 163-65.

[150.](#) Christen Carlson White, *Regulation of Leaky Underground Fuel Tanks: An Anatomy of a Regulatory Failure*, 14 UCLA J. ENVTL. L. & POL'Y 105, 112-13, 145 (1996).

[151.](#) See Nakashima, *supra* note 32, at A1.

[152.](#) Jane Kay, *Bay Area Polluters' Fines Small: Average Penalty Paid by Oil Refineries in Past 3 1/2 Years Is \$ 699 Per Violation*, S.F. EXAMINER, July 28, 1999, at A5.

[153.](#) Sylvia Lowrance, *Innovations in EPA's Compliance and Enforcement Program*, Presentation to Office of Enforcement and Compliance Assurance, U.S. EPA (Feb. 3, 1999).

[154.](#) Office of Enforcement and Compliance Assurance, U.S. EPA, *Compliance With Permitting Critical to Clean Air Act Goals: EPA Concerned About Noncompliance With New Source Review Requirements*, 2 ENFORCEMENT ALERT 1, 1 (1999).

[155.](#) U.S. GAO, WATER POLLUTION: MANY VIOLATIONS HAVE NOT RECEIVED APPROPRIATE ENFORCEMENT ATTENTION, GAO/RCED-96-23 (1996). Significant noncompliance is defined (1) for toxic pollutants as exceeding an average monthly limit by 20% or more in any two months of a six-month period and (2) for conventional pollutants as exceeding an average monthly limit by 40% in any two months of a six-month period. *Id.* at 4, 7.

[156.](#) Todd Robins, U.S. PUB. INTEREST RESEARCH GROUP, DIRTY WATER SCOUNDRELS: STATE-BY-STATE VIOLATIONS OF THE CLEAN WATER ACT BY THE NATION'S LARGEST FACILITIES (1997) (visited Aug. 9, 2000) <http://www.pirg.org/pirg/envior/water/dws97>.

[157.](#) JOHN COEQUYT ET AL., ENVIRONMENTAL WORKING GROUP, ABOVE THE LAW: HOW THE GOVERNMENT LETS MAJOR POLLUTERS OFF THE HOOK 9 (1999).

[158.](#) See PIRG, POISONING OUR WATER, *supra* note 139.

[159.](#) See U.S. EPA, FURTHER IMPROVEMENTS NEEDED IN THE ADMINISTRATION OF RCRA CIVIL PENALTIES, *supra* note 50, at 10-11, 31. In response to these findings, EPA suggested that facilities with complex enforcement cases might take longer to return to compliance and also have higher penalties. *Id.* at 12.

[160.](#) See Scholz & Gray, *supra* note 144, at 297; Montserret Viladrich-Grau & Theodore Groves, *The Oil Spill Process: The Effect of Coast Guard Monitoring on Oil Spills*, 10 ENVTL. & RESOURCE ECON. 315 (1997).

[161.](#) U.S. GAO, WATER POLLUTION: MANY VIOLATIONS HAVE NOT RECEIVED APPROPRIATE ENFORCEMENT ATTENTION 10, GAO/RCED-96-23 (1996).

[162.](#) Clifford Rechtschaffen, *Deterrence vs. Cooperation and the Evolving Theory of Environmental Enforcement*, 71 S. CAL. L. REV. 1181 (1998).

[163.](#) Robert A. Kagan & John T. Scholz, *The "Criminology of the Corporation" and Regulatory Enforcement Strategies*, in ENFORCING REGULATION 67 (Keith Hawkins & John M. Thomas eds., 1984).

[164.](#) IAN AYRES & JOHN BRAITHWAITE, RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE 27-29 (1992).

[165.](#) Shameek Konar & Mark A. Cohen, Why Do Firms Pollute (and Reduce) Toxic Emissions? (1998) (unpublished working paper, Owen Graduate School of Management, Vanderbilt University) [hereinafter Konar & Cohen, Why Do Firms Pollute?].

[166.](#) Gardiner Harris, *Dust, Deception, and Death; Low Dust Levels: "Unfathomable" Most Mine Tests About as Dirty as Street Corner*, COURIER-J, (Louisville), Apr. 19, 1998, at K2.

[167.](#) Gardiner Harris, *Dust, Deception, and Death; U.S. Mine Agency Ignored Fraud Cheating on Tests Now Acknowledged, But Response Slow*, COURIER-J, (Louisville), Apr. 20, 1998, at A1 [hereinafter Harris, *U.S. Mine Agency Ignored Fraud*].

[168.](#) Gardiner Harris, *Dust, Deception, and Death; Seeking Solutions for Black Lung*, COURIER-J, (Louisville), Apr. 26, 1998, at A12.

[169.](#) See Harris, *U.S. Mine Agency Ignored Fraud*, *supra* note 167, at K2.

[170.](#) See Helland, *supra* note 121, at 149.

[171.](#) Robert D. Shelton, *Hitting the Green Wall: Why Corporate Programs Get Stalled*, 2 CORP. ENVTL. STRATEGY 5, 7 (1994).

[172.](#) PETER C. YEAGER, THE LIMITS OF LAW: THE PUBLIC REGULATION OF PRIVATE POLLUTION 8-10 (1991).

[173.](#) Michael E. Porter & Claas van der Linde, *Green and Competitive: Ending the Stalemate*, HARV. BUS. REV., Sept./Oct. 1995, at 122.

[174.](#) Seema Arora & Timothy N. Cason, *Why Do Firms Volunteer to Exceed Environmental Regulations? Understanding Participation in EPA's 33/50 Program*, 72 LANDECON. 413, 431 (1996).

[175.](#) See Konar & Cohen, Why Do Firms Pollute?, *supra* note 165.

[176.](#) Social Investment Forum, *News Release: 1991 SRI Trends Report* (last modified Nov. 4, 1999)

<http://www.socialinvest.org/areas/News/1999-trends.htm>. See also David W. Case, *Legal Considerations in Voluntary Corporate Environmental Reporting*, 30 ELR 10375, 10376 (May 2000) (investor pressure is one factor leading to increased disclosure of environmental performance in formal corporate reports, a practice that is "not directly regulated").

[177.](#) Paul Lanoie et al., *Can Capital Markets Create Incentives for Pollution Control?*, 26 ECOL. ECON. 31, 35-36 (1998) (for a discussion of various studies which reach this conclusion). Some of these studies are also discussed in more detail hereinbelow.

[178.](#) James T. Hamilton, *Pollution as News: Media and Stock Market Reactions to the Toxics Release Data*, 28 J. ENVTL. ECON. & MGMT. 98, 109 (1995).

[179.](#) Madhu Khanna et al., *Toxic Release Information: A Policy Tool for Environmental Protection*, 36 J. ENVTL. ECON. & MGMT. 243, 244 (1998). These losses resulted in reductions in on-site toxic releases but increases in off-site transfers of wastes. On balance, the authors suggest, these changes may represent an overall environmental improvement, since most off-site transfers by the chemical industry during the period in question were for recycling and energy recovery.

[180.](#) DASGUPTA ET AL., *supra* note 126.

[181.](#) Cited in Claudia Deutsch, *Investing It: For Wall Street, Increasing Evidence That Green Begets Green*, N.Y. TIMES, July 19, 1998, § 3, at 37.

[182.](#) Stanley J. Feldman et al., *Does Improving a Firm's Environmental Management System and Environmental Performance Result in Higher Stock Prices?* 6 J. INVESTING 87, 89 (1997).

[183.](#) Forest Reinhardt, *Bringing the Environment Down to Earth*, HARV. BUS. REV., July/Aug. 1999, at 149.

[184.](#) Michele Ochsner, *Pollution Prevention: An Overview of Regulatory Incentives and Barriers*, 6 N.Y.U. ENVTL. L.J. 586, 596-97, 604-10 (1998).

[185.](#) Rena Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey From Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 156-58 (1998) (quoting ROBERT JACKALL, MORAL MAZES: THE WORLD OF CORPORATE MANAGERS (1988)).

[186.](#) Linda Greer & Christopher Van Loben Sels, *When Pollution Meets the Bottom Line*, 31 ENVTL. SCI. & TECH. 418A, 418A (1997).

[187.](#) Rob Gray, *The Challenge of Going Green*, HARV. BUS. REV., July/Aug. 1994, at 46-47 (reviewing Noah Walley & Bradley Whitehead, *It's Not Easy Being Green*, HARV. BUS. REV., May/June 1994, at 46).

[188.](#) Walley & Whitehead, *supra* note 187, at 46-47.

[189.](#) NATIONAL ACADEMY OF PUB. ADMIN. & KEYSTONE CTR., THE ENVIRONMENTAL PROTECTION SYSTEM IN TRANSITION: TOWARD A MORE DESIRABLE FUTURE FINAL REPORT OF THE ENTERPRISE FOR THE ENVIRONMENT 56 (1997).

[190.](#) See Steinzor, *Reinventing Environmental Regulation*, *supra* note 185, at 156-58.

[191.](#) John M. Church, *A Market Solution to Green Marketing: Some Lessons From the Economics of Information*, 79 MINN. L. REV. 245, 253-54 (1994).

[192.](#) Frances Cairneross, *The Challenge of Going Green*, HARV. BUS. REV., July/Aug. 1994, at 40-41 (reviewing Walley & Whitehead, *supra* note 187).

[193.](#) Andrew King & Sara Baerwald, *Using the Court of Public Opinion to Encourage Better Business Decisions*, in BETTER ENVIRONMENTAL DECISIONS 309, 312-13, 325 (Ken Sexton et al. eds., 1998).

- [194.](#) Mary L. Lyndon, *Information Economics and Chemical Toxicity: Designing Laws to Produce and Use Data*, 87 MICH. L. REV. 1795, 1810-17 (1989).
- [195.](#) 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, 118-23 (1997).
- [196.](#) See Hamilton, *supra* note 178, at 111.
- [197.](#) Jonathan M. Karpoff et al., Environmental Violations, Legal Penalties, and Reputation Costs (University of Chicago John M. Olin Law & Economics Working Paper No. 71, 2d series, 1999); Kari Jones & P.H. Rubin, Effects of Harmful Environmental Events on Reputations of Firms (1999) (unpublished working paper, Emory University). The authors of the first study conclude that "legal penalties, and not reputational losses, are most important in disciplining and deterring environmental violations." *Id.* at 1.
- [198.](#) Benoit Laplante & Paul Lanoie, *The Market Response to Environmental Incidents in Canada: A Theoretical and Empirical Analysis*, 60 S. ECON. J. 657, 657 (1994).
- [199.](#) Paul Lanoie et al., *Can the Market Create Incentives for Pollution Control?*, 26 ECOLOGY ECON. 31, 39-40 (1998).
- [200.](#) See AYRES & BRAITHWAITE, *supra* note 164, at 2.
- [201.](#) PRICE WATERHOUSE LLP, THE VOLUNTARY AUDIT SURVEY OF U.S. BUSINESS 1, 5 (Mar. 1995) [hereinafter WATERHOUSE, VOLUNTARY AUDIT SURVEY].
- [202.](#) Thomas et al., *supra* note 90, at 10300.
- [203.](#) E-mail from Dennis Sasseville, Senior Manager, KPMG Peat Marwick, LLP, to author (May 25, 2000) (on file with author).
- [204.](#) Paulette L. Stenzel, *Can the ISO 14000 Series Environmental Management Standards Provide a Viable Alternative to Government Regulation?*, 37 AM. BUS. L.J. 237, 262 (2000).
- [205.](#) Jennifer Nash & John Ehrenfeld, *Codes of Environmental Management Practice: Assessing Their Potential as a Tool for Change*, 22 ANN. REV. ENERGY ENV'T 487, 493-95, 503, 516 (1997) (see for discussion of various codes of environmental management practice).
- [206.](#) Shelley H. Metzenbaum, *Information-Driven*, ENVTL F., Mar./Apr. 2000, at 26, 33.
- [207.](#) See Nash & Ehrenfeld, *supra* note 205, at 519-25.
- [208.](#) Jennifer Howard et al., *Industry Codes as Agents of Change: Responsible Care Adoption by U.S. Chemical Companies*, 8 BUS. STRATEGY & ENV'T 281, 291-93 (1999).
- [209.](#) *Id.* at 294.
- [210.](#) Andrew King & Michael Lennox, *Industry Self-Regulation Without Sanctions: The Chemical Industry's Responsible Care Program*, 43 ACAD. MGMT. J. (forthcoming 2000).
- [211.](#) See WATERHOUSE, VOLUNTARY AUDIT SURVEY, *supra* note 201, at 66.
- [212.](#) Donald A. Carr & William L. Thomas, *Devising a Compliance Strategy Under the ISO 14000 International Environmental Management Standards*, 15 PACE ENVTL. L. REV. 85, 149 & n.154 (1997).
- [213.](#) See Nash & Ehrenfeld, *supra* note 205, at 493. Adoption of the Responsible Care(R) program, however, is mandatory for companies that wish to be members of the CMA. *Id.*

[214.](#) Christopher Bedford, Env'tl. Action Found., *Dirty Secrets: The Corporations' Campaign for an Environmental Audit Privilege* (last modified Dec. 3, 1999) <http://www.envirolink.org/orgs/gnp/dirty1.html>; Sanford Lewis, *Analysis of ISO 14000 Management Systems: A Community Environmental Perspective* (last modified Sept. 25, 1996) (evolving paper, on the Good Neighbor Project for Sustainable Industries website) <http://www.envirolink.org/orgs/gnp/iso1/html>.

[215.](#) ISO, DRAFT INTERNATIONAL STANDARD ISO/DIS 14001: ENVIRONMENTAL MANAGEMENT SYSTEMS—SPECIFICATION WITH GUIDANCE FOR USE 4.4.2, Annex A (1995).

[216.](#) See Howard et al., *supra* note 208, at 292-93.

[217.](#) See Metzenbaum, *supra* note 206, at 33.

[218.](#) U.S. EPA, Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, FRL-5400-1, 60 Fed. Reg. 66706, 66707 (Dec. 22, 1995) (quoting 1995 Price Waterhouse survey) (available from ELR Document Service, ELR Order No. AD-3125).

[219.](#) NATIONAL CONFERENCE OF STATE LEGISLATORS, STATE ENVIRONMENTAL AUDIT LAWS AND POLICIES: AN EVALUATION 20-21 (Oct. 1998) [hereinafter NCSL EVALUATION].

[220.](#) Manik Roy & Ohad Jehassi, U.S. EPA, Study of Industry Motivation for Pollution Prevention (April 23, 1997) (unpublished manuscript, draft on file with author).

[221.](#) David A. Ronald, *The Case Against an Environmental Audit Privilege*, NAT'L ENVTL. ENFORCEMENT J., Sept. 1994, at 3, 4 (quoting James Morgester, Chief of the Compliance Division of the California Air Resources Board).

[222.](#) Jeff Johnson, *Enforcement Cuts Hit by Corporate Attorney*, 30 ENVTL. SCI. & TECH. NEWS 109A (1996) (quoting a corporate environmental attorney).

[223.](#) Such an integrated approach also would be immeasurably aided by enhanced enforcement resources, so that agencies do not have to choose between allocating personnel to compliance assistance programs at the expense of traditional enforcement activities. The paucity of enforcement resources available to EPA and the states is discussed in Joel Mintz, *Scrutinizing Environmental Enforcement: A Comment on a Recent Decision at the AALS*, 30 ELR 10639 (Aug. 2000).

[224.](#) MASSACHUSETTS DEP'T OF ENVTL. PROTECTION, EVALUATION OF THE ENVIRONMENTAL RESULTS PROGRAM, DEMONSTRATION PROJECT 1 (Nov. 13, 1997).

[225.](#) ILLINOIS ENVTL. PROTECTION AGENCY & ILLINOIS DEP'T OF COMMERCE AND COMMUNITY AFFAIRS, GOVERNOR'S SMALL BUSINESS ENVIRONMENTAL TASK FORCE REPORT & RECOMMENDATIONS 5 (1994).

[226.](#) One criticism voiced of this approach is that in the event an agency "advisor" gives flawed advice to a regulated entity, the company will be able to shield itself from subsequent government enforcement actions (or at least as to violations that result after the company followed the government's advice).

[227.](#) ILLINOIS ENVTL. PROTECTION AGENCY & ILLINOIS DEP'T OF COMMERCE AND COMMUNITY AFFAIRS, CLEAN BREAK PROJECT FINAL REPORT (undated).

[228.](#) For example, U.S. Department of Justice guidance provides that self-auditing is a mitigating factor in the department's decisions about whether to criminally prosecute environmental violations. U.S. DOJ, FACTORS IN DECISIONS ON CRIMINAL PROSECUTIONS FOR ENVIRONMENTAL VIOLATIONS IN THE CONTEXT OF SIGNIFICANT VOLUNTARY COMPLIANCE OR DISCLOSURE EFFORTS BY THE VIOLATOR (July 1, 1991), ADMIN. MAT. 35399 (also available from the ELR Document Service, ELR Order No. AD-505). EPA's policy on the exercise of its criminal investigative discretion is similar. OFFICE OF CRIMINAL ENFORCEMENT, U.S. EPA, GUIDANCE ON EPA'S EXERCISE OF INVESTIGATIVE DISCRETION FOR ENVIRONMENTAL CRIMES (Jan. 12, 1994) (available from ELR Document Service, ELR Order No. AD-3418). Likewise, sentencing guidelines for

environmental crimes proposed by the federal Sentencing Commission provide that voluntary environmental compliance programs, including auditing, would be important in evaluating both aggravating and mitigating factors in the determination of sentences. ADVISORY COMMITTEE ON ENVIRONMENTAL CRIMINAL SENTENCING, U.S. SENTENCING COMMISSION, PROPOSED SENTENCING GUIDELINES FOR ORGANIZATIONAL ENVIRONMENTAL CRIMES (1993). The commission decided in 1994 not to submit its proposal to Congress for its consideration, but the guidelines likely will play a significant role in shaping future proposals. Lucia Ann Silecchia, *Ounces of Prevention and Pounds of Care: Developing Sound Policies for Environmental Compliance Programs*, 7 FORDHAM ENVTL. L.J. 583, 607, n.70 (1996). EPA's policy on debarment or suspension from government contracting effectively requires companies to conduct audits in order to be removed from EPA's list of facilities ineligible to receive federal contracts. U.S. EPA, Policies, Practices, and Procedures in Determining Whether to Remove a Facility From the EPA List of Violating Facilities Following a Criminal Conviction, FRL-4039-4, 56 Fed. Reg. 64785 (Dec. 12, 1991).

[229.](#) Birendra Mishra and others argue based on a theoretical model that firms have an incentive to audit and share the audit results with regulators (i.e., not keep the audit privileged). In the absence of such audits, regulators will be unable to verify firm compliance and will be more likely to inspect the firms. Birendra K. Mishra et al., *Environmental Regulations and Incentives for Compliance Audits*, 16 J. ACCT. & PUB. POL'Y 187, 206 (1997).

[230.](#) NCSL EVALUATION, *supra* note 219, at 17-22.

[231.](#) *Hearings on Environmental Audits and the Federal-State Relationship Before the Subcomm. on Oversight and Investigation of the House Comm. on Commerce*, 105th Cong. (1998) (prepared statement of Linda Spahr, Chair, Environmental Subcommittee of New York State District Attorneys Association).

[232.](#) SHELLEY METZENBAUM, BROOKINGS INST., MAKING MEASUREMENT MATTER: THE CHALLENGE AND PROMISE OF BUILDING A PERFORMANCE-FOCUSED ENVIRONMENTAL PROTECTION SYSTEM 18 (1998). Likewise, under the European Union's voluntary environmental management system, EMAS, companies are required to prepare annual reports describing their emissions, waste generation, and consumption of resources.

[233.](#) Steven A. Herman. *It Takes a Partnership*, ENVTL. F., May/June 1997, at 26, 30.

[234.](#) U.S. EPA, *Project XL Final Project Agreement for the Massachusetts Environmental Results Program* (last modified Dec. 2, 1999) www.epa.gov/ooaujeag/projectxl/massdep/10698.pdf.

[235.](#) Wasserman, *Federal Enforcement*, *supra* note 147, at 40-41.

[236.](#) Shelda A. Sutton-Mendoza, *Field Citations: A Tool for Enforcing UST Regulations in New Mexico*, in CONFERENCE PROCEEDINGS, *supra* note 104, at 408, 409.

[237.](#) *Id.* at 410-11, 417-18.

[238.](#) Occupational Safety & Health Admin., U.S. Dep't of Labor, *OSHA Directives, CPL 2.112, Nationwide Quick-Fix Program* (last modified Aug. 2, 1996) http://www.osha-sic.gov/OshDoc/Directive_data/CPL_2_112.html.

[239.](#) *See Project XL Final Project Agreement for the Massachusetts Environmental Results Program*, *supra* note 234. The study did not separate out the impacts of the program's more flexible performance standards from its enforcement strategy of enhanced compliance assistance/self-certification/traditional inspections.

[240.](#) *See ALTERNATIVE COMPLIANCE METHODS SURVEY*, *supra* note 25, at A-49.

[241.](#) *See Silberman*, *supra* note 117, at 10525, 10529 & n.47. EPA has done this nationally with the industrial organic chemical sector, and in Region 5 with minimills. In both cases the Agency reports that the effort resulted in additional companies conducting audits.

[242.](#) Eric Schaeffer, *Penalty Cap Programs*, in FIFTH CONFERENCE PROCEEDINGS, *supra* note 107, at 459, 460.

[243.](#) U.S. EPA, 1998 TOXICS RELEASE INVENTORY (2000).

[244.](#) S.G. Bandrinath & P.J. Bolster, *The Role of Market Forces in EPA Enforcement Activity*, 10 J. REG. ECON. 165, 167 (1996).

[245.](#) *Id.* at 179.

[246.](#) SUSMITA DASGUPTA ET AL., POLLUTION AND CAPITAL MARKETS IN DEVELOPING COUNTRIES (World Bank 1997).

[247.](#) Shakeb Afsah & Jeffrey R. Vincent, Harv. Inst. Int'l Dev., *Putting Pressure on Polluters: Indonesia' PROPER Program* (last modified Sept. 23, 1999) http://www.worldbank.org/nipr/work_paper/vincent/index.htm.

[248.](#) SHAKEB AFSAH ET AL., REGULATION IN THE INFORMATION AGE: INDONESIAN PUBLIC INFORMATION PROGRAM FOR ENVIRONMENTAL MANAGEMENT 9 (1997).

[249.](#) Paige & Garn, *Compliance Assistance and Environmental Enforcement in Sonoma County and the San Francisco Bay Area*, in FIFTH CONFERENCE PROCEEDINGS, *supra* note 107, at 559-61.

[250.](#) Elaine G. Stanley & Andrew L. Teplitzky, *Public Access to Compliance Monitoring and Enforcement Data: A Look at the Sector Facility Indexing Project and Other Agency Initiatives*, *id.* at 179, 184.

[251.](#) *See* Silberman, *supra* note 117, at 10524 n.11.

[252.](#) *See* Environmental Defense, *Scorecard* (visited Aug. 9, 2000) <http://scorecard.org/>.