Next Generation Compliance

The most effective way to achieve compliance with the law is to make it easier to comply than to violate. EPA is using new technologies and lessons learned about what drives compliance to reduce pollution and improve results

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William D. Ruckelshaus, EPA's first administrator, said that the first thing he did when he took the helm in 1970 was file a bunch of lawsuits against the country's biggest polluters. He made it clear to everyone that there was a new sheriff in town who was going to take action to stop the all too apparent air and water pollution plaguing the nation.

Four decades later, violations of pollution standards still can pose a threat to children with asthma, adults with cardiovascular disease, people susceptible to waterborne illness, and all of us exposed to chemicals in our daily lives. And violations still harm American businesses that are doing the right thing and should not have to compete with companies, domestic or foreign, who don't play by the rules.

While we are justifiably proud of the significant progress we have made as a nation on the visible violations that fueled public outrage in the 1960s, big challenges remain. Today's problems are pollution not apparent to the naked eye that still poses real threats to health, the large number of smaller sources that collectively make a big difference, and pollution that isn't always easily identifiable as what comes from the top of a stack or the end of a pipe. These compliance problems require new tools and new thinking. Environmental compliance today requires a change just as dramatic as the one Bill Ruckelshaus led over 40 years ago.

Tough enforcement was a new idea in environmental protection back in 1970. Today strong criminal and civil enforcement is — and will continue to be — an essential part of our environmental protection work. But we can accomplish even more by moving our compliance programs into the 21st century. Just as the Internet has transformed the way we communicate and access information, advances in information and emissions monitoring technology are setting the stage for detection, processing, and communication capabilities that can revolutionize environmental protection. We are moving toward a world in which states, EPA, citizens, and industry will have real-time electronic information regarding environmental conditions, emissions, and compliance, and we are using what we have learned about compliance to make it easier to comply than to violate. We call it Next Generation Compliance, or Next Gen.

Rules With Compliance Built in

For years, we have assumed that federal and state agencies would help ensure that we were achieving the benefits contemplated in environmental regulations by taking action against violators. Research shows that enforcement cases do more than just improve compliance by the entity sued; they also deter potential violators and thus improve compliance generally — much as seeing a speeder getting ticketed tends to slow traffic. However, a small

number of federal and state enforcers cannot effectively police millions of regulated facilities. While enforcement is an essential part of EPA's compliance program, it is not realistic to think that enforcement alone will get us to the levels of compliance envisioned by our rules.

We can get a bigger bang for the buck by working hard to make sure we design rules that will work in the real world — rules with compliance built in. We know a lot about what drives compliance; we need to use that knowledge to structure programs that will work better and be more self implementing. For example, take reducing emissions from automobiles. There are millions of cars and trucks in the United States, each of which is a small source of harmful emissions that collectively pack a wallop for air quality. One could imagine the nightmare of requiring each owner to independently purchase and install air emissions control equipment, depending on government to find and ticket violators. Instead, we require auto manufacturers to install pollution controls when the car is made, and to certify cars as meeting the standard. For equipment installation requirements, government monitors the small number of manufacturers, not the millions of car owners, and can focus enforcement on those who deliberately circumvent the installation standards.

EPA is using this thinking today. In an April 2013 proposed rule requiring emissions controls for thousands of oil and gas producers, the agency took comment on a proposal to make initial compliance much easier. The idea was to allow the small number of air pollution control equipment manufacturers to have their equipment certified by EPA and then tell energy extraction companies that if they buy one of the certified compliance-ready models, they can just report that fact, eliminating the need for separate field testing. The manufacturer builds the compliance-ready equipment and reports who purchased the approved models. Compliance checks are easy: government need only electronically compare the user's purchase and installation reports with the manufacturer's sales reports. The more resource-intensive interaction is limited to a small number of manufacturers. Approaches like this have the potential to make compliance easier and less costly, while improving results and increasing certainty for the regulated community.

More effective and more efficient ways to get the necessary pollution controls installed are not the whole story. Other compliance challenges remain — most obviously the need to ensure that sources are properly operating their pollution control equipment. Advanced monitoring and information technologies, discussed below, can be part of the answer to this second-order problem. Efficient mechanisms for ensuring installation of the required pollution controls will help to free up scarce resources to focus on downstream challenges.

Next Gen is about writing rules that work well

and that achieve the desired result without requiring court action. For starters, we should focus on greater simplicity and clarity. One of the principles we have learned over years of hard experience is that compliance is better when the rules are simple and clear. When you consider what will actually happen in the real world, the net environmental benefit of a simpler, clearer rule may trump a more detailed and in theory more protective standard. We need to think more carefully about balancing flexibility and simplicity when we write rules and permits.

There are many other strategies that we should explore in writing rules. Independent third-party validation can work in some cases. Requiring monitoring is also surprisingly effective at improving performance; a facility probably won't take steps to improve compliance if it doesn't even know it is violating. Requiring certifications of compliance can also transform compliance rates for some programs; certifications require someone to check, and increase the chances that problems are caught and fixed, creating good jobs and improving protection. Public disclosure is another underutilized tool; there is powerful evidence that publishing information about company performance drives better behavior, as pressure is applied by customers, neighbors, investors, and insurers. And market strategies that set standards but allow companies to decide how best to get there can be simple and effective in the right circumstances, reducing costs and providing flexibility for industry while achieving better results. We saw that approach work in the acid rain program, where an integrated system of pollution allowances, continuous monitoring, electronic reporting, and market trading got fast and efficient results and very high levels of compliance. Rules with compliance built in can improve protection of health and the environment without depending on enforcement cases.

Advanced Pollution Monitoring

It used to be hard to figure out how much pollution was coming from a stack or a pipe. Expensive tests done once a year or less often created huge uncertainty about how much pollution there really was, and whether that amount varied much from day to day. Grab samples taken at wide intervals created opportunities to sample at times when pollution might be lower, further obscuring the accuracy of reporting. The proliferation of smaller sources, which can be individually modest but collectively significant, made these challenges even greater. These uncertainties are compounded for pollution you can't see or smell, which is often the case, particularly for toxic pollutants.

Advanced monitoring technologies can help make these problems obsolete. Monitoring devices are becoming more accurate, more mobile, and cheaper, all of which are contributing to a revolution in how we find and fix pollution problems. Through the use of these technologies, some companies have discovered that they greatly underestimated their pollution, sometimes by an order of magnitude. Actual measurements, as opposed to estimates, often show far higher emissions than we, or the company, thought. Real time monitoring is possible now — not just for air, but also water. For example, in one much-used river, EPA has installed solar powered continuous monitoring devices that upload via cell phone technology to agency computers.

As we use advanced monitoring equipment in our enforcement work, we are finding serious pollution issues that require attention. Many companies are themselves adopting this technology to manage their operations and to help them quickly identify and fix problems, saving money, reducing pollution, and avoiding compliance problems. In our enforcement cases we are getting agreements to install these monitoring technologies at fence lines so that companies and communities can know about pollution, and prompt action can be taken to fix problems before they become serious health concerns.

One of the more powerful uses of these technologies is to make previously invisible pollution visible. Infrared cameras, for example, allow the user to actually see dark plumes that look like smoke when volatile organic compounds such as benzene are released to the air, even though these emissions are invisible to the naked eye. By using equipment that looks like a video camera, and is nearly as easy to operate, we can locate pollution leaks and releases. These videos can be powerfully persuasive in conversations with companies that didn't believe they had a pollution problem.

As the price of monitoring devices drops, we are not far from the day when the public will have access to pollution monitoring tools. Communities with monitoring data will encourage better performance by industries they host. As pollution data become more available, companies may find that doing their own monitoring will better ensure that accurate and relevant information is available to the public. These changes, driven by new technologies, will encourage more direct industry and community engagement, and reduce the need for government action.

Electronic Reporting

Today just about every aspect of our lives can be managed electronically. We can bank from home, send pictures from phones, and track packages across the country from our desks. And yet, much of the information reported to EPA and states by facilities is still submitted on paper, and waits for a government employee to manually enter the data into computer systems. Or, in a time of declining budgets, the paper sits in a corner unopened, until someone has time to examine the data and see if any violations appear likely. This means that important pollution and violation information can go unnoticed. Errors can be introduced through manual data entry, requiring aggravating and time-consuming correction processes. And far too much time ends up being spent on minor issues while major ones go unaddressed. This is particularly a problem for states, which bear the largest share of the burden of dealing with mountains of paper. E-reporting is a solution that saves time and money while improving results.

Widespread electronic reporting opens the door for private sector development of e-reporting tools, with the potential to be both cheaper and more user friendly than what government can provide. Software developers can take advantage of the market created by electronic reporting to develop e-reporting tools that work better for the user, with no additional cost to the taxpayer. Private tax preparation and reporting tools are an example of a private sector innovation that is both easy to use and nimble in responding to customer needs.

E-reporting also allows for electronic data checks that can help avoid problems and reduce transaction costs. For example, software reporting tools that allow self correction, by flagging inconsistent or mathematically impossible entries, as is done by EPA's electronic Greenhouse Gas Reporting Tool, helps to prevent mistakes before they happen, saving everyone time and money.

Electronic reporting also creates greater transparency. If you want to view paper records, you need to travel to a government office and sit there with your pad and pencil taking notes. How much easier would it be if the same data could be reviewed online, creating government that is more open and gives people information about facilities and pollution that affects them? Greater accessibility could also drive better compliance performance as facilities learn from each other about what performance is possible.

Electronic reporting is not a one-way street. Once an electronic mode of communication is set up between government and facilities, government can provide specific, relevant information and compliance assistance to industry. For example, if a company reports that it's discharging high levels of nitrogen, the computer can direct them to help specifically about reducing nitrogen loading.

Increased Transparency

You know those reports that come once a year with your drinking water bill that tell you about the quality of water you get from your drinking water supplier? Do these reports just tell you how clean your drinking water is or do they help to actually improve water quality? A 2008 study in Massachusetts found that larger drinking water systems required to mail the reports directly to customers reduced their total violations by 30–44 percent as a result of this new reporting, and reduced the more severe health violations by 40–57 percent. A rule that originated with the desire to inform people turned out to accomplish a lot more.

Using transparency as a way to improve performance is one of the most important things we have learned about strategies to increase compliance. Probably the best known environmental example is the Toxics Release Inventory, where the requirement to report and publish information is credited with a significant drop in emissions. EPA's efforts to make our data more available are only starting to scratch the surface of the ways transparency can improve results.

A sophisticated understanding of how transparency works as a regulatory tool has helped us to design transparency programs that work. Some research suggests that transparency serves a reminder function; publishing data on facility performance draws attention to problems and brings senior-level focus to bear on fixing them. The reminder function also works within peer groups; companies can see how their peers perform, and this can both confirm that better performance is possible — others are doing it — and provide competitive incentive to improve. Some companies are using transparency as part of their business model, believing that sharing more information with the public about strong performance provides a competitive edge.

Public disclosure and transparency also improve results by putting pressure on lower performing companies. Public information acknowledges the many strong performers that work hard to be good neighbors, and motivates others to devote effort up front to avoid problems that invite bad press, or scrutiny from neighbors and government. Publicly known violations may also alert investors and

insurers to poor management, providing financial motivation to avoid violations. If we can create incentives that push companies to just do the right thing the first time so much the better.

When information on compliance and pollution is publicly available, citizens can see how good a job their government is doing at protecting them from health threats. The same theories that support use of greater transparency to improve facility performance also work for government; states and EPA regions can see that others are getting better results, which can motivate a push to find out if what others are doing can help. This is part of the thinking behind our recently published state dashboards (www.epa-echo.gov/echo/). The public can go online and easily see how federal and state governments are doing inspecting major sources, finding violators, and taking action.

Of course, transparency only works if the information is important and correct. Publicizing data that are incomplete or wrong undermines the goal. Transparency has to be coupled with a program to collect the right information. And where government relies on self reporting for compliance data, we also need ways to check for accuracy. That's why Next Gen principles for advanced monitoring and electronic reporting go hand in hand with transparency: providing accurate information on real pollution issues.

Releasing an avalanche of data is not the answer. For the public, the key is relevant, user-friendly information, such as easy-to-understand miles per gallon ratings for vehicles. For more expert users, larger sets of more comprehensive data can be valuable, especially if they can be quickly and easily viewed and sorted. Two recent examples: first, the Facility Level Information on Greenhouse Gas Tool allows users to explore greenhouse gas data for individual facilities using mapping and graphing features (ghgdata.epa.gov) and, second, there is an online tool that allows easy identification of the biggest contributors to water pollution problems (go.usa.gov/TGxA). Even in an era of very tight budgets, thoughtful transparency strategies can improve results, and open the door for private sector development of apps that will make a difference.

Innovative Enforcement Strategies

In 2010, EPA and the states embarked on a new approach to protect people's health by improving compliance with drinking water standards, one of EPA's top priorities. We implemented a new scoring system to identify drinking water suppliers with the most serious violations, and announced that all serious violators would either return to compliance in six months or face enforcement. Six months later, there was a big upturn in enforcement actions, as states and EPA followed through on this promise. As a result of this focused state and federal attention over the last three years, we have seen a 65 percent drop in reported public water suppliers with serious violations, now that operators know that we are serious about the importance of compliance with drinking water standards. The increased attention has also inspired drinking water systems and government to correct inaccurate data, helping us to focus our attention on the big problems. With only a modest investment of resources, this new approach has made a big difference.

Even in a time of declining budgets, we are developing more innovative approaches like these to help us get better protection. The Next Gen ideas that can work in regulations can also work in enforcement cases. Advanced monitoring is helping us to identify violators and target enforcement efforts, so we are less dependent today on self-identified violations, tips, and complaints to direct and focus our enforcement work. Electronic reporting is also being incorporated into enforcement settlements, saving time and money for both the defendant and government. Third-party verification of the defendant's compliance status is part of both civil and criminal cases, improving compliance and saving taxpayer dollars.

Many states are already moving in the directions discussed here, recognizing that shifting quickly into the electronic age has the potential to improve effectiveness and save money. These strategies will also help support states that want greater flexibility to focus on the most important problems, because better, more accurate information will encourage evidence-based experimentation to find out which strategies work to improve compliance and which do not. EPA is working closely with our state partners to design and implement the electronic agencies of the future.

Vigorous enforcement of the law will always be the backbone of environmental protection. It was true when Bill Ruckelshaus launched EPA, and it remains true today. If we are to do our job to protect the public and assure a level playing field for complying businesses, states and EPA need to work together to make sure there are consequences for violations. But everyone is better off when we prevent violations. As we continue to learn about ways to strengthen compliance, and take advantage of advances in technology, Next Gen can transform our protection work even in a time of declining budgets. •