THE POISONED WELL: NEW STRATEGIES FOR GROUNDWATER PROTECTION, Sierra Club Legal Defense Fund; edited by Eric P. Jorgensen Washington, D.C. and Covelo, California: Island Press, 1989. Pp. 422. $19.95.

Groundwater contamination is perhaps one of the most ubiquitous, yet inadequately addressed environmental problems plaguing the country today. With over half of the U.S. population dependent on groundwater as a source of their drinking water[1] and with potential sources of groundwater contamination present everywhere,[2] one might expect that such a pernicious problem would generate some sort of national response to the need for protection. Unfortunately, groundwater contamination has never been adequately addressed at the federal level.[3] Rather, the federal government has taken a tangential approach to the protection of groundwater;[4] no comprehensive federal legislation exists which focuses on groundwater comparable to the manner in which the Clean Water Act (CWA)[5] regulates surface waters and the Safe Drinking Water Act (SDWA)[6] governs drinking water. Indeed, federal environmental legislation that occasionally deals with groundwater contamination mostly focuses on the handling and disposal of the potential groundwater contaminant, rather than on the groundwater itself.[7] Furthermore, state regulation of groundwater suffers not only from widely varying standards but also from the same lack of coordination and focus

1. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, A GROUND-WATER PROTECTION STRATEGY FOR THE ENVIRONMENTAL PROTECTION AGENCY 11 (Aug. 1984) [hereinafter EPA GROUND-WATER STRATEGY].

2. D. Durenberger, *Foreword* to SIERRA CLUB LEGAL DEFENSE FUND, THE POISONED WELL: NEW STRATEGIES FOR GROUNDWATER PROTECTION, at xvii (E. Jorgensen, ed. 1989) (contamination sources include landfills, underground storage tanks, injection wells, pesticides and household chemical products) [hereinafter THE POISONED WELL].

3. *See id.* at 315. Although the Environmental Protection Agency (EPA) formed an Office of Ground-Water Protection in 1983 to address ground-water contamination, its recommended strategy falls far short of the comprehensive, national legislation that is needed. *See* EPA GROUND-WATER STRATEGY, *supra* note 1, at 4-8, 33-52.

4. Note, *A DRASTIC Approach to Controlling Groundwater Pollution*, 98 YALE L.J. 773, 779 & 779 n.42 (1989) (authored by Lawrence Ng).

5. 33 U.S.C. §§ 1251-1377 (1982 & Supp. V 1987).

6. 42 U.S.C. §§ 300f to 300j-11 (1982 & Supp. V 1987).

7. Comment, *The Extent of Groundwater Jurisdiction Under the Clean Water Act after Riverside Bayview Homes*, 47 LA. L. REV. 859, 879 (1987) (authored by Guy V. Manning).

that characterizes the federal regulatory scheme.[8]

This imperfect regulatory framework suggests a number of approaches to dealing with groundwater contamination. One approach involves providing economic incentives to polluters. Releases of contaminants into the groundwater would automatically result in a charge or payment that increases in proportion to the volume and toxicity of the particular contaminant released,[9] while efforts to curb or halt such releases completely would be rewarded with tax credits or other benefits.[10] A second approach incorporates a "mixed" regulatory framework, combining economic incentives with strict standard-setting regulations calling for the imposition of fines or other penalties in case of non-compliance.[11] This approach characterizes the manner in which, for example, the Resource Conservation and Recovery Act of 1976 (RCRA)[12] and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)[13] are currently enforced by the government.

Instead of relying solely on either government regulation or economic incentives to industry, a third approach focuses instead on the parties directly affected by groundwater contamination, namely, members of the public at large. This is precisely the approach taken by the Sierra Club Legal Defense Fund in *The Poisoned Well: New Strategies For Groundwater Contamination.*[14] "This book is based on the idea that the best way for citizens to protect their health is to go out and wage their own fight against groundwater contamination."[15] *The Poisoned Well* suggests a "grassroots" approach, where citizens work with government and industry to protect the quality of their groundwater and prevent its contamination.

It merits pause, however, to note that this approach towards the problem of groundwater contamination begs a number of questions and creates a number of problems of its own. For example, it appears unclear, at best, how the grassroots approach would succeed

8. *See* Note, *supra* note 4, at 784.

9. *Cf. id.* at 787-89 (economic incentive proposal involving efficient charges assessed on basis of degree to which groundwater has been damaged by contaminant).

10. *See* Davis, *Approaches to the Regulation of Hazardous Wastes*, 18 ENVTL. L. 505, 526-29 (1988).

11. *Cf. id.* at 526-29 (discussion of mixed — directive and nondirective — regulatory systems). The EPA also advocates this mixed approach. *See* EPA GROUND-WATER STRATEGY, *supra* note 1, at 4-8, 33-52.

12. 42 U.S.C. §§ 6901-6991i (1982 & Supp. V 1987).

13. 42 U.S.C. §§ 9601-9675 (1982 & Supp. V 1987).

14. THE POISONED WELL, *supra* note 2.

15. *Id.* at xix.

in spite of the lack of a comprehensive federal regulatory scheme and disparate state groundwater protection standards. *The Poisoned Well* advises citizens to use existing regulations and programs[16]—to work within the system, rather than to re-work the system to improve groundwater quality. Whether the book can accomplish this goal and succeed in educating its readers and equipping them with the right political tools to function within the existing regulatory framework remains to be seen.

Another fundamental problem is how to provide advice to individuals who may not have the legal, scientific or even political skills necessary for working within federal and state regulatory schemes. Many of us concerned about protecting the quality of our groundwater delegate responsibilities for such protection to the legal and scientific "experts" whom we consider better equipped than ourselves to ensure such quality. Is it possible, within the confines of one volume, to teach a citizen the legal, scientific and political skills necessary for functioning and succeeding within an imperfect regulatory scheme? The Sierra Club Legal Defense Fund seems to have created the entire book with this problem in mind.

The Poisoned Well is divided into four main parts. Part I explains the problem of groundwater contamination—how groundwater exists, how it becomes contaminated and how to detect such contamination. Part II provides a useful layperson's guide on how to obtain information from the government, how to work with administrative agencies and the courts and how to organize one's community. Part III summarizes the salient points of federal regulations and programs dealing with groundwater protection. This section also teaches the reader how to use these programs and laws and how to participate in their enforcement. Part IV provides the same information, but with respect to state and local regulatory schemes. In addition, the book contains useful lists, such as the addresses of Environmental Protection Agency (the "EPA") regional offices and important phone numbers and emergency numbers. The book's instructional approach is further enhanced by the listing of useful references at the end of each chapter and the prolific use of illustrations, tables and graphs.

Part I's discussion of the problem of groundwater contamination begins with an explanation of the hydrologic cycle: how groundwater comes to exist and flows from recharge areas to discharge areas such as streams, lakes and wells. Ironically, it is during this

16. *See id.* at xx.

cycle, when groundwater is filtered and purified, that it is also contaminated by hazardous substances or chemicals released from a myriad of sources.

Some of the more prevalent sources of contamination are landfills.[17] Not only have landfills been used historically for the disposal of hazardous wastes and other toxic substances, but landfills, regardless of the use of the best design technology available, are almost always expected to leak.[18] Landfills often are insidious sources of contamination because of the practice of disposing of different, sometimes incompatible chemical wastes in the same landfill; in time, these wastes will leak from their respective containers, mix and eventually escape from the landfill.[19]

Leaking underground storage tanks containing petroleum and other chemical substances constitute another omnipresent source of contamination.[20] Although underground storage tanks installed recently are double-walled, made of synthetic, non-porous materials and are outfitted with monitoring and leak detection systems, much of the contamination has originated from older underground storage tanks—ten years or older—which are made of bare steel and have leaked due to corrosion.[21] Not all of those older tanks have been replaced, removed or retrofitted; many remain in the ground and in service despite their tendency to leak.

Other sources of groundwater contamination include: releases from injection wells used for disposing liquid wastes; the agricultural use of pesticides and fertilizers; the everyday use of certain household products such as drain openers, cleaner fluids and refrigerants; septic tanks; and hazardous and toxic substances used by the military.[22]

Part I concludes with a discussion of how to monitor and test groundwater quality and how to assemble maps of aquifers and the plumes of contamination. Monitoring the quality of water from the tap simply involves having a lab test a water sample. Monitoring the quality of groundwater, a much more complicated procedure, involves proper placement and drilling of monitoring wells and reg-

17. There are currently an estimated 75,000 on-site industrial landfills, 18,500 municipal landfills and 24,000 to 36,000 closed or abandoned municipal landfills in the United States. *Id.* at 24.

18. *Id.*

19. *Id.* at 25.

20. There are approximately ten million underground storage tanks abandoned or in use in the United States today. *Id.* at 27.

21. *See id.*

22. *Id.* at 29-45.

ular sampling and testing. Since citizens normally do not have the resources to locate and drill their own monitoring wells, they must usually rely on information about any groundwater monitoring activities[23] from a local EPA office or United States Geological Survey office.

Part II, entitled "Citizen Action," begins by discussing the Freedom of Information Act[24] and how to use the Act to obtain information from the government regarding the quality of the groundwater in one's area. This section also teaches a citizen how to work with administrative agencies in formulating and enforcing its rules.

Chapter 8, contained in Part II, outlines in clear detail how a citizen can use the courts to enforce groundwater protection laws or to seek compensation when the administrative process fails to yield results.[25] Citizens can bring essentially two relevant kinds of suits. First, citizen suits allow citizens to step into the shoes of administrative agencies and enforce the appropriate environmental laws. Second, common law actions allow citizens to obtain compensation or other relief when violations of the environmental laws have resulted in injury. The chapter delineates concisely the various statutes and legal theories under which a suit can be brought, the particular parties who can be sued, the kinds of relief that can be granted, and the various other requirements and limitations endemic to bringing such suits.

Perhaps the heart of the book, given the Sierra Club Legal Defense Fund's approach, is Chapter 9. This chapter describes the grassroots actions that citizens can take in order to increase public awareness of, and take responsibility for, groundwater protection. It discusses the reasons for organizing the community and exerting political or even economic pressure to strengthen and enforce the groundwater protection laws. The question arises, however, whether taking such a grassroots approach to regulation and enforcement of environmental laws is truly effective.

In addressing this concern, the book uses the example of how a group of citizens, Northern Alabama's Lauderdale Citizens for a Clean Environment, or LCCE, were able to prevent a municipal landfill and three waste incinerators from being constructed near their community.[26] Once news arrived that Zip City, a rural farm-

23. *See id.* at 56.
24. 5 U.S.C. § 552 (1982 & Supp. V 1987).
25. *See* THE POISONED WELL, *supra* note 2, at 101-09.
26. *See id.* at 115-18.

ing community, was to be the location of a waste landfill, the LCCE quickly formed and immediately set out to fight against this development. LCCE leaders organized groups to conduct protests and to testify at county hearings. LCCE held fundraisers and mounted a publicity campaign with television and newspaper coverage. LCCE also organized a waste recycling program, educating the citizenry to separate their aluminum, glass and paper from the rest of their garbage and arranging for local waste haulers to cooperate in separating wastes. In the end, the landfill site was changed, in spite of a suit by the landfill company against the county.

Clearly, the moral of the story is that a dedicated and organized citizenry can succeed against a complacent government and an aggressive corporation. It is still only an anecdotal illustration of the theory, however, and not sufficient to prove that such a grassroots approach is truly effective or fair.

The remainder of *The Poisoned Well* clearly and concisely explains the elements of the various regulations and programs at the federal, state and local levels dealing with groundwater protection: RCRA, CERCLA, CWA, SDWA, TOSCA (Toxic Substances Control Act),[27] FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act),[28] the Surface Mining Control and Reclamation Act,[29] and NEPA (National Environmental Policy Act).[30] Parts III and IV provide the "newly trained" citizen with information on using the federal, state and local laws and programs to ensure that operators of underground storage tanks, landfills, and waste disposal wells comply with the applicable regulations. These last two parts are more tersely and concisely written than the first two parts of the book and, therefore, merit a more sustained and careful reading.

One of the more important sections in Parts III and IV is the discussion of federal and state regulation of underground storage tanks ("USTs"). The first task for the citizen is to ascertain the location of the leaking USTs. The places to obtain such information include regional EPA offices, state or local environmental agency and public health offices, the town clerk's office, and the fire marshall or local fire department.[31] Owners of USTs are generally required to obtain permits to install or own USTs, to remove USTs and to remediate a UST site if the UST is found to be leaking. Fur-

27. 15 U.S.C. §§ 2601-2629 (1982 & Supp. V 1987).
28. 7 U.S.C. §§ 136-136y (1982 & Supp. V 1987).
29. 30 U.S.C. §§ 1201-1328 (1982 & Supp. V 1987).
30. 42 U.S.C. §§ 4321-4370 (1982 & Supp. V 1987).
31. THE POISONED WELL, *supra* note 2, at 266, 358.

thermore, UST owners are now subject to EPA regulations, which became effective in December 1988.[32] These regulations require design and construction improvements, installation of spill controls and leak monitoring devices, and minimum insurance coverage of up to two million dollars to pay for remediation and compensation to third parties. The book encourages citizens to pressure the EPA and other agencies to enforce these and other UST regulations when they have proof that these rules are being violated or that a UST is leaking in their area. If such pressure fails, then the citizen is advised to file a citizen suit under RCRA or bring a common law action.

The Poisoned Well is a brave, albeit cautious, undertaking. Although the effectiveness of the book's grassroots approach may be uncertain, its message will hopefully have a profound impact upon the citizenry, resulting in improving the quality of groundwater.

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32. *See* 53 Fed. Reg. 37,082 (1988) (to be codified at 40 C.F.R. §§ 280.10 - 280.74); 53 Fed. Reg. 43,322 (1988) (to be codified at 40 C.F.R. §§ 280.90 - 280.112), *as amended by* 53 Fed. Reg. 44,976 (1988), *by* 53 Fed. Reg. 51,273 (1988), *and by* 54 Fed. Reg. 5451 (1989).

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