

NOTES

REFLEXIVE LAW SOLUTIONS FOR FACTORY FARM POLLUTION

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Large industrial livestock and poultry farms, known as “factory farms” or “confined animal feeding operations” (CAFOs), pose serious threats to regional air and water quality. Because the widespread existence of factory farms post-dates our nation’s environmental laws, they remain largely exempt from emissions regulation. In recent years, the Environmental Protection Agency, the states, and environmental groups—via citizen suits—have begun to bring CAFOs into the regulatory fold. However, scientific challenges, political gamesmanship, and the time and cost required to craft traditional regulation make the success of these programs uncertain at best.

This Note argues that proponents of factory farm regulation should adopt a new approach, focusing on information-based regulatory tools (so-called “reflexive law”). Reflexive law policies mandate the public disclosure of information, whether in the form of raw data, hazard warnings, or environmental labels. In practice, well-crafted reflexive law programs have had a powerful shaming effect on polluters, while also enabling consumers, business partners, and even shareholders to exercise their displeasure with polluting industries and their support for more environmentally responsible companies. Reflexive law is also faster and cheaper to implement than command-and-control regulation, and it represents a more politically palatable approach to the problem of CAFO pollution.

The Note explains why reflexive law is well-suited to factory farm pollution, identifies the key elements of a successful reflexive law program, and then proposes a series of reflexive law approaches for factory farms that could be enacted independently or in conjunction with more traditional regulation. It recommends immediately supplementing ongoing efforts with reflexive law programs.

INTRODUCTION

Agriculture remains the final frontier of the environmental movement. While smelters, power plants, mining operations, and automobiles are subject to a web of environmental regulations, farms still

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operate almost entirely outside that framework. Nowhere is this regulatory deficit so noticeable as in the communities surrounding the gigantic, corporate livestock and poultry facilities that have sprung up across rural America in the last twenty years. These confined animal feeding operations (CAFOs), or “factory farms,”¹ produce staggering amounts of animal waste. The waste not only releases noxious odors, making life miserable for nearby residents, but also pollutes downstream air and water, threatening the health of millions.²

Recently, however, regulators and legislators have begun paying attention. In the wake of lawsuits by environmental groups and a series of CAFO-related health disasters, including the temporary contamination of Milwaukee’s water supply from agricultural runoff³ and waste spills in the mid-Atlantic that killed millions of fish and closed beaches,⁴ the Environmental Protection Agency (EPA) in 2003 rewrote the Clean Water Act (CWA) regulations for CAFOs to expand the number of animal feeding operations which must seek discharge permits.⁵ Additionally, in January 2005, the EPA announced a consent agreement under which it will collect data about air emissions from factory farms for the next two years, with the understanding that enforcement under the Clean Air Act (CAA) will follow.⁶ At the same time, a number of states with large agricultural industries have

¹ In some of the literature on corporate farming, the phrase “factory farms” refers to all large industrialized farming enterprises. This Note will use the term to refer to industrial livestock and poultry operations only. It will use “factory farm” and “CAFO” interchangeably, even though “CAFO” has a particular definition under the Clean Water Act regulations. 40 C.F.R. §§ 122.23(b)(2), (b)(4), (b)(6), (b)(9), (c) (2004); *see infra* note 35. While cattle and dairy operations do pose environmental risks, this Note will primarily reference hog and poultry farms, which tend to be the largest and heaviest-polluting CAFO facilities. Nonetheless, the conclusions this Note reaches are applicable to all types of CAFOs.

² *See infra* notes 19–26 and accompanying text.

³ *See* INST. FOR AGRIC. & TRADE POLICY, CONCENTRATED ANIMAL FEEDING OPERATIONS: HEALTH RISKS FROM WATER POLLUTION 1 (2004), available at <http://www.environmentalobservatory.org/library.cfm?refID=37390>. In 1993, an outbreak of waterborne cryptosporidiosis afflicted 403,000 people in the Milwaukee area, causing abdominal cramps, fever, and vomiting, and ultimately killed fifty-four. *Id.* While an exact source could not be identified, there are a number of dairy farms along the river that feed Milwaukee’s water supply, and *Cryptosporidium* is common on dairy farms—its presence in water supplies has been linked to manure applications. *Id.*

⁴ *See infra* note 20.

⁵ National Pollution Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for CAFOs, 68 Fed. Reg. 7176 (Feb. 12, 2003) (codified at 40 C.F.R. §§ 122.21–.23, 122.42, 123.36, 412.1–.47 (2004)) [hereinafter 2003 CAFO Rule]. *But see* Waterkeeper Alliance, Inc. v. Env’tl. Prot. Agency, 399 F.3d 486, 490 (2d Cir. 2005) (finding that portions of 2003 CAFO Rule “violate the express terms of the Clean Water Act”).

⁶ Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958, 4958–59 (Jan. 31, 2005).

tightened the monitoring and regulation of factory farms.⁷ Finally, over the last three years, the Sierra Club has brought successful citizen suits against major meat producers for violating federal emissions reporting requirements.⁸ As a number of environmental groups have noted, these steps may turn out to be insufficient,⁹ but they nevertheless represent a turning point.

Though diverse in their origin and methodology, the recent regulatory actions and lawsuits share a common element: a focus on the production and reporting of emissions information. Information provision can play an invaluable regulatory role, not only as a foundation for further regulation, but also as a means of spurring better behavior by polluters.¹⁰ Indeed, an entire body of scholarship has developed around information-based regulatory schemes, often referred to collectively as “reflexive law” approaches.¹¹ In reflexive law regimes, the production and dissemination of information creates pressure from consumers, neighbors, and shareholders and thus prompts companies to reduce their pollution, in the absence of command-and-control regulation.¹²

The regulatory steps taken to date by the EPA, and through the Sierra Club litigation, however, will fail to generate the most important benefits that reflexive law offers. Nonetheless, if designed correctly, a reflexive law approach holds great potential to reduce pollution from factory farms, either alone or in conjunction with command-and-control regulation.

Part I of this Note briefly charts the rise of factory farms and discusses their many environmental problems. It then examines the current regulatory framework for factory farm pollution. Part II

⁷ See *infra* notes 40–46 and accompanying text.

⁸ See *infra* Part I.C.3.

⁹ See *infra* Part I.C. This Note will concur that these steps are unlikely to curb significantly factory farm pollution.

¹⁰ See *infra* Part II.

¹¹ See generally Bradley C. Karkkainen, *Information As Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257 (2001) (arguing that reflexive law creates transparent and information-rich environment in which internal and external monitors can better evaluate and track performance, demand improvements, and hold managers accountable); Peter S. Menell, *Structuring a Market-Oriented Federal Eco-Information Policy*, 54 MD. L. REV. 1435 (1995) (suggesting that market-oriented approach to eco-information policy calls for more decentralized, integrated framework involving all levels of government); Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227 (1995) (arguing that European “Eco-Management and Audit Schemes” represent viable reflexive law program that should be considered in United States); Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. L. REV. 21 (2001) (presenting overall structure for categorizing and analyzing various reflexive law tools and arrangements).

¹² See *infra* notes 89–92 and accompanying text; *infra* Part II.B.3.

introduces the concept of reflexive law and assesses the factors that contribute to the success of an information-based regulatory approach. Part III then explores the viability of creating a new reflexive law approach to address factory farm pollution, evaluating why reflexive law is a good match for CAFO pollution and which reflexive law tools would have the greatest potential to succeed in this area.

I

FACTORY FARM POLLUTION: ENVIRONMENTAL HARMS AND CURRENT ATTEMPTS TO ADDRESS THEM

The archetypal image of the pastoral farm bears little resemblance to modern poultry or livestock production. Driven by pricing pressure, industry consolidation, and advances in technology and veterinary antibiotics, farmers have replaced free-grazing herds with animal warehouses, feeding and housing thousands of pigs, chickens, or turkeys at a single facility.¹³ While the number of animals produced in the U.S. for food consumption has significantly increased over the past thirty years, the number of livestock and poultry *facilities* has declined dramatically.¹⁴ The remaining facilities are typically run by large corporations, which either operate the farms themselves or contract with independent growers who raise animals owned by the corporate entity.¹⁵

¹³ See U.S. DEP'T OF AGRIC. & U.S. ENVTL. PROT. AGENCY, UNIFIED NATIONAL STRATEGY FOR ANIMAL FEEDING OPERATIONS, at ch. 2.1 (1999), available at <http://www.epa.gov/npdes/pubs/finafost.pdf> [hereinafter USDA/EPA, UNIFIED STRATEGY].

¹⁴ U.S. DEP'T OF AGRIC., 2002 CENSUS OF AGRICULTURE 6 tbl.1 (2002), available at <http://www.nass.usda.gov/census/census02/volume1/us/USVolume104.pdf> [hereinafter 2002 AG CENSUS]. Since 1974, while the number of hogs sold in America has more than doubled, the number of hog farms has decreased by 82%. *Id.* (All percentages in this footnote are calculated by the author). The number of farms producing broiler chickens has declined by 7% over that same period, while the number of broilers produced has more than tripled. *Id.* In 2002, 81% of hogs were produced in the largest facilities (those producing 5000 or more hogs per year), compared to only 28% in 1992. *Compare id.* at 21 tbl.21 (providing breakdown of hog sales in 2002), with U.S. DEP'T OF AGRIC., 1997 CENSUS OF AGRICULTURE 34 tbl.31 (1997), available at http://www.nass.usda.gov/census/census97/volume1/us-51/us1_31.pdf (providing same data for 1992). Likewise, 53% of broiler chickens produced in 2002 were raised in facilities that produce more than 500,000 birds annually, compared to only 35% in 1992. *Compare* 2002 AG CENSUS, *supra*, at 23 tbl.27 (providing breakdown of poultry sales in 2002), with U.S. DEP'T OF AGRIC., 1997 CENSUS OF AGRICULTURE 28 tbl.19 (1997), available at http://www.nass.usda.gov/census/census97/volume1/us-51/us1_19.pdf (providing same data for 1992); see also Staci J. Pratt et al., *A Comparison of US and UK Law Regarding Pollution from Agricultural Runoff*, 45 *DRAKE L. REV.* 159, 161–62 (1997) (describing trends contributing to industrialization of agriculture and offering statistics confirming trend).

¹⁵ Under this “contract growing” or “integrator” model, nominally independent farmers raise animals they never own, housing them in buildings they did not build, fat-

The consolidation of so many animals in so few facilities has created a serious waste problem. CAFOs generate a staggering amount of animal waste (estimated at upward of 500 million tons per year, at least three times more than all the human waste generated in America).¹⁶ This waste—a mixture of feces, urine, bedding, hair, and occasionally animal carcasses—is typically stored in giant concrete or earthen pits, euphemistically called “lagoons.”¹⁷ When the lagoons approach capacity, the *untreated* waste is typically sprayed, spread, or poured onto nearby fields as fertilizer, and over-application of manure to fields is all too common.¹⁸ Not only do such concentrated amounts of manure pose health risks to workers and nearby residents, but the potential harm to a watershed from a single flood event or lagoon collapse is far greater than in previous generations, when animals were housed at thousands of smaller, dispersed facilities.

tening them on feed provided by the corporate parent, and then turning over the animals for slaughter in exchange for a set fee. See, e.g., National Pollution Discharge Elimination System Permit Regulation and Effluent Guidelines and Standards for CAFOs, 66 Fed. Reg. 2960, 2963 (proposed Jan. 12, 2001) (codified at 40 C.F.R. §§ 122.21–23, 122.42, 123.36, 412.1–47 (2004)) [hereinafter Proposed Rule] (describing increased use of contract “integrator[]” model); Charles W. Abdalla, *The Industrialization of Agriculture: Implications for Public Concern and Environmental Consequences of Intensive Livestock Operations*, 10 PENN ST. ENVTL. L. REV. 175, 178–82 (2002) (same); Tyson Foods, Inc., Company Information, <http://www.tysonfoodsinc.com/corporate/info/growers.asp> (last visited Aug. 9, 2005) (describing contract growing method Tyson employs with over 6500 farms).

¹⁶ 2003 CAFO Rule, *supra* note 5, at 7180. A single 2500-hog CAFO may generate nearly 50 million gallons of liquid manure waste and slurry per year. See DAVID A. CROUSE ET AL., N.C. STATE UNIV., *USE OF ON-FARM RECORDS FOR MODIFYING A CERTIFIED ANIMAL WASTE MANAGEMENT PLAN 1* (2000), available at <http://www.soil.ncsu.edu/publications/Soilfacts/AG-439-42/ag-439-42.pdf> (detailing per-animal statewide waste generation averages for farrow-to-finish operations).

¹⁷ Lagoons come in all shapes and sizes but the most dangerous ones, from a pollution standpoint, are outdoor earthen lagoons. See *infra* note 20. For that reason, Minnesota and North Carolina have placed moratoria on the construction of new outdoor lagoons for swine manure unless they meet highly specific technological requirements. Jody M. Endres & Margaret Rosso Grossman, *Air Emissions from Animal Feeding Operations: Can State Rules Help?*, 13 PENN ST. ENVTL. L. REV. 1, 9, 42 (2004).

¹⁸ See, e.g., U.S. ENVTL. PROT. AGENCY, EPA-821-B-01-001, ENVIRONMENTAL ASSESSMENT OF PROPOSED REVISIONS TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REGULATION AND THE EFFLUENT GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (2001), at 2-1, available at <http://www.epa.gov/ost/guide/cafo/pdf/EnvAssessPt1of2.pdf>; cf. U.S. Dep’t of Agric., *Confined Animal Production Poses Manure Management Problems*, AGRIC. OUTLOOK, Sept. 2000, at 12, 14, available at <http://www.ers.usda.gov/publications/agoutlook/sep2000/ao274f.pdf> (reporting that CAFO-owned farmland can assimilate only thirty-eight percent of nitrogen created by CAFO animal waste). The impact of field application on nearby water bodies can be exacerbated by heavy rainfall, proximity to surface water, and application onto frozen or already-saturated fields. U.S. ENVTL. PROT. AGENCY, *supra*, at 2-16.

A. Significant Environmental Harms

As has been often discussed in the academic literature, CAFOs pose major pollution risks to both groundwater and surface water. Animal waste contains large amounts of nitrogen and phosphorous, and when it is over-applied to land, it runs off into nearby streams or rivers, causing algal growth and choking off oxygen for fish.¹⁹ Large open-air lagoons of liquid manure, which have been outlawed in a few states but remain quite common, are particularly at risk for spills and collapses, especially in times of heavy rain.²⁰ Even when factory farm waste does not run off or spill over, it often seeps through lagoon walls or soil in the fields, polluting groundwater with nitrates and phosphorous and threatening the water supplies of downstream populations.²¹

The dangers posed by CAFO air emissions are a more newly recognized threat. While the odors associated with large farms and their effects on both quality-of-life and mood have been well-

¹⁹ See U.S. ENVTL. PROT. AGENCY, *supra* note 18, at 3-1 to 3-6.

²⁰ The rupture of a lagoon in North Carolina in 1995 sent twenty-five million gallons of hog waste flooding into the New River, killing ten million fish and contaminating 364,000 acres of shellfishing grounds. Tom Pelton, *Politics on the Plate*, SUN (Baltimore), Jan. 23, 2005, at 10E. Lagoon spills and collapses have occurred on a smaller scale throughout the country. One environmental organization, compiling data from state agencies, reported approximately 1000 manure lagoon spills and other pollution incidents in ten states between 1995 and 1998, which were responsible for killing over thirteen million fish. MERRITT FREY ET AL., CLEAN WATER NETWORK ET AL., SPILLS AND KILLS: MANURE POLLUTION AND AMERICA'S LIVESTOCK FEEDLOTS, at ch. 1 (2000), available at <http://www.cwn.org/docs/publications/spillkill/spillkillmain.htm>; see also *Huge Manure Spill Imperils Water Supplies*, CHI. TRIB., Aug. 14, 2005, at 12 (detailing three million gallon manure spill from dairy operation in August 2005 that killed thousands of fish and threatened contamination of Watertown, New York water supply); Tom Meersman, *State Officials Confirm Recent Manure Spill Near Olivia*, STAR TRIB. (Minneapolis), Aug. 17, 2000, at B3 (describing 1997 spill of 70,000 to 100,000 gallons of hog waste that killed nearly 700,000 fish and subsequent 2000 spill of 10,000 to 100,000 gallons).

²¹ U.S. ENVTL. PROT. AGENCY, *supra* note 18, at 2-20 to 2-21 (explaining how nitrate contamination from CAFOs threatened Orange County, California, drinking water sources); MARK F. BECKER ET AL., U.S. GEOLOGICAL SURVEY, WATER-RESOURCES INVESTIGATIONS REPORT 02-4257, POSSIBLE SOURCES OF NITRATE IN GROUND WATER AT SWINE LICENSED-MANAGED FEEDING OPERATIONS IN OKLAHOMA, 2001, at 1 (2003), available at <http://water.usgs.gov/pubs/wri/wri024257/pdf/wri024257.pdf> (reporting nitrate contamination of groundwater in excess of federal standards at thirty-five swine confinements). Nitrate contamination of drinking water has been linked to serious health problems, including spontaneous abortions and methemoglobinemia—commonly known as “blue baby syndrome”—a developmental disorder. Ctrs. for Disease Control & Prevention, *Spontaneous Abortions Possibly Related to Ingestion of Nitrate-Contaminated Well Water—LaGrange County, Indiana 1991–1994*, 45 MORBIDITY & MORTALITY WKLY. REP. 569, 569 (1996), available at <http://www.cdc.gov/mmwr/PDF/wk/mm4526.pdf>; ROBBIN MARKS, CESSPOOLS OF SHAME: HOW FACTORY FARM LAGOONS AND SPRAYFIELDS THREATEN ENVIRONMENTAL AND PUBLIC HEALTH 23 (2001), available at <http://www.nrdc.org/water/pollution/cesspools/cesspools.pdf>.

documented,²² recent peer-reviewed scientific research has begun to confirm health effects from the air emissions themselves. Studies have found hydrogen sulfide, ammonia, volatile organic compounds, and particulate matter concentrations at unsafe levels in and around CAFOs.²³ CAFO workers and neighbors exposed to this mix of gases suffer conditions ranging from breathing trouble and nausea to nervous system impairment and chronic lung irritation.²⁴

While CAFO workers and nearby residents face the greatest environmental and human health risks, factory farm pollution threatens millions of Americans by contaminating urban drinking water supplies, contributing to urban and suburban smog problems,

²² See, e.g., Susan S. Schiffman et al., *The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents*, 37 BRAIN RES. BULL. 369, 371 (1995) (concluding that persons living near hog CAFOs had higher levels of tension, depression, anger, fatigue, and confusion than control group); Steve Wing & Susanne Wolf, *Intensive Livestock Operations, Health, and Quality of Life Among Eastern North Carolina Residents*, 108 ENVTL. HEALTH PERSP. 233, 236 (2000), available at <http://ehp.niehs.nih.gov/members/2000/108p233-238wing/108p233.pdf> (finding lower reported quality of life indicators among residents near hog confinements).

²³ See Iowa State Univ. & Univ. of Iowa Study Group, *Iowa Concentrated Animal Feeding Operations Air Quality Study 47–67* (2002), available at http://www.public-health.uiowa.edu/ehsrc/CAFOstudy/CAFO_final2-14.pdf [hereinafter 2002 IOWA STUDY] (summarizing data on emission rates of gases and particulates from CAFOs); Letter from Michelle M. Merkel, Senior Counsel, Env'tl. Integrity Project, et al., to John Peter Suarez, Assistant Adm'r, U.S. Env'tl. Prot. Agency, App. B, at 2–3, 7–9 (Sept. 2, 2003), available at <http://www.environmentalintegrity.org/pub76.cfm> (detailing examples of CAFOs exceeding air pollutant thresholds); see also J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 292 (2000) (reporting study that found hydrogen sulfide emissions near Minnesota feedlots “vastly exceeding state air quality standards”). Ammonia not only affects nearby residents—it also migrates downwind and ultimately deposits in distant rivers and streams, contributing to algal blooms. U.S. ENVTL. PROT. AGENCY, *supra* note 18, at 2-21 (describing ammonia deposition into surface waters as “considerable”); Stuart Leavenworth & James Eli Shiffer, *Airborne Menace*, NEWS & OBSERVER (Raleigh, N.C.), July 5, 1998, at 1A (detailing ammonia migration and its environmental effects).

²⁴ Susan S. Schiffman et al., *Health Effects of Aerial Emissions from Animal Production and Waste Management Systems*, in NAT'L CTR. FOR MANURE & ANIMAL WASTE MGMT., U.S. DEPT' OF AGRIC., WHITE PAPER SUMMARIES 10 (2001), available at http://www.cals.ncsu.edu/waste_mgt/natcenter/summary.pdf; Kendall Thu et al., *A Control Study of the Physical and Mental Health of Residents Living Near a Large-Scale Swine Operation*, 3 J. AGRIC. SAFETY & HEALTH 13, 17 (1997) (reporting significantly higher frequency of symptoms including chest tightness, shortness of breath, and nausea among people living near CAFO); Wing & Wolf, *supra* note 22, at 237 (reporting elevations of “headache, runny nose, sore throat, excessive coughing, diarrhea, and burning eyes” among neighbors of swine CAFOs). These health problems can be particularly dangerous for the elderly and people with asthma or other existing respiratory conditions. 2002 IOWA STUDY, *supra* note 23, at 122, 127, 138. For a review of scientific studies detailing the health effects suffered by CAFO workers, see INST. FOR AGRIC. & TRADE POLICY, *CONCENTRATED ANIMAL FEEDING OPERATIONS: HEALTH RISKS TO FARMERS AND WORKERS 1–2* (2004), available at <http://www.environmentalobservatory.org/library/cfm?refID=37389>.

and threatening domestic fishing and shellfishing stocks.²⁵ In addition, the antibiotics that are added to animal feed in factory farms to prevent and counter the diseases that result from such close confinement may persist in the environment and make human infections more difficult to treat.²⁶

While further studies detailing the environmental and public health risks from CAFOs are being conducted, the existing research strongly demonstrates the need for government action. The federal and state governments have begun to grapple with these issues, but their efforts have been limited.

B. Existing Regulatory Schemes

In an era when most large industries operate under the close and constant scrutiny of state and federal environmental regulators, agriculture and livestock operations remain a striking anomaly.²⁷ Their broad immunity from environmental laws derives from a number of factors, including: the recent vintage of giant factory farms;²⁸ the nonpoint nature of farm pollution;²⁹ the large number of and variation

²⁵ See *supra* notes 3, 19–21 and accompanying text; see also 2003 CAFO Rule, *supra* note 5, at 7181 (summarizing ecological and human health impacts); ; David A. Yengoyan, *Title V of the Clean Air Act: The Effects of California's Agricultural Exemption on the San Joaquin Valley*, 13 SAN JOAQUIN AGRIC. L. REV. 151, 165–68 (2003) (using California data to argue that animal waste is major contributor to regional smog and particulate matter); Tom Pelton, *Critics Charge Animal Farms Are Feeding Pollution into Air*, SUN (Baltimore), Feb. 2, 2005, at 1A (citing University of Maryland study blaming CAFO pollution for “dead zones” and fish kills in Chesapeake Bay and ten percent of nitrogen air pollution in the region).

²⁶ See Amy Chapin et al., *Airborne Multi-Drug Resistant Bacteria Isolated from a Confined Animal Feeding Operation*, 113 ENVTL. HEALTH PERSP. 137, 137, 139–41 (2005) (finding that multi-drug resistant bacteria resulting from “nontherapeutic” use of antibiotics in CAFOs may transition to humans via inhalation of air in or around CAFOs); J.C. Chee-Sanford et al., *Occurrence and Diversity of Tetracycline Resistance Genes in Lagoons and Groundwater Underlying Two Swine Production Facilities*, 67 APPLIED & ENVTL. MICROBIOLOGY 1494, 1494, 1499 (2001) (demonstrating existence of antibiotic resistant bacteria in groundwater near hog CAFOs).

²⁷ See, e.g., NAT'L RESEARCH COUNCIL, AIR EMISSIONS FROM ANIMAL FEEDING OPERATIONS: CURRENT KNOWLEDGE, FUTURE NEEDS 130 (2003), available at <http://www.nap.edu/books/0309087058/html> (“Agriculture has long enjoyed favored status under the law, and agricultural operations have been exempt from numerous federal and state laws that govern other businesses.”); Ruhl, *supra* note 23, at 293–315 (detailing exemptions from federal environmental laws).

²⁸ When the major environmental laws were written in the early 1970s, most animals were still raised on small local farms, and factory farms were uncommon. See *supra* note 14.

²⁹ Because it is not conveyed into the air or water by smokestacks or pipes, factory farm pollution is harder to measure and to control. As a result, early regulatory efforts ignored these problems in favor of the lower-hanging fruit of direct emissions. For example, the Clean Water Act categorizes most agricultural stormwater and runoff as “nonpoint source pollution” and thus exempts it from effluent limitations. David Zaring,

among farms;³⁰ and the lack of historical data detailing CAFO environmental emissions. In addition, numerous public choice breakdowns have inhibited factory farm regulation at both the state and federal levels. Public opposition to CAFOs has often failed to translate into effective regulation.³¹ Much of that disconnect can be traced to power politics: While the greatest harms from CAFOs tend to be borne by small groups of rural residents, the beneficiaries of lax regulations are powerful corporations that invest heavily in lobbying and political campaigns, skewing the discourse in state capitols and Congressional offices.³² Even the American Farm Bureau, which still purports to speak as the national voice for local family farmers, today works hand-in-hand with the major livestock and poultry companies to oppose CAFO regulation at every level.³³

Dialogue, *Federal Legislative Solutions to Agricultural Nonpoint Source Pollution*, 26 ENVTL. L. REP. 10,128, 10,136 (1996).

³⁰ These variable factors include neighboring land uses, proximity to bodies of water, and local soil and weather conditions. Ruhl, *supra* note 23, at 329–30; *see also* Endres & Grossman, *supra* note 17, at 3 (detailing reasons that uniformly measuring CAFO air emissions has been challenging). In reality though, as family farms dwindle and gigantic, cookie-cutter industrial farms become the norm, this argument may lose much of its potency.

³¹ For example, 65% of Iowa voters surveyed in January 2003 favored a moratorium on new hog farms and 58% supported passage of new laws to protect citizens from odors and gases. HILL RESEARCH CONSULTANTS, IOWA ISSUES VOTER SURVEY, JANUARY 24–27, 2003, at C2, C7 (2003), [http://www.factoryfarm.org/docs/iowa_survey_\(hogs\)_marginals_2003-01.pdf](http://www.factoryfarm.org/docs/iowa_survey_(hogs)_marginals_2003-01.pdf). Three months later though, when the state Environmental Protection Commission sought to adopt air quality standards for hydrogen sulfide and ammonia, the state legislature “nullified the new standards before they could take effect.” Endres & Grossman, *supra* note 17, at 14–15. Likewise, in Missouri, where county officials have sought to protect their citizenry by passing public health ordinances, the state legislature is preparing an industry-supported bill that would preempt stricter local regulatory action. Charlie Arnot & Cliff Gauldin, *Hog Industry Insider*, FEEDSTUFFS, Mar. 14, 2005, at 23.

³² Livestock, poultry, and egg producers spent \$9.9 million on state elections between 2002 and 2004. *See* The Institute on Money in State Politics, www.followthemoney.org (follow hyperlink to “More Search Options” then run search by selecting “all states,” “2002,” “2003,” “2004,” as well as “livestock” and “poultry & eggs” in industry category) (last visited Aug. 9, 2005). Agribusiness interests poured another \$52.7 million into federal campaigns in the 2004 cycle. *See* Ctr. for Responsive Politics, <http://www.opensecrets.org/industries/indus.asp?Ind=A> (last visited Aug. 9, 2005). The political weakness of affected parties contributes to the problem. Some studies indicate that hog and poultry corporations intentionally site their facilities in poor and minority communities, where political power is perceived as weakest. *See, e.g.,* Steve Wing et al., *Environmental Injustice in North Carolina’s Hog Industry*, 108 ENVTL. HEALTH PERSP. 225, 229 (2000), available at <http://ehp.niehs.nih.gov/members/2000/108p225-231wing/108p225.pdf> (examining locations of hog confinements in North Carolina).

³³ *See* Perry Beeman, *Iowa Environmentalists Try to Rein in Agriculture*, DES MOINES REG., Mar. 10, 2002, at 1A (quoting recently retired chief of Iowa Department of Natural Resources’s air quality division as saying, “The Farm Bureau has a big influence over what we do and don’t do.”); *see also* Jim Motavalli, *Meet the Farm Bureau: Does it Speak for the Family Farmer—or for Large-Scale Agribusiness?*, E MAG., Mar.–Apr. 2004, at 14 (ques-

1. Failures at the Federal Level

Factory farms are almost completely exempt from the major federal environmental statutes, including the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation & Recovery Act, and Comprehensive Environmental Response, Cleanup and Liability Act (CERCLA).³⁴ The exemptions, however, are not universal: CAFOs containing more than 1000 Animal Units³⁵ have been regulated as “point sources” under the CWA since 1974,³⁶ meaning that in order to discharge waste into our “nation’s waters,” they must seek permits under the National Pollution Discharge Elimination System (NPDES) and meet Effluent Limitation Guidelines.³⁷ Until recently, however, most CAFOs utilized an exception stating that NPDES permits were not required if the CAFO only discharged in the event of a twenty-five year, twenty-four hour storm event. As a result, thirty years after the CWA was passed, only about 2500 of the 12,000 qualifying CAFOs in the U.S. have obtained permits.³⁸ As Pat Gallagher and Barclay Rogers concluded, “[T]he federal regulations governing

tioning Farm Bureau’s commitment to family farmers and detailing its support for pro-corporate, anti-environmental agenda); Ruhl, *supra* note 23, at 332 (“The Farm Bureau has fought steadfastly . . . against any and all proposed environmental regulation of farms.”).

³⁴ See, e.g., Ruhl, *supra* note 23, at 293–316 (detailing exemptions and loopholes for farms under major federal environmental statutes); *supra* note 29 (noting exemptions for agricultural stormwater from Clean Water Act [CWA]). *But see infra* Part I.C.3 (explaining limited liability for factory farms under Comprehensive Environmental Response, Cleanup and Liability Act’s [CERCLA] reporting requirements). With respect to air emissions, livestock and poultry operations do produce particulate matter, a criteria pollutant regulated under § 109 of the Clean Air Act (CAA), but states determine which facilities must implement technology to reduce their emissions and most have exempted all farms. Ruhl, *supra* note 23, at 305–06. *But see* Partial Withdrawal of Approval of 34 Clean Air Act Part 70 Operating Permits Programs in California, 67 Fed. Reg. 63,551 (Oct. 15, 2002) (partially withdrawing approval of Clean Air Act permits based on state’s exemption of “major stationary agricultural sources”). Ammonia and hydrogen sulfide, two of the most common and dangerous pollutants from factory farms, are not regulated as “Hazardous Air Pollutants” (HAPs) under § 112 of the CAA, even though they technically meet the statutory hurdle to be listed. 42 U.S.C. § 7412(b)(1)–(2) (2000) (listing HAPs and providing Administrator with discretion to list any pollutants which “present, or may present . . . a threat of adverse human health effects . . . or adverse environmental effects”).

³⁵ An “animal unit” (AU) is a numerical factor, which aims to capture differences in the size of animals and their farming methods, and then translate them into a regulatory equivalent. Thus, 1000 AUs is equivalent to 1000 cattle, 2500 large swine, 30,000–100,000 broilers or laying hens (depending on the manure handling system), or 55,000 turkeys. 40 C.F.R. § 122.23(4) (2004); U.S. DEP’T OF AGRIC. & U.S. ENVTL. PROT. AGENCY, *supra* note 13, at ch. 4.2. The CWA has separate rules for small and medium-sized CAFOs. See 40 C.F.R. § 122.23.

³⁶ 33 U.S.C. § 1362(14) (2000); Feedlots Point Source Category: Effluent Guidelines and Standards, 39 Fed. Reg. 5703, 5704–07 (Feb. 14, 1974).

³⁷ 33 U.S.C. §§ 1311–1314, 1342.

³⁸ Proposed Rule, *supra* note 15, at 3008.

CAFO pollution have been some of the least enforced, least effective national standards ever.”³⁹

2. Failures at the State and Local Level

State and local governments have differed widely in their efforts to pick up the slack, and the results have been spotty. A few states have set standards regulating hydrogen sulfide,⁴⁰ or established standards and procedures for dealing with odor.⁴¹ To address water pollution risks, some states regulate setback distances, design specifications, and lining of waste lagoons;⁴² Minnesota and North Carolina have gone even further, imposing moratoria on the construction of open-air lagoons for swine manure.⁴³

However, while state legislators have been active, it is not clear that their regulations are improving conditions. Some of the laws are purely symbolic,⁴⁴ and even when there are strict rules, state regulators often lack the resources to effectively enforce them.⁴⁵ In Iowa and many other Midwestern states, powerful lobbying and protesting by agribusiness interests quickly puts an end to even moderately aggressive regulatory behavior.⁴⁶

³⁹ Pat Gallagher & Barclay Rogers, *Down on the Factory Farm*, ENVTL. FORUM, Sept.–Oct. 2003, at 30, 37.

⁴⁰ Minnesota, which has set a CAFO-specific ambient air quality standard for hydrogen sulfide and established a program for monitoring compliance, has been particularly aggressive. Endres & Grossman, *supra* note 17, at 10–11, 46. Iowa recently set an air quality standard for hydrogen sulfide emissions but did not specify any penalties for violations of the limits. Philip Brasher, *Battle Develops on Farm Pollution Reporting*, DES MOINES REG., Sept. 29, 2004, at 1A. Similarly, Texas has adopted an emissions standard for hydrogen sulfide but “do[es] not specifically require compliance with emission limitations” to obtain operating permits. Endres & Grossman, *supra* note 17, at 29.

⁴¹ Three states—Colorado, Illinois, and Missouri—set a numerical standard for odor, though their measurement methodologies differ. Endres & Grossman, *supra* note 17, at 46–47. Other states require the use of odor mitigation techniques or odor management plans, or invoke a review process when neighbors complain. *See, e.g., id.* at 33–34 (describing Illinois’s citizen enforcement process).

⁴² *See generally id.* (detailing CAFO regulations of seven states).

⁴³ *Id.* at 9, 42.

⁴⁴ *See* Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 584 (2001) (identifying symbolism as possible problem with state environmental statutes). Iowa’s hydrogen sulfide standard epitomizes such a symbolic act. *See supra* note 40.

⁴⁵ *See, e.g.*, GEN. ACCOUNTING OFFICE, GAO-03-285, LIVESTOCK AGRICULTURE: INCREASED EPA OVERSIGHT WILL IMPROVE ENVIRONMENTAL PROGRAM FOR CONFINED ANIMAL FEEDING OPERATIONS 7–11 (2003), available at <http://www.gao.gov/new.items/d03285.pdf> (detailing “inconsistent and inadequate [state] implementation” of federal standards); Gallagher & Rogers, *supra* note 39, at 40 (describing poor enforcement of CAFO regulations in Oklahoma and Minnesota).

⁴⁶ *See* DEFENDERS OF WILDLIFE, AMBER WAVES OF GAIN: HOW THE FARM BUREAU IS REAPING PROFITS AT THE EXPENSE OF AMERICA’S FAMILY FARMERS, TAXPAYERS AND

Local governments and citizens, who most directly face the health effects of CAFOs, have limited authority or resources to address them. All fifty states have right-to-farm laws, which contain legislatively-created exemptions from nuisance liability for agricultural operations.⁴⁷ Likewise local governments have sought to use their zoning and police powers to regulate the health effects of CAFOs, state governments—through preemption legislation—and state courts have often blocked their efforts.⁴⁸

C. *Recent Steps to Regulate Factory Farms*

In the last five years, the federal government has slowly begun to bring factory farms into the regulatory fold. Three significant steps have been taken in this direction: an update of the Clean Water Act CAFO regulations; a consent agreement under which EPA will begin testing air emissions from factory farms, with the goal of ultimately limiting emissions under the CAA; and prominent enforcement actions under CERCLA, first by the Department of Justice and more

THE ENVIRONMENT 23–25 (2000), available at <http://www.defenders.org/fb/awg06.pdf> (detailing Farm Bureau's opposition to state regulation in five states); Beeman, *supra* note 33, at 1A (describing Farm Bureau political activities in Iowa).

⁴⁷ Alexander A. Reinert, Note, *The Right to Farm: Hog-Tied and Nuisance-Bound*, 73 N.Y.U. L. REV. 1694, 1695 (1998). Though originally intended to protect family farmers from the complaints of “encroaching suburban homeowners,” right-to-farm laws ironically have sheltered large, corporate farms from lawsuits brought by neighboring family farmers. See Gallagher & Rogers, *supra* note 39, at 40–41 (detailing CAFO owners’ use of right-to-farm laws); see also Reinert, *supra*, at 1697, 1724–28 (same). Two state supreme courts have limited the application of right-to-farm statutes in recent years. *Gacke v. Pork Xtra, L.L.C.*, 684 N.W.2d 168, 171 (Iowa 2004) (declaring nuisance safe harbor statute for CAFOs unconstitutional under state constitution insofar as it prevents citizens from gaining remedy when nuisance constitutes “taking”); *Buchanan v. Simplot Feeders, Ltd. P’ship*, 952 P.2d 610, 615–16 (Wash. 1998) (holding right-to-farm law only provides bar against nuisance suits by residential homeowners, not by other agricultural operators). These statutes, however, remain a formidable barrier to local action.

⁴⁸ See, e.g., *Worth County Friends of Agric. v. Worth County*, 688 N.W.2d 257, 264 (Iowa 2004) (finding local air and water pollution ordinance preempted by state law); *David v. Bd. of Comm’rs*, 89 P.3d 893, 897 (Kan. 2004) (same); *Bd. of Supervisors v. ValAdCo*, 504 N.W.2d 267, 272 (Minn. Ct. App. 1993) (finding local permitting scheme preempted by state law); *Premium Standard Farms, Inc. v. Lincoln Twp.*, 946 S.W.2d 234, 238–40 (Mo. 1997) (preventing localities from using zoning power to block agricultural uses); *Craig v. County of Chatham*, 565 S.E.2d 172, 179 (N.C. 2002) (finding local siting and waste management ordinance preempted). A few lower courts have sustained local actions when they are rooted in public health concerns and do not undermine the state statute but merely supplement it. See *Blue Earth County Pork Producers, Inc. v. County of Blue Earth*, 558 N.W.2d 25, 26, 30 (Minn. Ct. App. 1997) (rejecting preemption challenge to local ordinance mandating setbacks and monitoring); *Borron v. Farrenkopf*, 5 S.W.3d 618, 619–20, 624–25 (Mo. Ct. App. 1999) (upholding local permitting requirement mandating setbacks and non-degradation of air and water). This argument remains an uphill battle though. See *Worth County*, 688 N.W.2d at 264; *David*, 89 P.3d at 897–98.

recently by the Sierra Club. However, these actions alone are unlikely to remedy the problems of factory farm pollution.

1. 2003 CAFO Rule

Recognizing that “[i]mproper management of manure from CAFOs . . . has caused serious acute and chronic water quality problems throughout the United States,”⁴⁹ the EPA in 2003 completed an overhaul of its regulatory scheme for CAFOs.⁵⁰ Most significantly, the new rule closed two loopholes that had allowed the majority of CAFOs to avoid seeking NPDES permits.⁵¹ As a result, all large CAFOs that discharge waste must acquire a NPDES permit.⁵² In addition, all CAFOs must follow Best Management Practices for handling manure and create a “nutrient management plan” (NMP) to guide their application of manure to nearby land and prevent excess runoff and discharge into rivers.⁵³

While the new CAFO rule should increase the number of CAFOs under permit—EPA estimates that closing the loopholes would immediately bring 7000 additional CAFOs into the NPDES program⁵⁴—a series of less publicized changes to the original proposed rule, and inherent limitations within the CWA, undermine its regulatory bite. First and foremost, the rule leaves a vast number of smaller (but still polluting) animal feeding operations almost entirely unregulated.⁵⁵

⁴⁹ 2003 CAFO Rule, *supra* note 5, at 7176. While this Note was in production, the Second Circuit decided a set of challenges to the 2003 rule brought by environmental groups and industry organizations. *Waterkeeper Alliance, Inc. v. Env'tl. Prot. Agency*, 399 F.3d 486, 497 (2d Cir. 2005). The court upheld some aspects of the rulemaking and struck down others. *Id.* at 524. The *Waterkeeper* holding will be reviewed as appropriate during this Part and Part III.B.1.

⁵⁰ The rulemaking, which began in 1992 as part of a consent decree between EPA and the Natural Resources Defense Council, played out over the course of more than a decade. See Proposed Rule, *supra* note 15, at 2962.

⁵¹ 2003 CAFO Rule, *supra* note 5, at 7191–92, 7195. The two loopholes were: 1) an exemption for CAFOs utilizing dry manure systems, which includes the vast majority of poultry operations, *id.* at 7191–92, and 2) an exemption for CAFOs that only discharge directly into water bodies in the event of a twenty-five year, twenty-four hour storm event. *Id.* at 7195.

⁵² *Id.* at 7182–83. A “large CAFO,” for CWA purposes, is defined as an operation housing more than 1000 AUs. See 40 C.F.R. § 122.23(a)(4) (2004); see also *supra* note 35 and accompanying text (explaining how “animal units” are calculated).

⁵³ 40 C.F.R. § 122.42(e)(1) (2004); see also 2003 CAFO Rule, *supra* note 5, at 7228–29 (discussing nutrient management plan [NMP] requirements). The NMP is a site-specific document that requires CAFO owners to develop protocols to ensure that waste is stored responsibly and not over-applied. 40 C.F.R. § 122.42(e)(1).

⁵⁴ GEN. ACCOUNTING OFFICE, *supra* note 45, at 12.

⁵⁵ The CAFO rule mandates effluent limitations and NMPs for only “large CAFOs,” those containing more than 700 dairy cattle, 2500 swine, 30,000 laying hens, 55,000 turkeys, or 125,000 chickens. 2003 CAFO Rule, *supra* note 5, at 7191. As many as 226,500 animal farms would likely remain unregulated. Compare *Waterkeeper Alliance, Inc. v. Env'tl.*

Second, with its statutory focus on direct “discharges” into the nation’s waters, the CWA does not regulate ammonia, which is released from CAFOs *through the air* but ultimately falls into rivers and streams, contributing to algal blooms, eutrophication, and fish kills.⁵⁶ In addition, the success of the revised permitting program will depend largely on the actions of states, which do the vast majority of NPDES permitting but appear to lack both the resources and the will to issue additional permits.⁵⁷

The fate of NMPs, one of the more promising elements of the Clinton-era Proposed Rule, is currently in regulatory limbo. The 2003 version of the NMP requirement, which did not require that NMPs be reviewed and approved by EPA or shared with the public, was struck down in *Waterkeeper Alliance, Inc. v. EPA*.⁵⁸ It is unclear whether EPA will simply apply the court’s decision or wholly refashion the NMP requirement. Either way, the NMP approach contains a significant flaw: So long as the CAFO is acting in compliance with a NMP, any discharges into water bodies will be treated as “agricultural storm water,” a category of pollution wholly unregulated under the CWA.⁵⁹

2. Air Emissions Consent Agreement

The EPA, in January 2005, introduced a consent agreement with the CAFO industry that includes the long-range objective of bringing factory farms within the scope of the CAA.⁶⁰ The program is essentially a negotiated deal with the CAFO industry: In exchange for the industry’s agreement to monitor air emissions outside a number of CAFOs over the next two years, EPA will grant amnesty from enforcement to any farm that joins the program.⁶¹ The regulatory

Prot. Agency, 399 F.3d 486, 492 (2d Cir. 2005) (totaling nation’s animal feeding operations at 238,000) *with* GEN. ACCOUNTING OFFICE, *supra* note 45, at 12 (estimating that revised regulations will increase to 11,500 CAFO operations required to obtain permits).

⁵⁶ See *supra* note 23.

⁵⁷ See GEN. ACCOUNTING OFFICE, *supra* note 45, at 7. EPA has had trouble getting states to actually issue CAFO permits with the conditions required by the National Pollution Discharge Elimination System (NPDES) program. *Id.* The GAO identified eleven states (with a combined total of over 1000 CAFOs within their borders) which either issue NPDES permits that do not meet NPDES standards or do not issue any permits at all. *Id.*

⁵⁸ 399 F.3d 486, 499–501 (2d Cir. 2005) (holding that, to comply with CWA, NMP must satisfy particular requirements and be reviewed and approved by EPA authorities before issuing permit); *id.* at 503–04 (holding that 2003 CAFO rule violated CWA when it blocked public participation in development and review of NMPs).

⁵⁹ 40 C.F.R. § 122.23(e) (2004). This provision of the CAFO rule was recently upheld by the Second Circuit. *Waterkeeper*, 399 F.3d at 507.

⁶⁰ See Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958, 4958 (Jan. 31, 2005).

⁶¹ *Id.* at 4963. To participate in the consent agreement, CAFOs must pay a \$2500 membership fee and a one-time penalty of \$200–\$100,000 to make up for “presumed” past air-

announcement indicates that, following the monitoring period and the subsequent development of a methodology for estimating emissions, CAFOs will be required to come into compliance with the CAA.⁶²

On paper, the program is promising, and no one can doubt the value of having the additional information.⁶³ Once again, however, the devil is in the details. The monitoring study will be organized and overseen by the CAFOs themselves, who will choose the scientific contractors to run the study.⁶⁴ While EPA will review the data and will have some oversight of the monitoring plan, there is an obvious risk that the industry's interest in the regulatory outcome may skew the results.⁶⁵ Also, the monitoring excludes application fields from the definition of "farms,"⁶⁶ even though it is the application fields that often bring the chemical-laden waste and odors so close to neighboring properties.⁶⁷ Most significantly, the actual production of emis-

quality violations. *Id.* at 4959, 4966. This is, however, far less than what farms could be required to pay if found in violation of the CAA: For example, Buckeye Egg Farms agreed to pay an \$880,598 civil penalty and \$1.6 million for technology upgrades to settle a lawsuit brought by EPA for CAA violations. Press Release, Dep't of Justice, Ohio's Largest Egg Producer Agrees to Dramatic Air Pollution Reductions from Three Giant Facilities (Feb. 23, 2004), www.usdoj.gov/opa/pr/2004/February/04_enrd_105.htm. The amnesty agreement covers not only CAA violations but also violations of mandatory reporting requirements under CERCLA and EPCRA. Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. at 4963.

⁶² Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. at 4959.

⁶³ The monitoring program fulfills one of the recommendations of a 2003 National Research Council (NRC) study that called for further research into both methods for measuring air concentrations and emission rates, and techniques for mitigating these pollutants. *See id.* at 4961; NAT'L RESEARCH COUNCIL, *supra* note 27, at 23. Even the environmental groups are pleased with the additional data this will bring to bear. *See, e.g.,* Amanda Griscom Little, *A Big To-Doo-Doo: EPA Offers Air-Pollution Immunity to Factory Farms*, GRIST MAG. (Jan. 24, 2005), http://www.grist.org/news/muck/2005/01/24/factory_farms/index.html (observing that while environmentalists are critical of some aspects of consent agreement, they agree "new data would be warmly welcomed"). It should be noted though that analyzing mitigation measures, an essential component of the NRC recommendations, is not part of the consent agreement.

⁶⁴ Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. at 4960.

⁶⁵ This presents a somewhat typical paradox, as EPA may have little choice but to rely on the industry for the requisite emissions data. *See* Cary Coglianese et al., *Seeking Truth for Power: Informational Strategy and Regulatory Policymaking*, 89 MINN. L. REV. 277, 287 (2004) (arguing that relative expertise of private firms and high costs and timing required for government to conduct its own research encourages regulators to rely on industry-provided data). Coglianese et al. suggest that amnesty agreements and other incentive deals are the best way to swiftly get the information necessary for crafting wise regulations. *See id.* at 305-24.

⁶⁶ Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. at 4963.

⁶⁷ *See supra* notes 18, 21-22 and accompanying text. The approach of excluding application fields also is inconsistent with the courts' interpretations of the "regulated area"

sion standards and permit guidelines for factory farms is years away and not at all guaranteed.⁶⁸

EPA may ultimately force factory farms to file CAA permits, but this will at best address only a portion of the air emissions problems caused by CAFOs. The CAA has no provisions that deal with odors, nor are ammonia and hydrogen sulfide currently regulated as air pollutants.⁶⁹ Therefore, the Air Compliance Agreement is unlikely to provide significant relief to downwind communities, at least in the immediate term.

3. *Citizen Suits under CERCLA and EPCRA*

In the last three years, the Sierra Club opened a new front in the effort to force factory farms to obey regulatory requirements. The group brought successful citizen suits against Seaboard Farms, one of the largest pork producers in the U.S., and Tyson Foods, America's largest chicken producer, for violating reporting requirements of the CERCLA and the Emergency Planning and Community Right-to-Know Act (EPCRA).⁷⁰

under the Clean Water Act, holding that land application fields should be considered part of the CAFO. *See, e.g.*, *Concerned Area Residents for the Env't v. Southview Farm*, 34 F.3d 114, 115 (2d Cir. 1994).

⁶⁸ Walter F. Naedele, *Farms Get Help to Avoid Raising a Stink*, PHILA. INQUIRER, June 27, 2005, at B09 (quoting EPA spokesman as cautioning that "regarding 'any Clean Air Act regulation on animal feeding operations, we're studying it but haven't made any determinations yet'"). Under the most optimistic scenario, at the end of the two-year monitoring program, assuming the data is not "inadequate," EPA would begin publishing Emissions-Estimating Methodologies within eighteen months. Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. at 4964. Were that to occur on time (sometime in 2008), EPA would then need to determine permit criteria and promulgate emission standards, a process which could itself be quite time-consuming, especially given that mitigation measures are not being studied as part of the forthcoming two-year monitoring period. This timeline itself assumes that no CAFO violates the consent agreement or sues to enjoin any rule from taking effect. Litigation could drag out the process for years, even if the challenge is ultimately unsuccessful.

⁶⁹ *See* 42 U.S.C. § 7412(b) (2000). However, ammonia and volatile organic compounds (VOCs), both CAFO pollutants, may be regulated as precursors to particulate matter and ozone (criteria pollutants), respectively. *See* NAT'L RESEARCH COUNCIL, *supra* note 27, at 132. Some VOCs are directly regulated under the Hazardous Air Pollutants (HAP) program. *Id.* at 16.

⁷⁰ *Sierra Club v. Seaboard Farms, Inc.*, 387 F.3d 1167, 1168–69 (10th Cir. 2004) (alleging CERCLA violations); *Sierra Club, Inc. v. Tyson Foods, Inc.*, 299 F. Supp. 2d 693, 699 (W.D. Ky. 2003) (alleging violations of CERCLA, Emergency Planning and Community Right to Know Act [EPCRA], and state nuisance law). After losing on summary judgment, Tyson settled and agreed to monitor and report ammonia emissions to the plaintiffs for a year, to research and report on ammonia mitigation technologies, and to plant trees (to absorb ammonia and odors) along the property border. Consent Decree, *Sierra Club, Inc. v. Tyson Foods, Inc.*, No. 4:02 CV-073-M4, at 5–6 (W.D. Ky. Jan. 27, 2005) (on file with *New York University Law Review*). The CERCLA/EPCRA reporting claim was also raised by EPA in its enforcement action against the pork producer Premium Standard

CERCLA and its regulations require that facility owners file a report whenever emissions of ammonia or hydrogen sulfide (among others) exceed 100 pounds in a twenty-four hour period.⁷¹ Failure to report knowing releases can subject the owner to criminal fines or even imprisonment.⁷² EPCRA contains similar provisions, with a focus on community awareness of chemical releases.⁷³ Because the *Seaboard* and *Tyson* courts held that contiguous livestock farms, along with their waste lagoons and application fields, should qualify as a single “facility” for reporting purposes,⁷⁴ it is likely that hundreds, if not thousands, of CAFOs are in continuous violation of EPCRA and CERCLA and that their owners should be regularly reporting their releases to the National Response Center.⁷⁵

While the Sierra Club’s recent victories are important, they cannot provide the answer to the factory farm pollution problem on their own. Such suits are time-consuming and expensive to file, in part because there is no common source of data on factory farm pollution.⁷⁶ Also, a successful CERCLA citizen suit must demonstrate that the farm actually was polluting above the acceptable level;⁷⁷ as a result, environmental groups would be wary of filing suit against all

Farms (PSF) in the late 1990s, which resulted in PSF agreeing to pay a \$1 million civil penalty and to install cleaner wastewater treatment technologies, at an estimated cost of \$50 million. Consent Decree, *Citizens Legal Envtl. Action Network, Inc. v. Premium Standard Farms, Inc.*, 97-6073-CV-SJ-6, at 5, 16–18 (W.D. Mo. Jan. 24, 2002), available at <http://www.epa.gov/compliance/resources/decrees/civil/mm/psfcd.pdf>; Press Release, Dep’t of Justice, *Nation’s Second Largest Hog Producer Reaches Settlement with U.S. & Citizen’s Group* (Nov. 20, 2001), <http://yosemite1.epa.gov/opa/admpress.nsf/b1ab9f485b098072852562e7004dc686/db8bd3f214a2406d85256b0a0079a7ee?OpenDocument> (specifying estimated cost of new technology).

⁷¹ 42 U.S.C. § 9603(a) (2000); 40 C.F.R. § 302.4 (2004).

⁷² 42 U.S.C. § 9603(b)(3) (2000).

⁷³ See *id.* § 11004(b) (requiring owner or operator of facility, as soon as she becomes aware of toxic release, to report it to state emergency planning commission and local emergency response coordinator, detailing size, time, and duration of release, and appropriate precautions to be taken). Failure to notify can subject the owner to a civil penalty of up to \$25,000 per violation. *Id.* § 11045(b)(1)(A).

⁷⁴ *Sierra Club v. Seaboard Farms, Inc.*, 387 F.3d 1167, 1170–72 (10th Cir. 2004); *Sierra Club, Inc. v. Tyson Foods, Inc.*, 299 F. Supp. 2d 693, 708–11 (W.D. Ky. 2003).

⁷⁵ A number of CAFOs have recently admitted that they are regularly emitting more than 100 pounds of ammonia a day by filing “continuous release” forms with the National Response Center. See Nat’l Response Ctr., *Query Standard Report*, http://www.nrc.uscg.mil/wdbcgi/wdbcgi.exe/WWWUSER/WEBDB.foia_query.show_parms (last visited Sept. 7, 2005) (search limited to “continuous” incidents in 2004 turned up at least fifty-nine CAFOs submitting). This would seem to be only the tip of the iceberg, given the many large CAFOs that have not reported.

⁷⁶ Cf. ROBERT V. PERCIVAL ET AL., *ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY* 997 (4th ed. 2003) (describing comparatively simpler CWA citizen suits, in which consumer or environmental groups simply check companies’ discharge reports against their permits and sue when they find discrepancies).

⁷⁷ See *supra* note 71 and accompanying text.

but the biggest CAFOs. Such a case-by-case strategy might have a moderate corrective effect, as forward-thinking CAFOs cleaned up their emissions in order to avoid a citizen suit, but with EPA announcing that it will not enforce CERCLA and EPCRA violations against parties to the Air Compliance Agreement,⁷⁸ this litigation strategy is limited.

As this Part has shown, factory farm pollution poses serious threats to air and water quality, and to human health; and current regulatory efforts will not solve the problem. The weakness of these programs derives not merely from poor design but also from the often-discussed limitations of command-and-control regulation: Such regulation requires enormous amounts of up-front data; is expensive to operate; takes a long time to develop and often triggers years of litigation; tends to be too focused on particular media and pollutants; and is often diluted by industry concerns about cost and compliance.⁷⁹ The answer is not to abandon existing statutory tactics, but rather to supplement them with approaches that are faster, cheaper, and less dependent on regulatory fine-tuning. Reflexive law provides such an alternative.

II

INFORMATION AS A REGULATORY TOOL

This Part will introduce the concept of “reflexive law,” information-based regulatory approaches that use the market power of consumers, neighbors, workers, and shareholders to pressure businesses to reduce pollution.⁸⁰ After describing reflexive law and detailing its successes, this Part will examine the key elements of a successful reflexive law program.

⁷⁸ Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958, 4963 (Jan. 31, 2005). Some commentators have also expressed concern that courts will restrict citizen suits during the period of the consent agreement. See James Bruggers, *EPA Plan Offers Farms Immunity*, COURIER-JOURNAL (Louisville, KY), Jan. 22, 2005, at 1A.

⁷⁹ See Stewart, *supra* note 11, at 21.

⁸⁰ Information-based approaches have not received much attention in the literature on factory farms, which may reflect a bias in the environmental community for command-and-control approaches, or simply the newness of both factory farming and information-based solutions. The one notable exception is J.B. Ruhl’s *Farms, Their Environmental Harms, and Environmental Law*, but even Ruhl considered information-based approaches solely as a means of establishing pollution taxes or tradable permit schemes. See Ruhl, *supra* note 23, at 337–38.

A. *The Reflexive Law Alternative*

While command-and-control environmental regulations have significantly reduced air and water pollution in the U.S. since the 1960s,⁸¹ many scholars have questioned whether rigid, top-down approaches are still appropriate once the biggest problems have been addressed and the marginal cost of pollution reduction goes up.⁸² A host of solutions have thus been offered to improve the effectiveness of environmental regulation, including pollution taxes, tradable permit schemes, and other market-based approaches.⁸³ Some of the more promising alternatives to command-and-control regulation are information-based regulatory programs, sometimes categorized under the umbrella term “reflexive law.”⁸⁴ Reflexive law approaches include mandatory reporting schemes, like the Toxic Release Inventory,⁸⁵ hazard-warning systems, like California’s Proposition 65 (Prop. 65)⁸⁶ and cigarette labels; and certification-based eco-labels.⁸⁷

1. *The Theory of Reflexive Law*

Information collection is hardly new to American regulatory law, but what distinguishes reflexive law is its emphasis on how the collected data is organized and used.⁸⁸ Reflexive law programs utilize

⁸¹ U.S. ENVTL. PROT. AGENCY, DRAFT REPORT ON THE ENVIRONMENT 2003, at ii–v (2003), http://www.epa.gov/Envindicators/roe/pdf/EPA_Draft_ROE.pdf (last visited Aug. 9, 2005).

⁸² The debate about whether to retain, abandon, or modify command-and-control environmental regulation has persisted for two decades. Stewart, *supra* note 11, at 22. For a good bibliography of the major pieces on all sides, see *id.* at 22 n.1. The command-and-control critics, however, usually do not advocate tearing down the current regulatory framework completely but rather supplementing or replacing certain pieces of it with market- or information-based tools. See *id.* at 22, 133.

⁸³ Professor Stewart provides a valuable overview of the many alternative approaches that have been suggested and advocated. See generally *id.* (cataloging and analyzing non-command-and-control options).

⁸⁴ See *supra* note 11 for a bibliography of articles outlining reflexive law principles.

⁸⁵ 42 U.S.C. § 11023 (2000); see *infra* notes 99–106 and accompanying text.

⁸⁶ CAL. HEALTH & SAFETY CODE §§ 25249.5–.13 (West 1999); see *infra* notes 106–12 and accompanying text. Proposition 65 was passed by ballot initiative as the Safe Drinking Water and Toxic Enforcement Act of 1986. See Office of Env’tl. Health & Hazard Assessment, State of California, Proposition 65, <http://www.oehha.ca.gov/prop65.html> (last visited Aug. 9, 2005).

⁸⁷ See *infra* notes 114–21. The environmental impact statement (EIS) requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(C), and similar state statutes, are also sometimes lumped together with these information-based approaches. See Stewart, *supra* note 11, at 140–41. While NEPA plays a valuable informational role, it does not generate the market responses of a reflexive law program. For that reason, and because NEPA has been addressed at length by other scholars, this Note will put NEPA and the state EIS requirements to the side.

⁸⁸ While information is gathered under many federal environmental laws, it is generally collected as a prelude to specific command-and-control responses, and therefore tends to

the public disclosure of information to force the internalization of environmental harms by polluting companies.⁸⁹ As experiments with reflexive law demonstrate, when consumers, neighbors, workers, and shareholders/investors are made aware of the dangers caused by particular products or processes, they bring their market power to bear against the offending companies—by boycotting, protesting, seeking greater regulations, or selling stock.⁹⁰ The companies, recognizing the threat of lost profits and the risk of shareholder backlash, as well as perhaps the shame of being exposed as serious polluters and the market opportunity in positioning themselves as “superior” environmental performers, then take steps to reduce their pollution.⁹¹ Information disclosure may also incentivize environmentally sound corporate behavior because this data, in the hands of potential plaintiffs or regulators, poses financial liability risks. An entity exposed as a major polluter by its own data becomes an easy target for state or federal regulators.⁹²

The other advantage of reflexive law programs is their relative administrative ease. Setting up a system whereby companies must publicly report their emissions or share environmental information with neighbors or consumers can be comparatively quick and inexpensive.⁹³ This is because reflexive law avoids the high information costs necessary to establish a particular effluent guideline or “safe” emis-

be “fragmented, piecemeal, and minimally informative” with “limited value beyond the narrowly constrained instrumental uses for which it was originally elicited.” Karkkainen, *supra* note 11, at 284, 286.

⁸⁹ Stewart, *supra* note 11, at 127.

⁹⁰ See *id.* at 131; Karkkainen, *supra* note 11, at 299–300 & nn.184–85 (describing increased role of institutional investors as outside board members in monitoring firms’ environmental performance); see also *infra* notes 103–05, 110–12 and accompanying text (detailing how negative public reaction, significant stock price decline, and legal actions have induced companies to improve their environmental policies). *But see* Stewart, *supra* note 11, at 97 (concluding that “few investors appear to base investment decisions on environmental performance”).

⁹¹ See Karkkainen, *supra* note 11, at 326–28 (detailing theory that reputational effects and pressure from consumer and business-to-business markets drives pollution reduction in programs like Toxic Release Inventory [TRI]).

⁹² Stewart, *supra* note 11, at 135; see also PERCIVAL ET AL., *supra* note 76, at 485 (stating that TRI data “helped EPA adjust its regulatory priorities”); Scott C. Fulton & Lawrence I. Sperling, *The Network of Environmental Enforcement and Compliance Cooperation in North America and the Western Hemisphere*, 30 INT’L LAW. 111, 126 n.28 (1996) (noting that EPA targets for inspection facilities that have reported extremely high levels of critical pollutants through TRI).

⁹³ For example, the TRI was functional within two years of Congressional authorization. Karkkainen, *supra* note 11, at 286–87. Within three years of the passage of Prop. 65 in California, the state had required consumer warnings for over 200 chemicals and soon thereafter established safe harbor levels for the majority of them. David Roe, *Ready or Not: The Coming Wave of Toxic Chemicals*, 29 ECOLOGY L.Q. 623, 632 (2002).

sions level: Information is the *outcome* of the program and is collected, not by an agency, but by the regulated entity itself.⁹⁴ Moreover, because reflexive law does not place rigid controls on businesses, it engenders less litigation and may not face the same risks of industry capture.

The obvious concern with reflexive law is that, because “it neither establishes formal rules of interaction nor directs substantive outcomes,”⁹⁵ a reflexive law program cannot guarantee a precise amount of environmental improvement. The ability of market actors (neighbors, consumers, shareholders) to influence businesses’ pollution levels depends on a number of factors, including the accessibility and comprehensibility of the information provided; the availability of market mechanisms for dispersed actors to overcome collective action hurdles; and industry responsiveness.⁹⁶ The efficacy of a reflexive law program also depends on the accuracy of information reported by self-interested entities, and any regime must take steps to ensure accurate reporting.⁹⁷

All of this leads some commentators to worry that reflexive law will result in less regulation and thus more pollution.⁹⁸ Of course, it seems equally possible that a reflexive law program would generate a superior result: A firm’s efficient level of pollution—the point at which the market-driven costs of being a heavy polluter equal the costs of installing cleaner technology or otherwise reducing pollution—might be lower than would be required by a command-and-control system, especially given how politicized the regulatory rulemaking process can be.

2. Current Reflexive Law Programs

Reflexive law programs implemented to date in the U.S. generally are regarded as successful. The Toxic Release Inventory (TRI), a section of the EPCRA under which certain companies with more than ten employees must annually detail their releases and deposits of cov-

⁹⁴ Karkkainen, *supra* note 11, at 291–94. This is not to say the process of establishing such a regime is costless. A successful reflexive law program requires that the data be highly accessible. See *infra* Part II.B.1. To that end, serious thought must go into how the information will be organized and presented to the public. And of course, while the costs of information collection may not fall on the government, from an economic perspective they have simply been transferred.

⁹⁵ Stewart, *supra* note 11, at 130.

⁹⁶ See *infra* Part II.B.

⁹⁷ See *infra* notes 132, 162 and accompanying text.

⁹⁸ See Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 200–02 (1998) (expressing concern about environmental effects of “self-regulation” programs).

ered chemicals,⁹⁹ stands out in particular. Environmentalists and industry leaders have praised TRI, both for its procedure and its results.¹⁰⁰ The results appear impressive: Between 1988—when companies were first required to report their chemical releases under the TRI—and 2002, total disposal and release of TRI chemicals decreased by forty-nine percent,¹⁰¹ despite significant growth in the U.S. economy. While some of this decline may derive from improved manufacturing efficiency, substitutability with unregulated chemicals, changed market conditions, or outsourcing of manufacturing,¹⁰² both empirical and anecdotal evidence indicate that consumer and community activism, along with the “naming and shaming” of publicly reporting chemical releases, contributed markedly to the decrease.¹⁰³ Preliminary studies indicate that publication of negative TRI information lowered workplace morale and generated shareholder pressure for improvement.¹⁰⁴ Likewise, and importantly, many credit the public response to TRI data for spurring Congress to strengthen the

⁹⁹ See 42 U.S.C. § 11023(a)–(c) (2000). However, factory farms are not among the industries subject to TRI requirements. See *id.* § 11023(b)(1)(a) (limiting TRI to Standard Industrial Codes [SIC] 20–39); Occupational Safety & Health Admin., Dep’t of Labor, SIC Division Structure, http://www.osha.gov/pls/imis/sic_manual.html (last visited Aug. 9, 2005) (specifying SIC codes).

¹⁰⁰ See Karkkainen, *supra* note 11, at 287 & nn.130–32 (reporting positive comments about TRI from EPA administrators, business leaders, and environmental groups).

¹⁰¹ U.S. ENVTL. PROT. AGENCY, U.S. EPA TOXICS RELEASE INVENTORY—2002 DATA RELEASE: SUMMARY OF KEY FINDINGS 10 (2004), available at http://www.epa.gov/tri/tri_data/tri02/TRI_2002_Key_Findings.pdf. On a case-by-case basis, the numbers are sometimes more dramatic, “often in the range of fifty, seventy, or even ninety percent reductions from initial TRI-reported levels.” Karkkainen, *supra* note 11, at 297.

¹⁰² See Jan Mazurek, *How Fabulous Fablelessness?*, GREENER MGMT. INT’L., Dec. 22, 2000, at 59–65 (explaining that TRI is poor benchmark for semiconductor industry because of restructuring and outsourcing).

¹⁰³ In the wake of the first TRI data release, outraged neighbors pressured companies to reduce emissions. See Editorial, *A Good Pollution Report*, TIMES-PICAYUNE (New Orleans), Dec. 8, 1995, at B6 (attributing 65.8% reduction in local emissions largely to “public attention focused on pollution by the [TRI]”); Ken Ward, Jr., *2 Chemical Plants Halve Toxic Emissions, Scorecard Reports*, CHARLESTON GAZETTE (W. Va.), Jan. 3, 1995, at 1D (reporting that “citizen and media scrutiny” spurred local toxic emissions cuts).

¹⁰⁴ See, e.g., James T. Hamilton, *Pollution as News: Media and Stock Market Reactions to the Toxic Release Inventory Data*, 28 J. ENVTL. ECON. & MGMT. 98, 109, 112 (1995) (finding statistically significant share price drop for firms reporting large TRI emissions); 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, 120, 123 (1997) (concluding that firms that suffered negative stock performance in wake of TRI announcements reduced their toxic emissions more than industry average); see also Karkkainen, *supra* note 11, at 260 n.7 (describing additional analyses conducted in 1990s by economists in U.S. and abroad indicating correlation between negative environmental information and stock price declines).

Hazardous Air Pollutants (HAP) program as part of the 1990 Clean Air Act.¹⁰⁵

California's Prop. 65,¹⁰⁶ a hazard warning approach, works not by disclosing reams of information but rather by directly communicating an environmental risk or danger to the public. Under the primary section of Prop. 65's regulatory scheme, businesses selling any product that contains a chemical known by California to cause cancer or reproductive health problems must provide a "clear and reasonable warning,"¹⁰⁷ unless the manufacturer demonstrates that the amount of the carcinogen falls below a *de minimis* level.¹⁰⁸ While some have questioned the information value of Prop. 65's hazard warnings,¹⁰⁹ the fear of placing a toxicity warning on their products has spurred numerous companies to remove toxic chemicals from their products.¹¹⁰ In addition, by making manufacturers prove their way out of compliance, California (with the help of industry) has been able to establish "safe" levels of exposure far more quickly and less contentiously than the EPA.¹¹¹

¹⁰⁵ See, e.g., John C. Dernbach, *The Unfocused Regulation of Toxic and Hazardous Pollutants*, 21 HARV. ENVTL. L. REV. 1, 41 (1997) (tracing Congressional action expanding HAP program to surprisingly large chemical releases reported in TRI); see also PERCIVAL ET AL., *supra* note 76, at 485-86 (describing relationship between TRI and 1990 CAA Amendments). This example demonstrates that the data generated by reflexive law programs can affect pollution levels not only by stimulating consumer and market pressure but also by acting as a springboard to more traditional forms of environmental regulation.

¹⁰⁶ CAL. HEALTH & SAFETY CODE §§ 25249.5-13 (West 1999).

¹⁰⁷ See *id.* § 25249.6 (mandating warnings for all "knowing[] and intentional[]" exposures). The label must include language stating: "WARNING: This product contains a chemical known to the State of California to cause cancer [or birth defects or other reproductive harm]." CAL. CODE REGS. tit. 22, § 12601(b)(4) (2005). Failure to do so can result in fines up to \$2500 per day per violation. CAL. HEALTH & SAFETY CODE § 25249.7(b). Prop. 65 also covers employment-related exposures and environmental exposures. CAL. CODE REGS. tit. 22, § 12601(c)-(d); see also *infra* notes 166-68 and accompanying text (explaining further how Prop. 65 warnings operate).

¹⁰⁸ The *de minimis* exception applies to products and situations where "exposure [to the carcinogen] poses no significant risk assuming lifetime exposure at the level in question." CAL. HEALTH & SAFETY CODE § 25249.10(c). The burden falls on the business to prove that the risk is sufficiently minimal. *Id.*

¹⁰⁹ Michael Barsa, Note, *California's Proposition 65 and the Limits of Information Economics*, 49 STAN. L. REV. 1223, 1228-35 (1997) (reviewing scholarly criticism from information economists and risk specialists). The primary criticisms are that these warnings fail to appropriately explain the degree of risk and that they over-emphasize fairly minimal risks. *Id.* at 1228-31; see *infra* note 127 and accompanying text.

¹¹⁰ See PERCIVAL ET AL., *supra* note 76, at 478; Clifford Rechtschaffen, *How to Reduce Lead Exposures with One Simple Statute: The Experience of Proposition 65*, 29 ENVTL. L. REP. 10,581, 10,584-85 (1999) (explaining that faucet manufacturers agreed to major reformulations to make their products lead-free in face of Prop. 65 lawsuit); Barsa, *supra* note 109, at 1240-41 (detailing major product reformulations that occurred in wake of Prop. 65).

¹¹¹ See *infra* note 130 and accompanying text.

By contrast, environmental labels, or “eco-labels,” attempt to change consumer buying patterns not by warning consumers of negative risks but rather by communicating positive attributes about a product or its production method, often in the form of a regulated stamp or seal. While the barriers to creating and publicizing an eco-label are significant,¹¹² eco-labels have proven quite popular both in the U.S. and abroad.¹¹³ Prominent examples of eco-labels include the federal government’s “Energy Star” label for efficient home appliances, lighting, and heating and cooling systems;¹¹⁴ the international non-profit Forest Stewardship Council’s “checkmark and tree” logo for environmentally responsible timber products;¹¹⁵ the non-profit Marine Stewardship Council’s “checkmark and fish” logo for fish produced by “well-managed sustainable fisher[ies];”¹¹⁶ and the USDA’s “organic” label for particular crops and consumer products.¹¹⁷ Eco-labeling programs can serve a valuable market need, while generating profits for participating companies. One example is the market for organic-labeled food products, which grew to \$11 billion in 2003 and is expected to approach \$22 billion by 2010.¹¹⁸ Another success has been the “Energy Star” label, which has sixty-four percent recognition among the American public¹¹⁹ and graces over 28,000 individual product models; Americans have purchased more than one billion Energy Star-certified products since the program’s inception, helping to save about 20,000 megawatts of power per year.¹²⁰

¹¹² See *infra* Part III.C.3.

¹¹³ Stewart, *supra* note 11, at 136–38. Professor Stewart points out, though, that the success of eco-label programs has been mixed, in part because of “lack of consumer awareness or interest.” *Id.* at 139.

¹¹⁴ See Energy Star, <http://www.energystar.gov> (last visited Aug. 9, 2005).

¹¹⁵ See The Forest Stewardship Council, <http://www.fscus.org> (last visited June 8, 2005); Steve Joyce, *Home Depot to Sell More Environmentally Friendly Lumber*, BUILDING ONLINE, Dec. 4, 2003, <http://www.buildingonline.com/news/viewnews.pl?id=2747> (detailing application and audit process required to obtain certification); see also Errol E. Meidinger, *The New Environmental Law: Forest Certification*, 10 BUFF. ENVTL. L.J. 211, 215–24 (2003) (describing elements of forest certification programs).

¹¹⁶ See Marine Stewardship Council, Fisheries, http://eng.msc.org/html/content_530.htm (explaining certification principles) (last visited Aug. 9, 2005).

¹¹⁷ See U.S. Dep’t of Agric., The National Organic Program—Background Information, <http://www.ams.usda.gov/nop/FactSheets/Backgrounder.html> (last visited Aug. 4, 2005).

¹¹⁸ INT’L TRADE ADMIN., U.S. DEP’T OF COMMERCE, 2004 INDUSTRY OUTLOOK FOR PROCESSED FOODS 5, available at http://www.ita.doc.gov/td/ocg/outlook_food04.pdf (last visited Aug. 9, 2005).

¹¹⁹ Press Release, U.S. Evtl. Prot. Agency, Awareness of Energy Star Above 60 Percent (Feb. 23, 2005), available at http://www.energystar.gov/ia/news/downloads/awareness_press_advisory05.pdf.

¹²⁰ ENVTL. PROT. AGENCY, PROTECTING THE ENVIRONMENT—TOGETHER: ENERGY STAR® AND OTHER VOLUNTARY PROGRAMS, 2003 ANNUAL REPORT 4 (2004), available at http://www.energystar.gov/ia/news/downloads/annual_report_2003.pdf.

In light of these successes, and considering the challenges that have plagued efforts to regulate farms using traditional means, it is worth considering how reflexive law could be utilized to address factory farm pollution.

B. What Makes Reflexive Law Effective

Designing a reflexive law program to address factory farm pollution requires a detailed understanding of why reflexive law works. Obviously, the provision of information by companies does not alone guarantee environmental improvement. Reflexive law programs achieve success by: 1) providing information in a clear and accessible format; 2) shifting burdens of production; and 3) creating incentives for corporations to alter their behavior.

1. Clarity/Accessibility of Information

Clear and accessible information is essential to a successful reflexive law program. Especially where a mandatory disclosure approach is utilized, the collected data must be highly searchable, manipulable, and comparable. For example, once companies submit their chemical release reports under the TRI program, the data reports are filed in a publicly available database, which can be sorted and analyzed according to chemical and zip code, among other criteria.¹²¹ Professor Karkkainen posits that TRI's easily accessible database queries facilitate valuable internal and external corporate benchmarking within an industry—the availability of comparative information creates pressure on managers from communities, shareholders, and senior executives to both bring their pollution levels in line with comparable businesses and to show improvement over time.¹²² A secondary benefit of well-organized and easily comparable data is that it becomes easier to catch companies who are reporting false data, an ongoing concern for a regime that depends on self-reporting.¹²³

One criticism of the TRI, however, is that its focus on particular toxic chemical releases limits its usefulness as a genuine indicator of a company's overall environmental responsibility.¹²⁴ The certification

¹²¹ See U.S. Env'tl. Prot. Agency, TRI Explorer, Chemical Report, <http://www.epa.gov/triexplorer/> (last visited Aug. 9, 2005).

¹²² Karkkainen, *supra* note 11, at 297–99, 323–24.

¹²³ Cf. Coglianese et al., *supra* note 65, at 333 (“[F]irms have an added incentive to be honest, knowing that others will provide a check on what they say.”).

¹²⁴ Karkkainen, *supra* note 11, at 331–32. The challenge of identifying a site's environmental impacts across media (incorporating air and water pollution, ground contamination, and toxic pollution) is underscored by Environmental Defense's useful (but inherently

program of the non-profit Forest Stewardship Council, which certifies forest products as environmentally friendly based on criteria ranging from indigenous rights to various ecological impacts, exemplifies more of a cross-media analytical approach.¹²⁵

For consumers, communities, or shareholders to utilize the information produced by a reflexive law program, the output also must be comprehensible. The eco-label, which distills numerous environmental factors into a single yes/no stamp of approval, is in some ways the model of clarity, presuming that consumers actually know the principles for which it stands.¹²⁶ The desire for simple messages, though, has its own drawbacks. The straightforward Prop. 65 product warning—"This product contains a chemical that causes cancer"—has been strongly criticized for its failure to distinguish among varying levels of risk or to instruct consumers how to minimize the risks.¹²⁷ The same challenge exists for products that either bear or do not bear an eco-label—within a group of products that all bear or do not bear the label, there is no way to differentiate which is more eco-friendly. A reflexive law program therefore must choose between the competing principles of clarity and completeness, or, ideally, strive for a mix of both.

incomplete) "Scorecard." See Environmental Defense, Scorecard: The Pollution Information Website, <http://www.scorecard.org> (last visited Aug. 9, 2005). Currently assembled data differs dramatically by medium and cannot be consolidated.

¹²⁵ See Forest Stewardship Council, Principles and Criteria, http://www.fscus.org/standards_criteria/ (last visited Aug. 9, 2005). There remains, however, a fair amount of uncertainty about how the Forest Stewardship Council (FSC) standards operate in practice. See Hale E. Sheppard, *Timber Certification: An Alternative Solution to the Destruction of Chilean Forests*, 14 J. ENVTL. L. & LITIG. 301, 308 & nn.24–25, 324–25 (1999) (pointing out variations in application of FSC standards and risks of manipulation and fraud by participants). The FSC standards thus provide a helpful starting point but should not necessarily be utilized as a model.

¹²⁶ That is hardly a given, though. The Organization for Economic Cooperation and Development (OECD) has argued that consumer confusion resulting from the proliferation of different and competing labels is the primary factor that has limited the success to date of eco-label programs. Brian Schwartz, Note, *WTO and GMOs: Analyzing the European Community's Recent Regulations Covering the Labeling of Genetically Modified Organisms*, 25 MICH. J. INT'L. L. 771, 779 (2004) (citing OECD, ECO-LABELING: ACTUAL EFFECTS OF SELECTED PROGRAMMES 67 (OECD, Working Paper No. 44, vol. V, 1997)).

¹²⁷ See Barsa, *supra* note 109, at 1228–33; George H. Soares, *Agriculture in Crisis: What California Must Do to Protect Its Most Precious Industry*, 11 SAN JOAQUIN AGRIC. L. REV. 19, 21 (2001) (arguing that ubiquity of carcinogenic chemicals, and thus Prop. 65 warnings, "devalu[es] warnings provided for more significant exposures"). A famous survey from 1987 indicated that when a Prop. 65 warning was placed on a box of cereal, one-third of the people who saw it "believed the [equivalent] product risk of the cereal fell between one and five packs of cigarettes." Barsa, *supra* note 109, at 1230 (citing W. KIP VISCUSI, PRODUCT-RISK LABELING: A FEDERAL RESPONSIBILITY 67 (1993)).

2. *Shifting Burdens of Production*

As discussed earlier, one inherent drawback of command-and-control regulation is the amount of information required to set a specific numerical ambient air standard, effluent limit, or reasonable risk level.¹²⁸ This difficulty makes regulation both costly and time-consuming. The appeal of reflexive law is that it lowers start-up costs: Government is not required to bear the burden of collecting information or setting risk levels up front. Under EPCRA, for instance, once a facility's emissions exceed a specified threshold (selected not based on risk or safety, but simply as a significant quantity), it must report the emissions or provide a warning. Failure to do so exposes the company to EPA enforcement and civil penalties.¹²⁹

Prop. 65 takes the burden-shifting idea to a new level. Once a chemical is listed as carcinogenic, any product containing it or any facility emitting it must provide appropriate warning, unless its manufacturer can show that the product contains less than a scientifically validated *de minimis* amount. This requirement has had an unexpected but logical effect: Instead of withholding data and fighting tooth-and-nail with the regulatory agency against the setting of an appropriate risk level, companies subject to Prop. 65 requirements have cooperated and worked with the government to quickly and fairly set a *de minimis* risk level (so that they know whether they must provide a warning).¹³⁰ In the case of Prop. 65, this shifted burden—to prove your way out of compliance—is backed up by steep penalties,¹³¹ as well as an aggressive citizen suit provision that awards twenty-five percent of the penalties to the person who brings a successful suit against a business for failing to warn.¹³² The burden-shifting, com-

¹²⁸ See Karkkainen, *supra* note 11, at 266; cf. Dernbach, *supra* note 105, at 28–29 (identifying difficulty of determining toxicological effects of pollutants and their migration through environments).

¹²⁹ See *supra* note 73.

¹³⁰ Roe, *supra* note 93, at 631–33. As a result of this industry cooperation, California was able to set quantitative risk-safety levels for 300 chemicals within five years, and was not challenged in court on any of them. *Id.* at 632–33; David Roe, *An Incentive-Conscious Approach to Toxic Chemical Control*, 3 *ECON. DEV. Q.* 179, 181 (1989) (“California managed to draw bright lines for more chemicals in the first twelve months of the Proposition 65 era than the federal government had managed to accomplish, under the supposedly omnibus Toxic Substances Control Act, in the previous twelve years.”).

¹³¹ Violators are subject to penalties of up to \$2500 per day per violation. CAL. HEALTH & SAFETY CODE § 25249.7(b) (West 1999).

¹³² See *id.* § 25249.7(d) (authorizing citizen suits); *id.* § 25192(a)(2) (authorizing twenty-five percent recovery to party that brings suit); Kara Christenson, *Interpreting the Purposes of Initiatives: Prop. 65*, 40 *HASTINGS L.J.* 1031, 1039 & nn.62–63 (1989) (describing citizen suit award provision).

bined with this bounty hunter provision, have been critical to Prop. 65's success.¹³³

3. Behavior-Altering Incentives

Reflexive law cannot pose a viable alternative to command-and-control regulation—and arguably is not worth the effort as a supplement to traditional regulatory means—if it does not actually induce businesses to change their behavior. Therefore, in evaluating potential reflexive law solutions, it is important to consider both *who* will utilize the provided information (neighbors, consumers, shareholders, supply chain partners, internal corporate employees, etc.) and *how* their reactions will, or will not, generate changes in corporate environmental conduct. The TRI appears to have worked because neighbors expressed outrage and the companies, many of whom employed those neighbors, were embarrassed by the negative publicity. In addition, shareholders discounted the value of companies they believed faced substantial environmental liability as a result of their toxic releases. Prop. 65 warnings, in part because of their stark simplicity, threatened to deter consumers from purchasing products if companies did not reformulate them to remove carcinogenic or toxic ingredients. Eco-labels and certification programs provide a meaningful consumer mechanism for rewarding more environmentally friendly products. As a result, major manufacturers and retailers are adding certified or eco-labeled alternatives to their product lines.¹³⁴

External factors may further increase the likelihood of altered corporate behavior in response to reflexive law programs. First, where there is a high degree of substitutability, for consumers choosing among products or for businesses choosing among raw materials or production processes, the repercussions for companies' failure to make environmentally responsible choices will be greater.¹³⁵ Companies facing lost market share, bad publicity, and even declines in stock price, are more likely to improve their environmental practices. Second, companies may alter their reactions depending on their

¹³³ See Rechtschaffen, *supra* note 110, at 10,590–91.

¹³⁴ The strong growth of the organic food industry is a telling example. As consumer understanding of and demand for organic-labeled foods has grown, large industry players have introduced their own organic food products, further legitimizing the organic industry. See Sarah Theodore, *The New Look of Organic*, BEVERAGE INDUSTRY, June 1, 2004, at 34. The mere existence of the Forest Stewardship Council's certification program enabled consumers and environmental groups to push retailers like Lowe's and Home Depot to begin selling and promoting FSC-certified lumber. See *infra* note 178.

¹³⁵ See Barsa, *supra* note 109, at 1244–45.

perception of the affected group's political power.¹³⁶ Thus, the broader and more mainstream the parties pressuring a company, the more likely the company is to respond swiftly and positively. Third, to the degree that shareholder pressure can alter corporate behavior, public companies are more likely to change their behavior in response to negative environmental data or environmental market opportunities.

Having detailed the theoretical underpinnings of reflexive law and the key success factors of a reflexive law program, this Note will now evaluate the potential benefits and risks of using reflexive law tools to address CAFO pollution.

III

DESIGNING A REFLEXIVE LAW SOLUTION TO FACTORY FARM POLLUTION

This Part will lay out the foundation of a specific reflexive law approach for CAFOs. It will first argue that reflexive law is particularly well-suited for addressing factory farm pollution. It will then use the key success factors identified in Part II.B—clarity and accessibility of information, burden-shifting, and incentives for altering corporate behavior—to analyze the three recent initiatives discussed in Part I (the 2003 CWA CAFO rule, the Air Emissions Consent Agreement, and the CERCLA/EPCRA citizen suits), which all contain reflexive law components. Next, it will suggest a set of tools that could be the starting point for a factory farm reflexive law regime. Finally, it will conclude by exploring how such an approach could be accomplished in today's political environment.

A. *Factory Farm Pollution Is a Good Candidate for Reflexive Law*

A reflexive law program could help address at least three of the problems that have plagued prior and ongoing efforts to regulate factory farm pollution. First, as discussed earlier, the factory farm industry uses the lack of scientific information about the amount of pollution emitted from its facilities to resist regulation and to push its way into susceptible communities.¹³⁷ Broad dissemination of a corporate farm's pollution record in other communities, made available for instance by a mandatory information disclosure program, could

¹³⁶ See James T. Hamilton, *Exercising Property Rights to Pollute: Do Cancer Risks and Politics Affect Plant Emission Reductions?*, 18 J. RISK & UNCERTAINTY 105, 106 (1999) (finding that "[t]he higher the voter turnout in the area, a proxy for residents' willingness to engage in collective action, the greater the reductions in a plant's release of air carcinogens" after TRI publication).

¹³⁷ See *supra* Part I.B.

enable state and local authorities to extract valuable concessions or mitigation measures from the factory farm before granting it a rezoning or a permit. Perhaps even more importantly, easy access to this information would increase democratic controls on local officials—if average citizens could assemble a data history from their home computers or local library, they could put stronger pressure on their state or local representatives, or directly on the factory farm owners.

Second, the perception of CAFO pollution as a local problem for rural communities has inhibited broad public action against both factory farms and regulators.¹³⁸ While those living near factory farms are all too aware of the nuisance and health problems they cause, millions more bear the externalities of this pollution unknowingly in the air they breathe and the water they drink. A well-crafted information or hazard warning program could help bridge this gap, ensuring that more of the people affected by factory farm pollution are informed of the environmental burden they bear. For example, if CAFOs were required to report their emissions directly to downstream residents or warn them accordingly, affected citizens (both urban and rural) would likely demand that CAFO pollution be treated like other environmental problems. Part III.C explores the potential workings of such a warning system and details its strengths and weaknesses.

Third, corporate owners of CAFOs currently lack adequate incentives to reduce their operations' environmental effects, both because they possess such powerful influence over the regulatory process,¹³⁹ and because market actors (neighbors, consumers, and shareholders) lack information about factory farms and mechanisms to express their displeasure. Requiring the provision of farm-specific information (in one form or another) could, given the primitive technology in place at many CAFOs, be highly embarrassing to owners and management. This pollution information—whether conveyed through mandatory data reports, a hazard warning, or an eco-label—would make it easier for consumers not only to make informed purchasing decisions, but also to exert pressure on the fast food companies and large food retailers that buy their meat and eggs from CAFOs.¹⁴⁰

¹³⁸ See *supra* note 31 (detailing how opposition to factory farms has often failed to translate into harsher regulations).

¹³⁹ See *supra* notes 31–33, 46 and accompanying text.

¹⁴⁰ Consumer pressure on retailers, which then filters up to producers, is a model that has been effective in other arenas, from antibiotics in poultry to timber harvesting. See *infra* note 178.

Bad press about CAFO pollution might also generate pressure from corporate shareholders concerned that being labeled a serious polluter would damage their company's brand equity.¹⁴¹ This effect would be heightened were the reflexive law program designed to penetrate the "integrator" structure of the meat industry,¹⁴² and shine light on the large corporate livestock and poultry producers, which have increasingly turned to branding in order to expand their market share and market capitalizations.¹⁴³

As will be detailed below, a reflexive law approach to CAFO pollution would face some practical and political barriers. Careful design, however, can help overcome most of these hurdles. Reviewing current CAFO programs that incorporate information-based elements but fail to maximize their value will demonstrate the importance of designing regulatory schemes with reflexive law directly in mind.

B. Recent Federal Action on Factory Farms Through the Lens of Reflexive Law

As discussed earlier, all three of the recent initiatives to address factory farm pollution rely in large part on information provision. This Section will employ the key success factors laid out in Part II.B to evaluate those three efforts and their likelihood of spurring the independent, non-regulatory pollution reduction promised by reflexive law.

¹⁴¹ A large number of the top poultry and pork companies are publicly owned, making them susceptible to this sort of shareholder pressure. These companies include: Hormel Foods, see New York Stock Exchange (NYSE) Listing, <http://www.nyse.com/about/listed/hrl.html> (last visited Aug. 9, 2005); Pilgrim's Pride, see NYSE Listing, <http://www.nyse.com/about/listed/ppc.html> (last visited Aug. 9, 2005); Sanderson Farms, see NASDAQ Securities Listing, <http://www.nasdaq.com/asp/symbols.asp?exchange=Q&start=S&Type=0> (last visited Aug. 9, 2005); Seaboard Farms, see American Stock Exchange Listing, <http://www.amex.com/> (enter SEB as search term and follow hyperlink) (last visited Aug. 9, 2005); Smithfield Foods, see NYSE Listing, <http://www.nyse.com/about/listed/sfd.html> (last visited Aug. 9, 2005); and Tyson Foods, see NYSE Listing, <http://www.nyse.com/about/listed/tsn.html> (last visited Aug. 9, 2005).

¹⁴² See *supra* note 15 and accompanying text.

¹⁴³ In the past decade, companies like Tyson, Smithfield Foods, and others have invested significantly in brand-building, by developing value-added poultry or pork products and by partnering with other food manufacturers to create complete packaged meals. David E. Davis & Hayden Stewart, *Changing Consumer Demands Create Opportunities for U.S. Food System*, FOOD REV., Spring 2002, at 19, 22, available at <http://www.ers.usda.gov/publications/FoodReview/May2002/frvol25i1.pdf>; see also SMITHFIELD FOODS, INC., 2004 ANNUAL REPORT 2 (2004), http://www.smithfieldfoods.com/Investor/Pdf/AnnualReports/SFD_AR2004.pdf (last visited Aug. 9, 2005) (discussing "focused strategy" of "shifting the business further from commodity-based pork to value-added meat products").

1. *The 2003 CAFO Rule*

The new CAFO rule has some important information-oriented elements but systematically undercuts the broader application and value of that information. The rule shifts to CAFO owners the burden of collecting detailed information about their manure lagoons and waste application.¹⁴⁴ The newly required Nutrient Management Plans mandate even more data collection, including specific information about the date, time, and approximate volume of every discharge, as well as the establishment of waste management protocols and runoff control practices.¹⁴⁵ All this paperwork will require CAFOs to meaningfully consider their waste handling procedures, and in the wake of the *Waterkeeper* court's holding that shielding NMPs from agency and public review is unlawful,¹⁴⁶ some CAFOs will likely adopt mitigation measures as part of their NMPs. But serious reflexive law advantages will be inhibited by a lack of sunshine. The NMP information will not be formatted in a way that enables lay understanding, kept in a central location for easy comparison, or made available online. The benefits of the additional information will be further hampered by the lack of meaningful enforcement—there is no monitoring (by government or citizens) to ensure that CAFOs actually follow their NMPs, and it may not even technically be a violation of the law to deviate from an NMP.¹⁴⁷ Because there are few market-based or regulatory triggers to force internalization of environmental effects, the program seems unlikely to substantively alter factory farmers' behavior. Finally, a burden-shifting provision of the Rule, which (similar to Prop. 65) would have made permit application the default and forced CAFOs to prove their way out of compliance, was recently struck down by the Second Circuit.¹⁴⁸

2. *The Air Emissions Consent Agreement*

Because so much is suspected about air emissions from factory farms, public information could be extremely valuable for mobilizing

¹⁴⁴ 40 C.F.R. § 122.21(i) (2004) (requiring provision of information including: number and type of animals; type of manure storage; total number of acres available for land application of manure; and estimated amount of manure produced per year).

¹⁴⁵ *Id.* § 122.42(e).

¹⁴⁶ *Waterkeeper Alliance v. Env'tl. Prot. Agency*, 399 F.3d 486, 498–504 (2d Cir. 2005).

¹⁴⁷ While the regulation requires that a CAFO “develop and implement” a NMP to obtain a permit, it does not address subsequent compliance with that NMP. See 40 C.F.R. § 122.42(e).

¹⁴⁸ *Waterkeeper*, 399 F.3d at 504–06 (striking down proposed regulation 40 C.F.R. §§ 122.3(d), (f) as contrary to Congressional intent under CWA).

support for stricter regulations or, alternatively, allaying local fears.¹⁴⁹ Moreover, this is an opportune time to shift the burden to CAFO operators to prove their safety, since uncertainty remains about the level of air emissions from CAFOs. Air emissions reporting could also help inform a broader constituency (those outside the odor zone) of the effect of factory farms on their air quality.

Regrettably, the consent agreement will not achieve such broad results. While the emissions monitored through the program reach beyond the current scope of the CAA (to include ammonia and hydrogen sulfide), the program focuses locally and does not examine the effects on downstream air or water quality. Moreover, monitoring is not universally required, and thus the data set will be very incomplete. Until 2008, neighbors and communities will have data from fewer than thirty farms.¹⁵⁰ When emissions estimation methodologies are finally created, certain farms may be forced to seek permits under the CAA, but they likely will not have to report their regular emissions unless they violate the toxic release levels of CERCLA and EPCRA.¹⁵¹ The result is that there will not be a single source of data that is easily searchable or that provides a meaningful farm-by-farm view of emissions.

The consent agreement could have some short-term behavior-altering effects though. The data will likely demonstrate that CAFOs are indeed serious polluters, making it more difficult for new farms seeking entry into communities and perhaps encouraging industry improvements aimed at precluding regulation. But because the data will not be farm-specific, it will not provide opportunities for competitive benchmarking or comparative shaming,¹⁵² and individual farms may dispute the EPA methodologies, arguing that their particular site

¹⁴⁹ Brasher, *supra* note 40, at 1A (“Forcing farms to disclose what they’re emitting would allow people to know which pollutants are in the air and help state regulators target operations that should be tested for violations The information also could prove embarrassing to farms and force them to make costly changes to operations.”).

¹⁵⁰ While the exact number of farms to be tested under the consent agreement will be set by the Scientific Advisory Board and its subcontractor overseeing the testing, the current Protocol envisions testing at only eleven pig farms, four laying hen houses, three meat bird farms, and four dairy operations. Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958, 4971, 4973–75 (Jan. 31, 2005). EPA argues that “[s]ignificantly increasing the number of farms to be monitored would be prohibitively expensive and would not add substantially to the value of the data collected.” *Id.* at 4960. But this argument only begs the question of the purpose in collecting the data.

¹⁵¹ Recall both that ammonia and hydrogen sulfide are not covered by the hazardous air pollutants section of the CAA and that farms currently are not required to report their emissions to the TRI database, even if they meet the total toxic pollutant threshold. See *supra* note 69 and accompanying text.

¹⁵² See *supra* note 122 and accompanying text.

is “different.”¹⁵³ Thus, from a reflexive law standpoint, the Air Emissions Consent Agreement seems unlikely to have a significant impact, at least in the short-term.

3. *Citizen Suit Enforcement*

The reporting requirements of CERCLA and EPCRA do embody reflexive law principles, aiming to make the community aware of potentially dangerous releases and shame companies into reducing their releases. Indeed, if the fear of citizen suits led every factory farm to report its hydrogen sulfide and ammonia emissions to a community emergency response coordinator, as CERCLA requires, and that coordinator then spread the information through the community, the reporting might trigger local outrage, local or state legislative response, or more.

But the reflexive law benefits of this approach are limited, for three reasons. First, because CERCLA and EPCRA reach only hydrogen sulfide and ammonia, these reports would fail to give a complete cross-media picture of the pollution from a given farm. Second, because farms are not subject to the TRI provisions of EPCRA, the information would not be in an easily accessible, searchable, and manipulable database, limiting its usefulness. Third, it is unclear that citizen suits are altering behavior beyond the companies sued. In the wake of the decisions in *Tyson* and *Seaboard*, a handful of CAFO owners have submitted CERCLA emissions reports, but they have been “continuous emissions” reports that do not specify the amount of pollutants emitted.¹⁵⁴ There is also no indication that the admittedly polluting companies are then taking steps to reduce their emissions. All of this means that the CERCLA/EPCRA suits do not appear to be creating widespread financial or consumer pressure for CAFOs to reduce emissions.

C. Preliminary Ideas for a CAFO Reflexive Law Policy

Given the small likelihood that existing regulatory and litigation measures will realize the potential of reflexive law, this Section offers

¹⁵³ Some commentators have questioned whether the study period will ever actually generate regulatory requirements for factory farms. See Telephone Interview with Barclay Rogers, Staff Attorney, Sierra Club, Inc. (Feb. 5, 2005) (observing that cynical view is that industry is just buying time and will continue to prolong process at each step). Their skepticism was recently confirmed by EPA spokesman John Millett, who indicated that, in spite of the consent agreement, EPA had not yet made a final determination on whether to regulate CAFOs under the Clean Air Act. See Naedele, *supra* note 68, at B09.

¹⁵⁴ See Nat’l Response Ctr., Query Standard Report, http://www.nrc.uscg.mil/wdbcgi/wdbcgi.exe/WWWUSER/WEBDB.foia_query.show_parms (last viewed Aug. 9, 2005) (author’s queries for reports from both “fixed” and “continuous” sources).

some preliminary ideas for reflexive law solutions to address factory farm pollution, again with reference to the key success factors of Part II.B. Though these proposals certainly could be considered independently, it perhaps makes sense to think of them as sequential steps, since the information gleaned from one would make the next more feasible and potentially more valuable.

1. *Mandatory Cross-Media Reporting*

The Toxic Release Inventory has succeeded because it forces companies to disclose their chemical pollution in a highly public manner and because its database makes benchmarking so easy. A crafty journalist can quickly assemble a list of the worst local polluters and widely disseminate it to neighbors, who then protest and call for reductions. An institutional investor or stock analyst can compare a company's toxic emissions to those of competitors, calculate the potential liability from environmental suits and penalties, and react accordingly (by, for instance, lowering its forecasts, pressuring company directors, and/or selling stock).

A similar CAFO Release Inventory (CRI), which forced factory farms to report their emissions released into the air, water, and soil on a facility-by-facility basis, could be even more effective.¹⁵⁵ As evidenced by local efforts to require setbacks from property boundaries and to enact moratoria on factory farms,¹⁵⁶ neighbors are greatly concerned about the environmental impacts of CAFOs. More thorough and accurate information, garnered through a CRI, would help these neighbors better understand the threat to local air and water resources. With access to detailed, farm-specific data, community members might renew their protests to both legislators and farm managers, with hard data showing their concerns to be more than mere nuisance complaints. Likewise, as evidenced by the numerous press releases and statements of environmental concern on their websites, the major pork and poultry companies appear to recognize that at least some shareholders and/or employees are concerned about environmental liability.¹⁵⁷ Because CAFOs have operated under such rel-

¹⁵⁵ J.B. Ruhl made a somewhat similar proposal, for a Farm Release Inventory (FRI), though not as an end in itself, but as a means to enabling pollution taxes or emissions trading programs. See Ruhl, *supra* note 23, at 337–38. Ruhl also recognized the importance of a cross-media approach to regulating farms. *Id.* at 334–36.

¹⁵⁶ See *supra* notes 31, 40–43 and accompanying text.

¹⁵⁷ See, e.g., Premium Standard Farms, Environmental Systems, http://www.psfarms.com/environmental_systems.html (last visited Aug. 9, 2005) (explaining corporate environmental philosophy); Smithfield Foods Environmental Press Releases, <http://www.smithfieldfoods.com/Enviro/Press/> (last visited Aug. 9, 2005); Tyson Foods, Inc., Environmental Press Releases, <http://www.tysonfoodsinc.com/PressRoom/Default.aspx?cat=env> (last visited

ative secrecy, comparative benchmarking of similar-sized farms would quickly identify environmental laggards and top-performers, at the very least forcing heavy polluters to explain to shareholders and communities their variation from the norm. Benchmarking would have not only a shaming effect but would better identify mitigation measures that are more effective than others.

Furthermore, at least a first-cut CRI could be instituted quickly. The important pollutants and elements emitted by CAFOs are already widely known, so establishing a list of reportable pollutants would take little time. Instruments exist to measure reliably the most harmful air emissions,¹⁵⁸ though EPA would need to approve particular measuring tools and methodologies. Additional work might be needed to determine the appropriate measurement tool or formula for nitrogen and phosphorous runoff, as well as for odor,¹⁵⁹ though compared to the time that would be required to set “safe” levels for command-and-control emissions guidelines, this could be quick. Undoubtedly, the initial emissions figures might be imperfect and incomplete, but that challenge would affect all CAFOs equally. Given the wealth of information showing that factory farms generally emit these pollutants in large amounts, it hardly seems unreasonable to begin requiring reporting as soon as practical.¹⁶⁰

In addition to measuring emissions beyond the scope of a single medium, a CRI should build on the TRI in important respects. First, it ought to penetrate the “integrator” structure of the meat industry and put the corporate brand name on the list. This would not only induce better responsiveness but also would facilitate the inter- and intra-corporate benchmarking that Karkkainen suggests has made the

Sept. 7, 2005); Tyson Foods, Inc., Tyson Cares About the Environment, <http://www.tysonfoodsinc.com/AboutTyson/TysonCares/Environment.aspx> (last visited Sept. 7, 2005) (presenting company’s environmental activities and projects).

¹⁵⁸ EPA itself relied on such emissions measurements in its enforcement actions against large CAFOs. See Dep’t of Justice, *supra* note 61. Likewise, states have been measuring air emissions for over a decade, at least for hydrogen sulfide. See *supra* note 40 and accompanying text.

¹⁵⁹ While there is no universally accepted measure of odor, three states have created numerical odor emission standards which could be used as a baseline. See *supra* note 41. Developing methods to exactly measure nitrogen and phosphorous runoff could take longer, but some of the work being done by EPA under its Total Maximum Daily Load (TMDL) program could be helpful. See 33 U.S.C. § 1313 (2000) (establishing program); 40 C.F.R. § 130.7 (2004) (detailing state’s responsibilities under TMDL program).

¹⁶⁰ As with the TRI, some threshold might be needed to avoid pulling in true family farmers raising a few hundred pigs or chickens. While one should not ignore the pollution caused by thousands of smaller farmers, the “low-hanging fruit” of large CAFOs and the significant expense of mandatory monitoring mitigate against including them at this stage. See Ruhl, *supra* note 23, at 336.

TRI so valuable.¹⁶¹ Second, if the legislating body were concerned about farms cheating on their reports, it could provide significant civil penalties for false reports and build in a bounty hunter provision, by which citizens who suspected cheating farms and won in court could collect a share of the penalties.¹⁶²

The CRI, however, would suffer some of the same faults as its elder sibling. The reported numbers would be apt to confuse many citizens: 100 pounds of ammonia sucked out into the air by a fan in a chicken coop is hardly comparable to 100 pounds of nitrogen waste being poured onto saturated soil.¹⁶³ Moreover, while measurement capabilities for many of the primary CAFO pollutants have advanced significantly in the last decade, there are no industry standards (and the results might be shaped by the particular technology used). The CRI also would not entirely solve the problem of uninformed permitting or rezoning, since the data would only be reported once a CAFO was operative.¹⁶⁴ Nonetheless, given the relative shortage of information today, even imperfect information would be an improvement; and with far more information accessible, permitting entities could utilize the data to validate particular technologies and mitigation measures and demand that they be implemented.

2. Watershed/Airshed Hazard Warnings

At first blush, CAFO pollution does not seem well-suited for a hazard warning. Unlike cigarettes or carcinogenic exposures, the link between CAFO emissions and particular health effects is arguably more cumulative and more complicated. Furthermore, whereas the usual target of a hazard warning is someone who will be harmed by *using* the product, there is a disconnect between those who buy and consume factory-farmed meat products and those who face the envi-

¹⁶¹ See *supra* note 122 and accompanying text.

¹⁶² See *supra* note 132 (describing Prop. 65's "bounty hunter" provision, which allows plaintiff who demonstrates manufacturer failed to provide appropriate warnings to recover twenty-five percent of penalty award and attorney's fees).

¹⁶³ Cf. Karkkainen, *supra* note 11, at 331–32 (noting that because of different toxicities, small reductions in one chemical can have far greater environmental consequences than larger reductions in other chemicals).

¹⁶⁴ Citizens could, however, look to the CRI to better understand the environmental impact of other facilities owned by the same company. In addition, CRI data would bolster the efforts in a handful of states to estimate emissions and environmental impacts as part of the initial permitting decision for CAFOs. For example, Minnesota requires environmental assessments for some CAFOs, while Iowa allows county officials to use a "master matrix" scoring system to evaluate the air, water, and community impacts of proposed facilities and make a recommendation to the state agency based on those findings. Endres & Grossman, *supra* note 17, at 18–19, 48; see also IOWA CODE ANN. § 459.305 (West 2004) (detailing "master matrix" evaluation).

ronmental risk.¹⁶⁵ A far less-utilized aspect of California's Prop. 65, however, may offer a more powerful alternative. Prop. 65 reaches any "knowing[] and intentional[]" exposure to a carcinogen or reproductive toxin without a "clear and reasonable warning."¹⁶⁶ While primarily applied to the sale of consumer products, the implementing regulations clarify that Prop. 65 incorporates environmental exposures as well. When a business emits such a toxin or carcinogen into any environmental medium, it must warn citizens in the "affected area" of the exposure.¹⁶⁷

Such an approach might work for CAFO pollution. While a CAFO's hazard warning would lack the simplicity of "this area contains a chemical that causes cancer," the program could require all CAFOs emitting more than a threshold level of a certain pollutant or applying manure at a ratio higher than its land can be expected to absorb (data that could be determined from the CRI report) to mail a notice to every citizen in that watershed or air quality region explaining that they had emitted "x" amount of pollution or added "x" pounds of nitrogen to a particular water body and further explaining the impacts associated with this pollution.¹⁶⁸ In addition to expanding concern about factory farming beyond the "odor zone" to a broader constituency of affected individuals, which might increase

¹⁶⁵ For example, when someone in Cherry Hill, NJ buys a package of frozen chicken breasts, they are not at risk of nitrate poisoning or inhaling the asthma-inducing particulate matter that surrounds the chicken CAFO in Arkansas. The difficulty in trying to concoct a meaningful warning for the consumer is facially apparent. *But see* Douglas A. Kysar, *Preferences for Processes: The Process/Product Distinction and the Regulation of Consumer Choice*, 118 HARV. L. REV. 526, 531-33 (2004) (arguing that consumers desire process-related information, despite gap between purchase and their own health, as means of influencing production practices and gaining personal utility).

¹⁶⁶ CAL. HEALTH & SAFETY CODE § 25249.6 (West 1999).

¹⁶⁷ CAL. CODE REGS. tit. 22, § 12601(d)(1) (2005) (suggesting that warning can be achieved by posting signs, mailing notices to all affected citizens, or making public service announcements). Though the warnings are supposed to be made conspicuous, *id.* § 12601(d)(2), in reality, they may only be seen by the most attentive citizens. However, as Prop. 65 demonstrates, even a small vocal group's attention could be enough to instigate changes in production processes or product reformulations. *See* Clifford Rechtschaffen, *The Warning Game: Evaluating Warnings Under California's Proposition 65*, 23 ECOLOGY L.Q. 303, 318 (1996) [hereinafter Rechtschaffen, *Warning Game*]; *see also* Rechtschaffen, *supra* note 110, at 10,583-89 (detailing handful of successes under environmental exposure provision).

¹⁶⁸ This sort of determination is increasingly feasible. *Cf.* Daniel C. Esty, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115, 162-67 (2004) (discussing information technologies that will make it easier to quantify and identify particular environmental harms and contributions). Providing hazard warnings is not unheard of at the national scale either. On a much smaller scale, the Safe Drinking Water Act requires owners of public water systems to provide similar warnings when customers' drinking water is contaminated by lead. 42 U.S.C. § 300g-6(a)(2) (2000).

pressure for new regulation,¹⁶⁹ such a warning could spur wider market pressures. Regional environmental groups could advise consumers on how to alter their buying patterns to avoid meat sold by the offending companies, or perhaps more effectively, organize boycotts of large restaurant chains that source their meat from those companies.¹⁷⁰ Sending out hazard notices would also prove highly embarrassing for companies that pride themselves on being “good neighbors,” shaming them into reducing their total pollution.

An airshed/watershed warning, however, is far from a perfect solution. First, if the warning were required at too low a threshold, citizens would receive hundreds of letters a year about upstream pollution, which might lead to panicking and declining property values,¹⁷¹ or alternatively, to people feeling overloaded and ceasing to pay attention.¹⁷² These problems could be addressed by having a state regulatory body aggregate the statistical information and warnings in one packet, then send the packet to all citizens in the watershed or airshed; or, alternatively, by setting a higher threshold. Still, even a well-written and accurate warning may confuse many citizens as to the scope of the risk,¹⁷³ particularly given the many other contributors to air and water pollution. Were an agency to attempt to make the warning more than just an emissions report or summarized warning by trying to help recipients understand the true danger behind the information, the agency would then run into the challenges typical of traditional regulatory efforts to identify risk, safe levels of exposure, and harm causation.

Furthermore, a hazard warning might not provide adequate incentives for incremental pollution reduction. If the factory farm must distribute the warning regardless of its emissions, it may decide that it does not gain sufficient consumer benefit from making technological improvements. Here, the structure of Prop. 65 provides useful guidance. The program could shift the burden to the farm owner to demonstrate that its pollutants do not substantially affect the watershed or only affect people within a one-mile radius, allowing the CAFO to prove its way out of delivering the warning. This would not only help regulators to better define de minimis levels but, by getting

¹⁶⁹ See *supra* note 136 and accompanying text.

¹⁷⁰ Cf. *infra* note 178 (describing how large corporations respond to public pressure).

¹⁷¹ If citizens perceived the warnings' damage to their property values as greater than the benefit of knowing the source of pollution, a warning system could become politically unpalatable.

¹⁷² See Kevin Lane Keller & Richard Staelin, *Effects of Quality and Quantity of Information on Decision Effectiveness*, 14 J. CONSUMER RES. 200, 211–12 (1987) (identifying problems of information overload).

¹⁷³ See *supra* notes 109, 127 and accompanying text.

scientific information from the CAFO, they would learn more about how these particular pollutants migrate. The regime could also allow farms that significantly reduce pollution in a given year, but do not fall beneath the warning threshold, to communicate that improvement as part of their annual warning.

The more a legislature tries to accommodate these issues, the more difficult and complex the hazard warning scheme becomes, undermining its primary advantages—clarity and simplicity. That said, both the simple, straightforward warning and the more complex warning scheme seem capable of generating a number of reflexive law benefits and thus are worth exploring further.

3. *Certification Regime*

A third approach is the establishment of a non-profit or government-sponsored environmental certification regime for factory farms. While there are certification regimes in place addressing animal treatment and antibiotic usage,¹⁷⁴ there are currently none examining the environmental impacts of factory farms. Perhaps the most analogous model is the Marine Stewardship Council or the Forest Stewardship Council, which distill a number of environmental factors into a consumer product label.¹⁷⁵ Existing “best practices” for manure management and odor control, and the parallel certification regime already available for organic farming, could together serve as a foundation for the “environmental farming” label program.

The obvious reflexive law advantage of the certification/label approach is that a single symbol or stamp could serve as a straightforward proxy for much of the information this Note has advocated communicating to consumers through a CRI or hazard warning system. Eco-label regimes also have a strong burden-shifting component. Since CAFOs or other farms would choose whether to seek certification, they would be responsible for proving (by way of a third party certifier) that their farming practices met environmental standards. Rather than being forced to participate, the decision would be market-driven: The existence of an environmentally friendly substitute product would allow consumers to signal directly, with their pock-

¹⁷⁴ The most prominent certification body in this area is Certified Humane. See Humane Farm Animal Care, Certified Humane Raised and Handled, <http://www.certifiedhumane.com> (last visited Aug. 9, 2005). However, a host of other labels (most un-certified) may grace the packages of meat products. See The Consumer Union Guide to Environmental Labels, <http://eco-labels.org/reportPrint.cfm?productArea=Meat> (last visited Aug. 9, 2005). This obviously creates real concerns about consumer confusion.

¹⁷⁵ See *supra* notes 115–17 and accompanying text. The FSC’s label for certified lumber is in some ways a more challenging comparison, because the wood is not typically sold directly to consumers but rather to home builders and others in the construction trade.

etbooks, their approval of practices on certain farms and their disapproval of others.¹⁷⁶ From the supply side, if meat companies perceived strong demand in the market for environmentally labeled meat, one of the major producers would certainly step up to the plate.¹⁷⁷ Once a label existed, consumers and environmental groups could also begin pressuring retailers to help lead the way through their meat procurement decisions, a formula with some proven effectiveness.¹⁷⁸

However, there are a number of challenges to establishing a certification program for CAFOs. The start-up costs of bringing in experts, agreeing on standards, and communicating the certification to the world would be significant. The costs of educating the public about this label and its meaning could be particularly challenging, since the environmental harms vary regionally and consumers are affected by the pollution in different ways. Additionally, it is not yet clear how widespread the market demand would be for “environmentally farmed” certified meat.¹⁷⁹ Because eco-label programs are voluntary, and certification for a label can be expensive and time-intensive, the program’s proponents would need to convince major industry players that consumer interest was great enough to justify the

¹⁷⁶ Schwartz, *supra* note 126, at 776–77 (explaining how eco-labels allow environmental preference-maximizing by interested consumers). Admittedly though, in contrast to some sort of environmental scoring system, the eco-label does not enable consumers to express their preferences among labeled or unlabeled products. For example, if gaining certification is arduous, and thus few major brands are certified, a consumer has no way of knowing which is the most eco-friendly unlabeled brand.

¹⁷⁷ Indeed, one could expect institutional investors to bring pressure to bear on their companies to capitalize on the opportunity and enter the eco-friendly meat market. See *supra* note 90.

¹⁷⁸ Fast-food giant McDonald’s has repeatedly reacted to public pressure and adjusted its purchasing to reflect environmentally sensitive consumer preferences. In 1990, McDonald’s voluntarily decided to replace its polystyrene packaging with paper. See Menell, *supra* note 11, at 1447. More recently, in 2003, with public prodding, McDonald’s announced that it would require exclusive suppliers to stop using antibiotics in their animal feed. Ben Harder, *McDonald’s Cutback in Antibiotics Use Could Reduce Drug-Resistant Bacteria*, SCI. NEWS ONLINE, June 28, 2003, <http://www.sciencenews.org/articles/20030628/food.asp>. Consumer pressure has also pushed American lumber retailers, including Home Depot and Lowe’s, to carry more FSC-certified lumber and the major office supplies stores to stop buying paper harvested from endangered forests. See Ross Anderson, *Two-by-Fours Now Earn Forest-Keeping Seal of Approval*, SEATTLE TIMES, Nov. 22, 1999, at A1; Matthew S.L. Cate, *Office Depot Change Ends Environmental Protests*, CHATTANOOGA TIMES FREE PRESS, Mar. 26, 2004, at C1.

¹⁷⁹ However, the recent market growth for organic meat is a good indication that consumers may be more willing to pay for certified meat than for other “green” labeled products, even when the beneficiaries of the purchase are others, or perhaps even animals. Molly Colin, *Elite Meat*, CHRISTIAN SCI. MONITOR, July 14, 2003, at 13 (finding that market for organic livestock and poultry increased threefold and fivefold respectively over four year period, and that growth in organic meat outstrips growth in organics generally).

changes in practices and the intrusion of certifiers. This might be possible but would surely take time. Finally, there is always the risk that the CAFO industry would respond by creating its own certification regime, which would foster uncertainty and limit the value of a single standard.¹⁸⁰

For these reasons, it probably makes sense to consider certification as a second-stage opportunity. Widely disseminated information and hazard warnings could raise public scrutiny and concern about factory farm pollution, to the point that consumers might begin to demand an alternative. Then, American consumers, who often take slowly to “green” products when they are more expensive, would be more knowledgeable and thus might be more willing to pay a premium for environmentally certified meat. At that point, consumer pressure could be applied to encourage major restaurant chains to utilize certified meat, triggering beneficial changes up the supply chain.

If these programs can harness the interests of consumers, shareholders, and downstream purchasers, the results in pollution reduction could be significant. Many technologies already exist to minimize CAFO pollution, especially air emissions and odors.¹⁸¹ When external pressures make it cost-effective (or even essential) for CAFO owners to invest in pollution reduction, one could expect that the technology will continue to improve.

4. How Might This Reflexive Law Regime Be Created?

These three suggestions are by no means exhaustive and more design work must be done before any of them could be implemented. All three face methodological and fairness concerns that will need to be addressed, some more daunting than others. Hopefully, however, in these roughly sketched proposals lie the seeds of a reflexive law program for CAFO pollution that could generate market-driven environmental improvements and gain broad enough political support.

Information-based regulation ought to appeal to parties across the political spectrum. Reflexive law solutions would allow the Bush administration and conservative state governments, which often favor

¹⁸⁰ Cf. BENJAMIN CASHORE ET AL., GOVERNING THROUGH MARKETS: FOREST CERTIFICATION AND THE EMERGENCE OF NON-STATE AUTHORITY 88–126 (2004) (discussing how industry-sponsored Sustainable Forestry Initiative, which provides less rigorous certification program for harvesters, has undermined success of Forest Stewardship Council’s certification regime and generated confusion for purchasers).

¹⁸¹ See IOWA DEP’T OF NATURAL RES., ANIMAL FEEDING OPERATIONS TECHNICAL WORKGROUP REPORT 7–19 (2004), <http://www.iowadnr.com/air/afo/files/finalaforeport.pdf> (describing pollution and odor-reduction technologies).

self-regulation and oppose rigid pollution controls, to tackle a troublesome environmental problem without direct regulation. Environmentalists should recognize both that reflexive law, if designed correctly, can work, and that the provision of information also can serve as a stepping stone to more concrete regulation. Reflexive law could also function as a regulatory placeholder for factory farm pollution, gathering information and raising awareness of the pollution impacts while other regulatory approaches snake their way through the EPA and the courts. The farm lobby and its legislative supporters, who have managed to thwart or water down much of the legislation proposed in recent years by claiming that more information needs to be gathered, would have a hard time credibly arguing that gathering such information is also a bad idea.¹⁸²

The specific suggestions this Note has put forward could be implemented at the federal or state level. While a certification regime likely requires a national approach,¹⁸³ and the value of a CRI would be greater if it were nationwide (because comparison and benchmarking would be more meaningful), the success of Prop. 65, as well as the statewide efforts to monitor odor and hydrogen sulfide and require environmental impact statements for new factory farms,¹⁸⁴ demonstrate that reflexive law programs can be implemented at the state level as well. At either level though, legislators would be wise to recall the elements of successful reflexive law regimes—clarity and accessibility, burden-shifting, and meaningful mechanisms for market reaction—as they take the first steps down this new regulatory path.

CONCLUSION

In recent years, environmental and consumer groups and the CAFO industry have battled at the federal, state, and local levels over the specifics, speed, and methods of implementing command-and-control regulation. The result has been a virtual stalemate. Reflexive

¹⁸² At the same time, if the assumptions about behavior-altering incentives are correct, and information provision or warning requirements will put pressure on farms to reduce their pollution, the meat corporations would likely fight these initiatives nonetheless. Politically, though, it seems that their argument would be harder to defend.

¹⁸³ States are capable of creating and managing eco-label programs, as they have done in the “organic” certification arena, but the multi-state presence of corporate meat companies and the nationwide market for meat products would make a unified standard preferable. Cf. Lauren Zeichner, *Product vs. Process: Two Labeling Regimes for Genetically Engineered Foods and How They Relate to Consumer Preference*, 27 ENVIRONS ENVTL. L. & POL’Y J. 467, 471–72 (2004) (discussing problem of label proliferation under varying state regimes).

¹⁸⁴ See *supra* note 164.

law offers a potential “third way” between inaction and draconian regulation.

This Note has argued that the current federal and state regulatory structures are poorly prepared to address the cross-media pollution from CAFOs of varying sizes and conditions. Reflexive law programs, by requiring corporate meat producers to generate information about their emissions, then providing mechanisms for the use and interpretation of that data, will enable consumers, neighbors, and shareholders to do what politicians and regulators lack the will to do: demand reductions immediately. Reflexive law may not be the only way to achieve this objective, and it is far from a perfect or complete solution, but its low cost, its quick-return benefits, and its political appeal make it a uniquely attractive approach to handling a uniquely nasty source of pollution.