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Where Things Stand with Hazardous Waste Regulation

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ISSUES OF THE DAY

100 Commentaries on Climate, Energy,
the Environment, Transportation,
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climate VALUE

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markets

RISK

development

EMISSIONS air

pollution

CHANGE

Fisheries **cars**

people **OIL**
international water

MRSA

forests

electricity

policy FOOD

RENEWABLE

IAN W.H. PARRY AND FELICIA DAY, EDITORS

ISSUES OF THE DAY

100 Commentaries on Climate, Energy,
the Environment, Transportation,
and Public Health Policy

Ian W.H. Parry and Felicia Day, editors

RESOURCES FOR THE FUTURE

Washington, DC, USA

VIRGINIA COMMONWEALTH UNIVERSITY

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36. WHERE THINGS STAND WITH HAZARDOUS WASTE REGULATION

Sarah Stafford

is the Verkuil Distinguished Associate Professor of Economics and the associate director of the Thomas Jefferson Program in Public Policy at the College of William and Mary. Her research focuses on hazardous waste regulation and corporate environmental behavior, with an emphasis on compliance and enforcement.

One problem in hazardous waste regulation is the difficulty of ensuring regulatory compliance, not least because violations are often inadvertent. Therefore, complementary programs, such as compliance assistance, environmental audits, and voluntary compliance initiatives, can play a valuable role.

The U.S. economy generates a significant amount of waste. According to recent estimates, on average we generate about 250 million tons of trash each year, or 4.5 pounds per person per day. In addition to municipal solid waste, the United States generates 50 million more tons of hazardous waste each year.

Hazardous waste is a relatively new phenomenon and was not generated in significant quantities until we started using fossil fuels and chemicals in earnest at the beginning of the industrial age. Initially it was not considered to be any different from other waste and so was essentially unregulated. Hazardous constituents were routinely released into the environment, where they polluted groundwater, rivers, and lakes and killed people, livestock, and wildlife. As the consequences of uncontrolled management of waste became clear, the public began to call for regulations to protect human health and the environment.

FIRST, SOME HISTORY

The first environmental law that specifically addressed the generation and management of hazardous waste was the Resource Conservation and Recovery Act (RCRA), passed in 1976. RCRA's Subtitle C delineated the basic structure of federal hazardous waste regulation and required EPA to establish criteria for identifying and listing hazardous waste and to develop standards applicable to generators, transporters, and managers of hazardous waste. In 1984, Congress passed the Hazardous and Solid Waste Amendments (HSWA), which expanded the scope of RCRA by requiring EPA to develop treatment standards for hazardous waste, minimum technological requirements for hazardous waste management units, and a corrective action program for contamination at active waste management facilities. Together these two acts provide the mandate for EPA's current hazardous waste program, commonly referred to as the RCRA program, which covers hazardous waste "from the cradle to the grave."

Although hazardous waste is often referred to as toxic waste, a material does not have to be toxic to be considered hazardous. Hazardous waste includes any discarded material that is potentially harmful to human health and the environment because it is ignitable, corrosive, reactive, or toxic, as long as the material has not been specifically excluded from the definition of hazardous waste. Two major categories of waste have the potential to be classified as hazardous but have explicitly been excluded from regulation as such—agricultural and mining wastes.

Even with these exclusions, the RCRA-regulated universe is both large and diverse, including well over 600,000 facilities in the United States, ranging from large chemical manufacturers and petroleum refiners to small dry cleaners and photo finishers. Nonprofit and government entities, such as hospitals, universities, and military bases, generate hazardous waste as well.

Interestingly, perhaps the most well-known toxic waste sites—Superfund sites—are not part of the RCRA universe. The Superfund program was established separately to cover cleanup of hazardous waste at inactive or abandoned sites and hazardous waste

spills that require an emergency response, whereas RCRA covers only active hazardous waste facilities.

MUCH SKEPTICISM

RCRA is a relatively mature program, and over the past decade there have been only minor changes to hazardous waste regulations. With no new regulations to implement, EPA has turned its focus toward waste minimization and improving regulatory compliance.

Waste minimization, which includes both pollution prevention and increased recycling, has been promoted primarily through voluntary initiatives such as WasteWise, the National Environmental Performance Track, and Responsible Care. The majority of these programs are cross-media and, in theory, have the potential to increase environmental performance because they encourage facilities to think holistically about their environmental impacts. Both industry and EPA have been enthusiastic about such programs, but many in the environmental community are more doubtful because of the general lack of public accountability or oversight.

Over the past few years, researchers have conducted a number of studies to analyze the effectiveness of voluntary environmental programs. Only a few have been able to show that voluntary programs can significantly improve performance for more than a limited set of facilities. This lack of evidence may be behind EPA Administrator Lisa Jackson's suspension of the National Environmental Performance Track.

Under previous EPA administrators, voluntary programs were not limited only to waste minimization efforts; during the Bush administration, the agency placed increased emphasis on voluntary compliance initiatives and self-policing. But still, neither voluntary nor command-and-control approaches appear adequate to get the job done. Many are skeptical that voluntary efforts are effective at increasing compliance, while others doubt that traditional enforcement can bring all facilities into compliance because many violations appear to be due to confusion or ignorance, rather than deliberate decisions to violate the rules.

Although a facility may knowingly violate RCRA regulations by sending hazardous waste to a nonhazardous waste landfill for disposal, it may also inadvertently violate regulations if one of its hazardous waste storage tanks leaks. Traditional enforcement measures, such as inspections and fines, can help decrease the level of deliberate violations by making violations more expensive for the facility. When EPA revised its RCRA penalty policy in 1991 by drastically increasing its fines to 10 or 20 times the previous fine levels, hazardous waste compliance increased. Similarly, increasing the probability of a compliance inspection has been shown

to increase the likelihood that a facility will comply with RCRA regulations.

For inadvertent violations, however, increasing penalties and inspections may not be very effective at increasing compliance. Facilities may be noncompliant because they do not fully understand the regulatory requirements, do not fully know their facility's operations, have poor internal environmental management systems, or do not have the ability to comply. Alternative policies such as compliance assistance or environmental audits may help to increase compliance.

In my research, I have found some evidence to support the effectiveness of compliance assistance programs. In a study on RCRA compliance behavior to try to determine whether facilities were deliberately or inadvertently violating hazardous waste regulations, facilities in states with compliance assistance programs were found to be less likely to violate than facilities in states without them. Environmental auditing has not been shown to be as effective. While facilities in states with environmental audit privilege and self-policing policies are less likely to violate, a more recent study of Michigan hazardous waste facilities suggests that facilities that implement environmental audit programs are not any more likely to be in compliance than facilities that do not audit.

Although the data on the ability of voluntary compliance programs to improve environmental performance are limited, I nonetheless believe that there is an important role for such programs to play in complementing traditional enforcement and improving compliance in the future. Facilities violate hazardous waste regulations for a variety of reasons, and we must develop an equally wide range of initiatives and programs to increase compliance. Voluntary programs should not supplant traditional enforcement efforts but instead should be used in tandem.

Further Reading

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