

The University of Kansas Law Review

SYMPOSIUM: PREVENTION OF GROUND- WATER CONTAMINATION IN KANSAS

GROUNDWATER POLLUTION II: AN IMMODEST PROPOSAL FOR A STRATEGY TO PREVENT GROUNDWATER POLLUTION*

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The history of pollution regulation offers mostly pessimism as background for a venture in prevention of groundwater contamination. Commentators have traced some such regulatory efforts back into thirteenth century England,¹ but it is fair to say that the field is still young and primitive, with a true modern birth date in this country around 1970.² Congress and the states have tried various forms

* This is the second of a two-part article. The first was Glicksman & Coggins, *Groundwater Pollution I: The Problem and the Law*, 35 KAN. L. REV. 75 (1986). Both articles are derived from a study undertaken by these writers for the State of Kansas, the results of which were embodied in a report entitled "A Proposed Strategy to Prevent Groundwater Contamination in Kansas" (January, 1986). Copies of the report are on file with the authors, the Kansas Law Review, and the Kansas Department of Health and the Environment. The study was also published in book form under the same title by the University of Kansas in 1986.

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1. See R. STEWART & J. KRIER, ENVIRONMENTAL LAW AND POLICY 119 n.28 (1978).

2. The National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370 (1982), became effective January 1, 1970. In 1970, Congress passed the Clean Air Act, Pub. L. No. 91-604, 84 Stat. 1676 (1970) (codified as amended at 42 U.S.C. §§ 7401-7626 (1982)).

of regulation to abate the more pressing pollution problems. Success has been mixed at best; certainly the stated objectives of the Clean Air and Clean Water Acts have not been fully achieved.³ Without those laws, however, environmental quality in the United States would be extremely low today.⁴

In retrospect, it is easy to see that the first and second generations of federal and state pollution laws were limited, for the most part, to the most obvious, pressing, and easily abatable problems. Transboundary acid rain⁵ and nonpoint source water pollution,⁶ for instance, are some of the intractable problems that remain essentially uncontrolled. Groundwater contamination presents a similar dilemma; for a long time, it was out of mind because it was out of sight.

This article proposes a comprehensive state strategy for preventing pollution of groundwater. No jurisdiction has yet devised and fully implemented such a strategy.⁷ Kansas is no exception.⁸ Within certain relatively broad constraints, existing federal laws leave state officials with the discretion to devise whatever range, type, and combination of controls they desire.⁹ Indeed, federal policymakers have encouraged states to play the lead role in this area of environmental law. The federal government currently envisions its function in groundwater quality regulation as essentially one of "cheerleader," providing moral support, financial assistance, and technical expertise to states while remaining aloof from the hard choices of actual regulation.¹⁰

3. The Clean Water Act sought to "eliminate" the discharge of pollutants into navigable waters by 1985. 33 U.S.C. § 1251(a)(1) (1982). Obviously, this lofty aim has not been realized. The objectives of the Clean Air Act also remain unfulfilled. A recent EPA study found that over 80 million people live in areas where ozone levels exceed the agency's national ambient air quality standards for that pollutant. Carbon monoxide and total suspended particulate standards are also being violated in many places. See *INSIDE EPA*, Apr. 4, 1986, at 10.

4. Although a cause and effect relationship between statutory requirements and environmental improvement is hard to demonstrate, ambient concentrations of ozone, particulates, sulfur dioxide, carbon monoxide, and lead have fallen from 17 to 70 percent in the last decade. See *INSIDE EPA*, Apr. 25, 1986, at 11.

5. See, e.g., F. ANDERSON, D. MANDELKER & A. TARLOCK, *ENVIRONMENTAL PROTECTION: LAW AND POLICY* 310 (1984); Ostrov, *Interboundary Stationary Source Pollution — Clean Air Act Section 126 and Beyond*, 8 COLUM. J. ENVTL. L. 37, 80-93 (1982).

6. See F. ANDERSON, D. MANDELKER & A. TARLOCK, *supra* note 5, at 356-64; J. BONINE & T. MCGARITY, *THE LAW OF ENVIRONMENTAL PROTECTION* 436-38 (1984).

7. This conclusion stems from a review of all state programs undertaken in G. COGGINS & R. GLICKSMAN, *A PROPOSED STRATEGY TO PREVENT GROUNDWATER CONTAMINATION IN KANSAS* (1986) [hereinafter *STRATEGY REPORT*]. See also NATIONAL RESEARCH COUNCIL, *GROUND-WATER QUALITY PROTECTION: STATE AND LOCAL STRATEGIES 2* (1986) [hereinafter *NRC REPORT*]. Summaries of all state programs, state-by-state, are included in Appendix X to the *STRATEGY REPORT*, and their gist is explained in Part VI of that Report.

8. See Glicksman & Coggins, *Groundwater Pollution I: The Problem and the Law*, 35 KAN. L. REV. 75 at pt. III (1986) [hereinafter *Groundwater Pollution I*].

9. *Id.* at pt. II, § A.

10. *Id.* at pt. II.

More than in most areas of pollution control, the states are acting as social laboratories, experimenting with various programs and techniques for implementing groundwater protection objectives. Any state program will nevertheless have to be consistent with and coordinated into the patchwork of federal laws governing particular aspects of groundwater pollution.¹¹

The overall strategy suggested in this article goes further than any now in effect, but it does not purport to be the final word on the subject of preventing groundwater pollution. That subject is in its relative infancy as a body of law and practical experience, and it is characterized by inadequate information as to the causes, extent, and methods for preventing contamination.¹² All of the recommendations in this article are therefore subject to change as science, technology, information, law, and experience progress.

The first installment of this two-part article discussed the nature and extent of groundwater contamination and the federal and Kansas laws directed at abatement and prevention of such contamination. It concluded that groundwater pollution is a serious and growing problem and that present law is deficient in many respects.¹³ Very few federal laws address the problem directly,¹⁴ and even those that do cover limited categories of pollution sources¹⁵ are lacking at critical points, and have been hampered by questionable implementation.¹⁶ Kansas state law is theoretically more comprehensive¹⁷ but has not been effective in preventing groundwater contamination.¹⁸

The story is similar in other jurisdictions. Virtually all states are aware of groundwater pollution within their borders and have taken some steps to prevent and abate it.¹⁹ The effectiveness of most such state programs cannot be realistically evaluated because they are of too recent a vintage. The available evidence indicates, however, that most state ventures in prevention are too limited or too shallow to

11. *Id.* at pt. II, § A.

12. *Id.* at pt. I.

13. *Id.* at pts. I-III.

14. Among those that do are the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6991i (1982 & Supp. III 1985); the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f-300j-10 (1982), amended by Pub. L. No. 99-339, 100 Stat. 642 (1986); and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9657 (1982), amended by Pub. L. No. 99-499, 100 Stat. 1613 (1986). See *Groundwater Pollution I*, *supra* note 8, at pt. II, §§ C-E.

15. See *Groundwater Pollution I*, *supra* note 8, at pt. II, §§ C-E, I.

16. See *id.* at pt. II.

17. Unlike federal law, the Kansas water pollution statutes clearly contemplate control of all pollutant discharges into groundwater. *E.g.*, KAN. STAT. ANN. § 65-161(a) (1985); see *Groundwater Pollution I*, *supra* note 8, at pt. II, § C.

18. *Groundwater Pollution I*, *supra* note 8, at pt. I, § C(2).

19. STRATEGY REPORT, *supra* note 7, at § VI & app. X.

succeed over the long run.²⁰ Those efforts in other jurisdictions nevertheless offer valuable models and lessons for any states seeking an overall prevention strategy. A comprehensive survey of such programs is beyond the scope of this article,²¹ but brief summaries of actions taken by other jurisdictions are included to identify elements that have promise for adaptation to a general state strategy. As each state is writing on a relatively clean slate, it behooves each to consider a wide variety of options.

This article begins with a series of basic policy questions that the decisionmaker—usually the legislature—must confront, directly or implicitly, before deciding on the elements of any prevention program. Section II offers a detailed set of recommendations for a state strategy to prevent groundwater pollution. The recommendations were crafted originally for specific application in Kansas but could serve as a basis for creating a program in any state. A proposed Groundwater Conservation Act, the Appendix to this article, embodies in concrete form these suggestions for legal change.

Some initial assumptions developed in the Report from which this article was derived should be made explicit. First, the federal government will not suddenly supplant all state prevention programs.²² Second, information on the extent, severity, and effects of groundwater contamination will remain inadequate for the foreseeable future.²³ Third, prevention of groundwater pollution cannot be accomplished by ad hoc responses to ad hoc crises; an overall strategy is necessary.²⁴

I. THE FUNDAMENTAL POLICY CHOICES

Developing a strategy or strategies to combat the general problem of groundwater contamination is necessarily a speculative venture because of the vast number of variables that are unknown or only partially understood. The ultimate unknown is the political acceptability of any proposed control or prevention measure. The relative dearth of hard facts on groundwater contamination and the costs of con-

20. *Id.* at § VI.

21. Capsule descriptions of groundwater pollution control programs in all states are compiled in STRATEGY REPORT, *supra* note 7, at app. X. See generally OFFICE OF TECHNOLOGY ASSESSMENT, PROTECTING THE NATION'S GROUNDWATER FROM CONTAMINATION (1984) [hereinafter OTA REPORT]; T. HENDERSON, S. TRAUBERMAN & T. GALLAGHER, GROUNDWATER: STRATEGIES FOR STATE ACTION (1984) [hereinafter HENDERSON].

22. See, e.g., H.R. REP. NO. 575, 99th Cong., 2d Sess. 45 (1986); 17 Env't Rep.—Cur. Devs. (BNA) 251 (June 27, 1986) (statement of President Reagan that "states have the principal role" in protecting groundwater quality).

23. See STRATEGY REPORT, *supra* note 7, at § II; *Groundwater Pollution I*, *supra* note 8, at pt. I; OTA REPORT, *supra* note 21, at 5.

24. See generally Tripp & Jaffe, *Preventing Groundwater Pollution: Towards a Coordinated Strategy to Protect Critical Recharge Zones*, 3 HARV. ENVTL. L. REV. 1 (1979).

trolling it complicate the legislative and administrative choices. Initially, a state legislature faces a sort of chicken-and-egg problem similar to that encountered in the acid rain debate:²⁵ should the crafting of a regulatory approach await the development of fuller factual information, or should the design of an information-gathering system be based on the chosen regulatory strategy?²⁶ The best answer is at least two-fold. First, those choices are not mutually exclusive; both efforts can proceed in concert, so long as each hand knows what the other is doing. Too much information in this area is no danger, and full development and implementation of legal strategies will not happen overnight.

Second, a legislature's emphasis should be dictated by the nature and severity of the contamination problem at the time action is considered. In other words, if the damage from groundwater pollution is real, growing, and very difficult to correct, then action ought to be taken on the basis of the best available information, even if that information is not very good. If, on the other hand, the problem may not be severe, or may be easily correctible when detected, and many interests could be adversely affected by rash action, it might be wise to delay instituting radical measures until better data is available. Although the question is not free from doubt, the former description better fits the known state of facts in Kansas and in virtually every other American jurisdiction. Any remaining doubts on this score should be removed by the consideration that prevention of groundwater contamination is far cheaper and easier than cleanup—when cleanup is even possible.²⁷ Indeed, widespread contamination could result in precisely the kind of adverse impact on sectors of a state's economy dependent on groundwater use that the "go slow" philosophy seeks to avoid. In short, the conceded need for more information should not serve as an excuse to delay action to prevent further contamination. Life must go on in the face of these uncertainties. The choice of action to take, however, is itself fraught with unknowns and uncertainties.

The following sections discuss some of the basic issues that must be confronted and resolved before the details of a strategy can be

25. The current Administration has resisted the imposition of controls on probable sources of acid rain, ostensibly because too little is known about cause and effect in this area. See generally *INSIDE EPA*, May 2, 1986, at 7 (the EPA opposes acid rain control legislation because the current level of information cannot support a judgment about the level of emission reductions needed).

26. In Kansas, a computerized system for analyzing groundwater data is being developed by the Kansas Geological Survey at the University of Kansas pursuant to a grant by the Kansas Department of Health and Environment (using funds provided by the federal Environmental Protection Agency).

27. See HENDERSON, *supra* note 21, at 2; NRC REPORT, *supra* note 7, at 168.

addressed. Policy analysts sometimes assume that once the problem is identified, the appropriate regulatory measures naturally flow. A Nebraska groundwater pollution strategy document,²⁸ for instance, apparently assumes that the step (or steps) between determining that various sources can cause groundwater pollution and creating the remedy for that problem automatically follows: regulations "will be written"; standards "will be designed"; legislation "will be developed"; etc.²⁹ The Nebraska document, however, does not answer questions such as: by whom? in pursuit of what objectives? and with what regulatory techniques? In effect, the Nebraska authors silently opted for a traditional administrative system of rulemaking and so forth, thus delegating the choice of means and details to the unconfined discretion of relatively unguided administrative officials. Other possible routes to a remedy exist and should be considered.

A full discussion of theories about the functions of government and means of regulation is beyond the scope of this article.³⁰ This section instead identifies the major policy issues necessarily implicated in any strategy to prevent groundwater pollution, summarizes some of the prominent arguments pro and con, and preliminarily takes positions on the fundamental questions for legislative decision.

A. Prevention Of Contamination vs. After-The-Fact Abatement Or Cleanup

Any strategy must start from the presumption that prevention of groundwater pollution is far preferable to after-the-fact cleanups. Little discussion of this point seems necessary: every commentator, legislator, and administrator cited or quoted in this article and its predecessor who has considered the question makes this essentially commonsense observation, and the supporting data and arguments are overwhelming and apparently uncontroverted.³¹

B. Degree Of Protection: Nondegradation vs. Something Else

An important question that only the legislature can answer is the degree of protection for which a state should strive. The uncoordinated nature of past efforts to prevent groundwater pollution is due in large

28. NEBRASKA DEP'T OF ENV'TL CONTROL, WATER & WASTE MANAGEMENT DIV., PROGRAM PLANS SECTION, NEBRASKA GROUNDWATER QUALITY PROTECTION STRATEGY: FINAL REPORT (1985) [hereinafter NEBRASKA REPORT].

29. *Id.* at 43-52.

30. For such a discussion, see generally R. PIERCE, S. SHAPIRO & P. VERKUIL, ADMINISTRATIVE LAW AND PROCESS 1-24 (1985).

31. See generally OTA REPORT, *supra* note 21, at 6; Tripp & Jaffe, *supra* note 24, at 34; NRC REPORT, *supra* note 7, at 168.

part to the absence of such a guiding policy objective.³² The choices start from a total, across-the-board "nondegradation" standard and range downward through a spectrum of progressively less stringent goals. A strict nondegradation standard requires the protection of all groundwater quality in its existing state (and probably the restoration of already polluted waters to natural levels of quality).³³ More flexible, less stringent standards permit deterioration of at least some aquifers down to specified levels of water quality.³⁴ Various states have adopted a wide range of groundwater quality goals. Most opt for some form of differential protection. Connecticut, for instance, recognizes that some groundwater may already be unusable and is therefore appropriate for use as a receptacle for waste disposal.³⁵ That state's differential protection strategy seeks to improve the quality of polluted groundwater to the extent feasible.³⁶

Commentary and experience on the appropriate degree of protection are mixed. Some commentators make a very persuasive case for the nondegradation standard.³⁷ A nondegradation policy seeks to prevent contamination which eventually may preclude a state from meeting its future water needs, even if those needs are not currently foreseeable. It mitigates uncertainties by providing a margin of safety against the potential adverse effects of groundwater pollution.³⁸ A nondegradation policy could also be attractive from the perspective of public opinion; many people agree (at least until they are forced to pay for or comply with government decisions) that the public health and safety are too important to be sacrificed upon the altar of economic expediency.³⁹ Another benefit of the nondegradation approach is certainty. In a state opting for this approach, those implementing the prevention program would have a clear guideline for their actions in doubtful areas, and potential sources would know what is ultimately expected of them. Others point out, however, that some aquifers are already too polluted ever to attain relative purity again, that absolute nondegradation is almost certainly not attainable, and that the

32. See STRATEGY REPORT, *supra* note 7, at § VI.

33. See HENDERSON, *supra* note 21, at 64-65.

34. See *id.* at 66-67.

35. NRC REPORT, *supra* note 7, at 83.

36. 2 ENVIRONMENTAL PROTECTION AGENCY, STATE GROUNDWATER PROGRAM SUMMARIES 5 (1985) [hereinafter EPA STATE SUMMARIES].

37. See, e.g., Tripp & Jaffe, *supra* note 24, at 32-33.

38. E.g., *id.* at 33.

39. Cf. HENDERSON, *supra* note 21, at 65 (because a nondegradation policy attempts to prevent contamination by substances whose effects on humans are presently unknown, it reassures the public that the government is doing everything possible to protect them).

economic value of some polluting activities on the surface may far exceed the value of the underlying groundwater.⁴⁰

For reasons detailed below, this strategy opts for a middle ground: it recommends institution of a nondegradation standard for aquifers that are being or could be used for drinking water, with less stringent, differential standards of protection applied to other aquifers.⁴¹

C. *General Standards vs. Aquifer Classification*

The policymakers' task does not end when this first choice is made, however. The choice of anything other than a nondegradation standard immediately spawns other questions. For example, should the state attempt to classify aquifers by use or otherwise? The federal government, Colorado, and other jurisdictions are advocating or experimenting with such classifications.⁴² On the other hand, a significant number of states have chosen not to classify aquifers or have not yet developed classification schemes.⁴³ Some, such as Maine and Vermont, have very simple systems: water is suitable for drinking or it is not.⁴⁴ Other systems are much more complex. Wyoming has seven different categories of aquifers based on groundwater use,⁴⁵ while North Carolina has five based on physical descriptions of water quality.⁴⁶

Although a state should strive to preserve existing quality levels in all aquifers, exceptions will be necessary because of prior contamination or other exceptional circumstances. Thus, a classification system, especially one that generally "err[s] on the side of caution,"⁴⁷ and that protects aquifers used or potentially useful for drinking water from any contamination, has merit.

D. *Water Quality Standards: General vs. Differential*

Adoption of a classification system engenders a series of related

40. See Getches, *Controlling Groundwater Use and Quality: A Fragmented System*, 17 NAT. RESOURCES LAW. 623, 632 (1985).

41. See *infra* text accompanying notes 200-219 for a more detailed explanation of the proposed system.

42. See, e.g., ENVIRONMENTAL PROTECTION AGENCY, GROUND-WATER PROTECTION STRATEGY 43-47 (1984) [hereinafter EPA STRATEGY]; see also STRATEGY REPORT, *supra* note 7, at app. X (describing the efforts of various states to classify groundwater); NRC REPORT, *supra* note 7, at 80-95.

43. See generally, EPA STRATEGY, *supra* note 42, at 22; STRATEGY REPORT, *supra* note 7, at § VI.

44. EPA STATE SUMMARIES, *supra* note 36, at 18, 66, 67.

45. *Id.* at 549.

46. *Id.* at 258.

47. Tripp & Jaffe, *supra* note 24, at 33.

questions. For example, if a classification system is adopted, should the state then apply differential water quality standards ratcheted to each identified class of aquifer? Such choices are basic to the formulation of a prevention program, because the complexity of the program and the type of administrative expertise and other factors necessary to its implementation depend heavily upon the general water quality goal adopted. A water quality standard ordinarily specifies the maximum level of a contaminant allowable in the groundwater.⁴⁸ Again, the states are sharply divided on this question. A significant number of states (including Delaware, Georgia, Iowa, Kentucky, Maine, Rhode Island, Tennessee, and Vermont) do not have such standards.⁴⁹ Others, including Florida, Massachusetts, and New Jersey—three states with relatively well-developed protection programs—have developed groundwater quality standards.⁵⁰ Even among the second group of states, however, opinions differ widely as to the appropriate role of the standards in an overall protection strategy. New York apparently uses the standards as the basis for issuing permits specifying the maximum permissible levels of pollutant discharge by potential groundwater contamination sources.⁵¹

If the legislature opts for such groundwater quality standards, should they be derived from the federal drinking water standards or should the state formulate standards to serve its own purposes? The federal standards offer the comfort of uniformity, but their origins are murky and their scope is limited.⁵² The bases for such standards promulgated in other states are unknown.⁵³ If promulgated, should groundwater quality standards be the sole or main basis for source controls (like ambient air quality standards) or should they serve a more limited function? As discussed in more detail below, we suggest that a state adopt groundwater quality standards—expeditiously—but apply them in only a few defined situations only for limited purposes.⁵⁴

E. General vs. Targeted Regulation

Control of groundwater contamination could affect every citizen and most economic entities and activities in the state. One initial choice that a legislature must make is whether to impose general, statewide

48. See OTA REPORT, *supra* note 21, at 80; *Groundwater Pollution I*, *supra* note 8, at pt. II, § C.

49. See STRATEGY REPORT, *supra* note 7, at app. X.

50. See *id.*; NRC REPORT, *supra* note 7, at 99-101.

51. Tripp & Jaffe, *supra* note 24, at 28.

52. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § C.

53. These state standards are compiled in OTA REPORT, *supra* note 21, at 333-48 and are reproduced as appendix III to the STRATEGY REPORT, *supra* note 7.

54. See *infra* notes 233-39 and accompanying text.

controls over all activities with even a remote potential for contributing to the problem, to more narrowly target known classes of serious sources, or to concentrate only on the sources that apparently are the most dangerous, such as hazardous waste disposal sites. Present incomplete data suggest that all phases of petroleum operations, fuel and waste storage, ill-placed septic systems, and sources of nitrates such as fertilizers are among the most serious contamination sources in Kansas.⁵⁵ The severity of the threats posed by classes of sources obviously varies widely by state and region.⁵⁶

Any prevention program is bound to have some economic impact. Should that impact be limited to the worst contributors, as currently understood, or should it be spread among all known and suspected contributors? The answer will determine in substantial part the overall effectiveness of the program chosen. It may also bear directly on the public's perception of fairness: the program is more likely to be accepted if all potential contributors to the problem appear to be doing their fair share in trying to solve it. Virtually every major pollution control program has exceptions or exemptions of some sort for small sources or special situations; special treatment of this sort argues for a targeted approach.⁵⁷ Yet, Congress has gradually reduced the scope of regulatory exceptions in many such programs, such as the Resource Conservation and Recovery Act (RCRA),⁵⁸ as deficiencies in coverage are revealed. Such attempts to close regulatory loopholes argue for the opposite approach. Further, in many instances when an agency has broadened exemptions or relaxed restrictions, such as the EPA's short-lived attempt to lift the ban on disposal of containerized liquid hazardous wastes in landfills,⁵⁹ either the consequences threatened to become disastrous, and the regulators were forced to beat a hasty retreat, or courts ruled the relaxation contrary to statute.⁶⁰

55. See STRATEGY REPORT, *supra* note 7, at § II; *Groundwater Pollution I*, *supra* note 8, at pt. I, § C(2); NRC REPORT, *supra* note 7, at 111.

56. See OTA REPORT, *supra* note 21, at 49-51.

57. See, e.g., 42 U.S.C. § 300g-4 (1982), amended by Pub. L. No. 99-399, § 104, 100 Stat. 642, 649 (1986) (providing for variances from the Safe Drinking Water Act's national primary drinking water regulations); *id.* § 300g-5, amended by Pub. L. No. 99-339, § 105(a), 100 Stat. 642, 649 (1986) (exemptions from the same Act's requirement that public water systems comply with maximum contaminant levels); *id.* § 6921(d)(4) (Supp. III 1985) (envisioning regulatory exemption of hazardous waste generators of less than 100 kilograms per month unless such regulation is necessary "to protect human health and the environment").

58. See, e.g., 42 U.S.C. § 6921(d) (Supp. III 1985) (reducing the number of small quantity generators of hazardous waste exempted from RCRA regulatory requirements).

59. See 47 Fed. Reg. 8307 (1982) (proposed repeal of prohibition on landfill disposal of most containerized liquid waste); *id.* at 12,316 (reinstating the ban).

60. See NRDC v. EPA, 790 F.2d 289, 305 (3d Cir. 1986) (EPA's repeated lowering of pretreatment standards for indirect dischargers of sewage violated § 307(b)(1) of the federal Clean Water Act); see also Sierra Club v. EPA, 719 F.2d 436, 455-56 (D.C. Cir. 1983); Alabama Power Co. v. Costle, 636 F.2d 323, 359-60 (D.C. Cir. 1979).

The existing uncertainties concerning the sources of groundwater pollution lead to the initial conclusion that it is better to err on the side of over- rather than under-inclusiveness in defining the scope of regulatory coverage. While petroleum operations and septic systems are known to cause groundwater contamination, no conclusive evidence exculpates other potential sources; in other words, the experts may someday discover that municipal waste treatment lagoons are worse polluters than poorly plugged oil wells. Similar uncertainties support, if they do not dictate, a comprehensive approach, covering all known or suspected classes of sources, of all sizes. These sources initially should be subject to whatever generally applicable regulatory scheme may be chosen. Thereafter, variance provisions that either exempt particular activities, subject them to specially-tailored, more lenient controls, or provide them with a longer time to comply with generally applicable requirements, can handle problems of scale and fairness. In this recommended strategy, variance allowances are limited to a case-by-case or category-by-category basis, and the implementing agency can grant them only when a particular source or class of sources can demonstrate unique circumstances such as regulatory inequity, insubstantial effect on groundwater quality, or undue hardship.⁶¹

F. Type of Approach: Regulatory vs. Economic vs. Other

A fundamental political choice is whether to rely on standard "command and control" systems of administrative regulation, with design and performance standards, reporting and monitoring requirements, etc., to use some other basic approach, such as economic incentives and sanctions, or to combine various approaches. To illustrate, the federal government's response to hazardous waste regulation takes two routes. The RCRA reflects a classic regulatory approach: Congress sets more or less detailed guidelines;⁶² the EPA fleshes out the statutory terms with voluminous regulations and procedures;⁶³ and the regulated companies must generate enormous paperwork to demonstrate compliance with their regulatory duties. That statute backs up its regulatory proscriptions with a variety of civil and criminal penalties.⁶⁴

If the RCRA is the preventive arm, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) is the response arm. The CERCLA is primarily a financial law: the EPA's cleanup operations are financed by a tax on producers of petroleum

61. See Groundwater Conservation Act §§ 14f, 15e.

62. See 42 U.S.C. §§ 6922-6924 (1982 & Supp. III 1985).

63. The RCRA regulations, at 40 C.F.R. pts. 260-265 (1985), take up 252 single-spaced pages.

64. See 42 U.S.C. § 6928 (1982 & Supp. III 1985).

products and chemical feedstocks,⁶⁵ and the liability provisions of the law permit the EPA to seek reimbursement for its cleanup costs from those directly and indirectly responsible for releases of hazardous substances.⁶⁶ In this form of economic approach, the government acts more as tax collector and litigant than as regulation writer. Of course, difficult regulatory issues such as the extent of the cleanup required still surface under the CERCLA.⁶⁷ These dual financial provisions, a tax on generation of potentially troublesome materials and liability for the costs of responding to releases of hazardous substances, both serve to force those who engage in lax disposal practices to pay for the consequences of those practices. If a tax is assessed on the volume of waste disposal, then those subject to the tax will have a further incentive to reduce the amount of waste they generate as a means of minimizing their tax liability.⁶⁸

Another example of the use of economic incentives in lieu of design specification regulation is a system that prohibits the emission into the environment of more than a certain amount of pollution but leaves the regulated entity free to achieve that result in whatever way it deems appropriate.⁶⁹ Economists and others often contend that this kind of approach provides companies with the incentive to seek out the least costly means of achieving the required goal.⁷⁰ The EPA's "bubble" policy for air pollution emissions is an example of this approach,⁷¹ but its success is not yet evident. As its use has expanded, the bubble has come under increasing criticism because pollution control practices that look good on paper may not produce real world pollution reductions, and may even increase the level of emissions.⁷² A regulation that requires installation of a particular kind of technology or

65. See 26 U.S.C. §§ 4611, 4661 (1982). The sources of funding for the Superfund were expanded in 1986. See Pub. L. No. 99-499, §§ 501-517, 100 Stat. 1613, 1760-74 (1986).

66. 42 U.S.C. § 9607(a) (1982), amended by Pub. L. No. 99-499, § 107, 100 Stat. 1613, 1628-31 (1986).

67. See *Groundwater Pollution I*, supra note 8, at pt. II, § E. This issue is addressed in § 121 of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613, 1672-78.

68. Cf. 42 U.S.C. § 6922(b) (1982 & Supp. III 1985) (hazardous waste generators must include a certification in their RCRA manifest forms that they have instituted an economically practicable program to reduce the volume and toxicity of hazardous waste).

69. See, e.g., 33 U.S.C. § 1311(b) (1982) (Clean Water Act requirement that point sources achieve effluent limitations by certain dates).

70. See generally Ackerman & Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985).

71. The "bubble" policy is discussed in *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 104 S. Ct. 2778 (1984). See also Rhinelander, *The Proper Place for the Bubble Concept Under the Clean Air Act*, 13 ENVTL. L. REP. 10,406 (1983).

72. See, e.g., Doniger, *The Dark Side of the Bubble*, ENVTL. FORUM, July 1985, at 32.

equipment,⁷³ on the other hand, may be a far less efficient means of accomplishing the same degree of environmental protection.⁷⁴ In short, neither command-and-control regulations nor pollution controls based purely on the economic self-interest of the regulated entities is a panacea. Both approaches have their own advantages and disadvantages. Most current federal and state pollution control systems are combinations of regulatory and economic approaches but tend to be heavily weighted toward the command-and-control side.⁷⁵

Volumes of learned commentary have been written about preferable regulatory approaches,⁷⁶ and no consensus is in sight.⁷⁷ As a threshold matter, history demonstrates that some kind of standard regulatory system is a necessary foundation for a comprehensive strategy to prevent pollution. Reliance on private self-interest alone to solve pollution problems cannot be the whole answer, if for no other reason than the lack of an adequate enforcement mechanism.⁷⁸ Without a regulatory system to compel pollution control, many of the environmental costs of the polluter's activities will remain external to the polluter itself; *i.e.*, someone else will have to bear these costs.⁷⁹ As a result, in deciding whether the costs of a certain activity outweigh the benefits, the polluter can, and usually will, ignore these external costs.⁸⁰ Exclusive reliance on private tort remedies as a means of deterring pollu-

73. *E.g.*, 42 U.S.C. § 6924(o)(1)(A)(i) (Supp. III 1985) (requiring new, replacement, or expanded hazardous waste landfills and surface impoundments to install two or more liners and a leachate collection system); *id.* § 6924(o)(5)(B) (specifying that until the EPA issues specific regulations, a lower liner constructed of at least a three-foot thick layer of recompressed clay or other natural material with a permeability of no more than 1×10^{-7} centimeter per second satisfies part of the statutory requirement of a double liner).

74. See Ackerman & Stewart, *supra* note 70, at 1335-39.

75. See generally J. BONINE & T. MCGARITY, *supra* note 6.

76. See, *e.g.*, Pedersen, *Why the Clean Air Act Works Badly*, 129 U. PA. L. REV. 1059 (1981); Schoenbrod, *Goals Statutes or Rules Statutes: The Case of the Clean Air Act*, 30 UCLA L. REV. 740 (1983); Note, *Technology-Based Emission and Effluent Standards and the Achievement of Ambient Environmental Objectives*, 91 YALE L.J. 792 (1982).

77. Compare Ackerman & Stewart, *supra* note 70 with Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning" Regulatory Reforms*, 37 STAN. L. REV. 1267 (1985).

78. It is true that all of us tend to act and react in accordance with our perceptions of self-interest. If the benefits of a course of action, such as spreading nitrogen fertilizers in a recharge zone, would be far less than the costs, such as a multimillion dollar damage judgment, we will not do it (unless reasonably sure that we will not be detected).

79. See Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669, 670 (1979).

80. The farmer, for example, will enjoy all of the economic benefits of the greater crop yield derived from the use of nitrogen fertilizers, but will incur little or none of the costs of the natural resources injured by fertilizer runoff and seepage. The rational farmer will conclude, therefore, that pollution is in his self-interest. *Cf.* Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

tion has not worked and will not work.⁸¹ Government regulation changes the calculus of costs and benefits by forcing the polluter to internalize costs that it would otherwise shift onto others.⁸²

From these and other reasons come several tentative conclusions about preferable pollution control approaches. First, although some kind of regulatory command-and-control foundation is probably necessary for preventing pollution, it should be supplemented with other techniques. The traditional regulatory approach has survived and prospered because it often performs as desired and provides a focus for problem solution.⁸³ But this approach is not without its drawbacks. The faults of the typical administrative structure—rigidity, defensiveness, timidity, arbitrariness, slowness, even capture⁸⁴—should lead legislatures away from exclusive reliance on a traditional regulatory system based on the exercise of agency expertise, even if those undesirable tendencies are not now evident.

Second, financial incentives and disincentives are highly desirable as elements of a comprehensive strategy. Large economic entities in particular are sensitive to tax considerations, liability exposure, and similar financial factors. Accordingly, this recommended strategy includes components, such as the use of environmental performance zoning,⁸⁵ that dictate a particular objective but then leave each potential pollution source free to achieve that objective in whatever way—presumably the most cost-effective way—that the source deems appropriate. Furthermore, while administratively-imposed or -initiated punitive sanctions will always be required to deter willful and wanton violations of the law, incentives operating independently of administrative oversight sometimes have as much or more promise. The “private attorneys general” provisions of many environmental laws have been powerful tools for insuring both private and administrative compliance.⁸⁶ Some such extra-administrative mechanism for enforce-

81. Certainly private nuisance litigation by itself has not been an effective means of groundwater pollution prevention, both because it is costly for those harmed by polluting activities to pursue and because the ad hoc standards applied by the courts in such cases make the results maddeningly unpredictable. See STRATEGY REPORT, *supra* note 7, at §§ I, V(G)(1).

82. See R. PIERCE, S. SHAPIRO & P. VERKUIL, *supra* note 30, at 13-14.

83. See generally Latin, *supra* note 77.

84. “Agency capture” occurs when the regulatory agency favors the concerns of the industry it regulates over the interests of the general public. See R. PIERCE, S. SHAPIRO & P. VERKUIL, *supra* note 30, at 19.

85. See *infra* text accompanying note 325. For a more complete description of environmental performance zoning, see *Groundwater Pollution I*, *supra* note 8, at pt. III, § H.

86. See generally ENVIRONMENTAL LAW INSTITUTE, CITIZEN SUITS: AN ANALYSIS OF CITIZEN ENFORCEMENT ACTIONS UNDER EPA-ADMINISTERED STATUTES (1984); Feller, *Private Enforcement of Federal Anti-Pollution Laws Through Citizen Suits: A Model*, 60 DENV. L.J. 553 (1983); Schwartz & Hackett, *Citizen Suits Against Private Industry Under the Clean Water Act*, 17 NAT. RESOURCES LAW. 327 (1984).

ment should be a part of a prevention strategy.⁸⁷

Third, the centralization of research, rulemaking, and supervisory powers in one administrative organ is probably indispensable for effective pollution prevention. To date, fragmentation is widely cited as among the most serious deficiencies of groundwater pollution control efforts.⁸⁸ In Kansas, the Kansas Department of Health and Environment has developed considerable experience in forms of pollution control, and any strategy should take advantage of that experience. The same is likely true for existing pollution control agencies in other states. A regulatory-based strategy need not involve the development of entirely new control techniques or the imposition of radical new obligations.

In summary, a regulatory approach to a problem as pervasive and difficult as groundwater contamination should try to integrate the best features and elements of diverse approaches, combining traditional regulation, supplemental private lawsuits, and the use of economic incentives. The key to a successful strategy for preventing contamination, and the most difficult task, is to create a harmonious blend of these and other elements.

G. *Federal vs. State vs. Local as the Appropriate Level of Government to Respond*

In several senses, groundwater pollution is a state and national as well as local problem, although its effects tend to be much more sharply felt in individual localities. All three levels of government have a stake in the matter, but whether all three can or should have an equal hand in solving it is at best problematic. The federal government has the most resources, but it is handicapped in various ways, not the least of which are its relative ignorance of local conditions⁸⁹ and the hostility or distrust of the regulated and non-regulated communities alike.⁹⁰ Much political sentiment opposes any federal regulatory effort, particularly one dealing with land use controls, as an unjustified if not undemocratic intrusion into state prerogatives.⁹¹

87. See *infra* notes 374-76 and accompanying text.

88. E.g., HENDERSON, *supra* note 21, at 35-36; EPA STRATEGY, *supra* note 42, at 1.

89. See EPA STRATEGY, *supra* note 42, at 20.

90. Industry leaders decrying federal intervention of any kind, and environmentalists, who rely on federal regulations, distrusting the means and motives of federal regulators, are common phenomena.

91. See, e.g., INSIDE EPA, Sept. 20, 1985, at 1 (the Justice Department contended that proposed House amendments to the SDWA would usurp responsibilities properly left to state and local governments and intrude on states' rights); 17 Env't Rep.—Cur. Devs. (BNA) 251 (June 27, 1986) (according to President Reagan, 1986 SDWA amendments cannot be used to "establish a major federal presence in highly sensitive local land use decisions that could affect groundwater.").

Federal administrators have warned the states not to expect too much backing or assistance in the fight against groundwater pollution in the foreseeable future.⁹²

Localities have the greatest stake in groundwater purity, as the health of their citizens and economies often depends on it. Towns, cities, and counties, however, seldom have the knowledge and other resources necessary for effective response, and they are handicapped in that their only powers derive from the state.⁹³ Local politics also can dilute the effectiveness of land use programs, especially those for which the environmental or other social benefits are not quantifiable or immediately apparent.

As a practical matter, only the state is situated to respond effectively. The pattern of contamination instances in Kansas fairly clearly demonstrates that groundwater pollution is a problem of statewide scope; similar patterns prevail in most if not all other states. As another practical matter, only a state agency can adequately implement the federal legislation that affects groundwater quality.⁹⁴

Once a state develops a groundwater protection program, it must decide who will administer that program. Most states appear to have vested primary administrative responsibility in state officials and agencies,⁹⁵ although some states delegate certain tasks, for example, land use decisions, to the local level.⁹⁶ Other states (such as Arkansas,⁹⁷ Colorado,⁹⁸ Iowa,⁹⁹ New Mexico,¹⁰⁰ Oklahoma,¹⁰¹ and South Carolina¹⁰²) have fragmented state-level decisionmaking among a variety

92. See EPA STRATEGY, *supra* note 42, at 20, 21; Getches, *supra* note 40, at 643. Indeed, the last several years have witnessed attempts by the federal government to shift responsibility for a series of environmental and other problems back to the states, while at the same time sharply reducing the amount of federal assistance to state programs. See, e.g., INSIDE EPA, Jan. 24, 1986, at 1, 10 (part of the cuts caused by the Gramm-Rudman deficit reduction act will come from the Clean Water Act municipal sewage plant construction grants program); INSIDE EPA, Feb. 7, 1986, at 11 (fiscal 1987 budget shows a drop in grants to states); 14 Env't Rep.—Cur. Devs. (BNA) 1654 (Jan. 27, 1984) (Rep. Mike Synar (D-Okla.) criticized the EPA's proposed groundwater protection strategy, stating that it would give states the responsibility for control but no funds to meet that responsibility). *But see* 42 U.S.C. § 300j-2 (1982), amended by Pub. L. No. 99-339, § 301, 100 Stat. 642, 663-65 (1986) (authorizing federal grants for development and implementation of state underground injection control, critical aquifer protection area, and wellhead protection area programs).

93. See generally 3A ANTIEAU, INDEPENDENT LOCAL GOVERNMENT ENTITIES § 30A.05 (1970).

94. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § A.

95. See STRATEGY REPORT, *supra* note 7, at § VI and app. X.

96. *Id.*; NRC REPORT, *supra* note 7, at 134-52.

97. See EPA STATE SUMMARIES, *supra* note 36, at 374-76.

98. *Id.* at 495-96.

99. *Id.* at 440-44.

100. *Id.* at 399-404.

101. *Id.* at 417-18.

102. *Id.* at 269, 273, 276-77.

of agencies. The more coherent programs appear to be under the supervision of one agency, such as those in Delaware¹⁰³ and Florida.¹⁰⁴

For all of these reasons, this article recommends (and hereinafter presumes) that the state, through its primary pollution control agency, should be the main focus of regulation. The state can and should call upon the financial and informational resources of the federal government, and it should implement the various federal/state cooperative programs for pollution abatement. On the other hand, the state should guide, cooperate closely with, and delegate some authority to local officials. Beyond general guidance, localities should have express statutory power to deal creatively with distinctively local problems through the use of zoning and similar mechanisms.¹⁰⁵ But in the final analysis, the state pollution control agency should lead and coordinate whatever general program is chosen for preventing groundwater contamination.

H. Regulatory Technique: Statutory Rules vs. Administrative Discretion

An important if not crucial legislative choice is that between clear statutory rules and administrative flexibility. Both extremes have virtues and vices. Rigid statutory rules can lead to perceived unfair results in some situations.¹⁰⁶ Since no legislature can foresee or draft legislation to deal with all future problems that may arise, some discretion in the implementing agency is as desirable as it is inevitable. Nevertheless, unfettered administrative discretion has the potential to be the far greater evil. Agencies have a vested interest in minimal controversy,¹⁰⁷ yet controversy is an inevitable concomitant of any effective program. Every jurisdiction has seen instances in which the flexibility offered by the lack of clear rules has redounded to the detriment of the environment.¹⁰⁸ As a result, the federal Congress has opted for more precise rules and less discretion in virtually every instance in which it has amended a law to address an intractable pollution problem.¹⁰⁹ The degree of protection desired and the form of

103. STRATEGY REPORT, *supra* note 7, at app. X-16.

104. *Id.* at app. X-17.

105. See *infra* notes 331-35 and accompanying text.

106. See, e.g., Aman, *Administrative Equity: An Analysis of Exceptions to Administrative Rules*, 1982 DUKE L.J. 277.

107. See Stewart, *Interstate Resource Conflicts: The Role of the Federal Courts*, 6 HARV. ENVTL. L. REV. 241, 260-61 (1982).

108. E.g., *Taylor v. Department of Health & Env't*, 230 Kan. 283, 284, 634 P.2d 1075, 1077 (1981).

109. E.g., the 1984 RCRA amendments, Pub. L. No. 98-616, 98 Stat. 3221 (1984); the 1986 SDWA amendments, Pub. L. No. 99-339, 100 Stat. 642 (1986); the 1986 CERCLA amendments, Pub. L. No. 99-499, 100 Stat. 1613 (1986).

a program to achieve that level of protection are political questions that should be answered by the elected politicians. When the legislators set basic guidelines, regulators and regulated know where they stand.

While balance between statutory prescription and administrative discretion is necessary, such a balance should be tilted in the direction of clear statutory rules. Stating that a balance is desirable is much easier than precisely defining that balance in practice or reflecting it in statutes.¹¹⁰ The key is providing state administrative officials and local zoning authorities with sufficient discretion to respond effectively to groundwater pollution problems or threats of contamination, while at the same time confining and channelling that discretion toward the ultimate aims adopted by the legislature. This kind of balance does not occur automatically, however; the organic legislation should contain its own corrective mechanism for steering those responsible for implementing the statute back to the chosen course.¹¹¹

I. Protection vs. Regulation of Groundwater Rights

Some relationships between groundwater quality and groundwater quantity and use are undeniable,¹¹² yet Kansas, like most states, has largely failed to recognize and account for them.¹¹³ States have power to regulate groundwater pumping and use to protect groundwater quality,¹¹⁴ but the extent to which legislatures may wish to exercise that authority in instances of ascertainable conflict is problematic. Up to now, the Kansas Legislature has generally deferred to the exercise of groundwater rights, even when the resource itself is threatened.¹¹⁵ Other states, particularly the "appropriation" states in the West, apparently follow similar courses.¹¹⁶

Prudence indicates that a groundwater protection strategy should be solicitous of property rights in groundwater, avoiding conflicts to the extent possible. Nevertheless, some situations demand corrective action. An example is when pollution threatens all existing uses: unless the source, itself perhaps an appropriator, is restrained, it may

110. We nevertheless attempt such a definition in the following section and have included proposed statutory provisions to implement that balance in the Groundwater Conservation Act in the appendix.

111. See *infra* notes 372-76 and accompanying text.

112. See Getches, *supra* note 40, at 624.

113. For a brief discussion of Kansas law of groundwater rights and its effect on efforts to protect groundwater quality, see *Groundwater Pollution I*, *supra* note 8, at pt. III, § B.

114. See, e.g., *Williams v. City of Wichita*, 190 Kan. 317, 374 P.2d 578 (1962), *cert. denied*, 375 U.S. 7 (1963).

115. See *Groundwater Pollution I*, *supra* note 8, at pt. III, § B.

116. See, e.g., C. MEYERS & A. TARLOCK, *WATER RESOURCE MANAGEMENT* 805 (2d ed. 1980) (stating that generally a junior appropriator injured by pollution caused by a senior appropriator has no remedy).

effectively destroy the rights of other appropriators in the same aquifer. In these circumstances, one person's groundwater extraction rights must be impaired now so that everyone's rights continue to be valuable in the future. Connecticut, for example, has authorized state administrators to control groundwater withdrawals that will create cones of depression allowing the intrusion of adjacent, lower quality water.¹¹⁷

When the appropriator whose use is curtailed is also the source of the pollution, no legitimate objection to this use of a state's police power is readily imaginable. When, however, the agency must curtail an "innocent" appropriator to safeguard the aquifer, an interesting and difficult question of constitutional law may be posed.¹¹⁸ The ability to take and use groundwater is an ardently defended property right. Although such rights are not absolute, and are already regulated to some extent in Kansas¹¹⁹ and other states,¹²⁰ they nevertheless are entitled to constitutional protection. The Fourteenth Amendment to the United States Constitution prohibits a state from taking private property without due process of law or just compensation.¹²¹

Most aspects of groundwater property rights regulations are clearly constitutional. In Kansas, for instance, courts have repeatedly upheld the validity of the 1945 Kansas Water Appropriation Act,¹²² which declares that all water is dedicated to the public, against complaints alleging that the Act constitutes a taking of prior existing common law water rights.¹²³ The Kansas Supreme Court has ruled that the holders of common law water rights "own" the groundwater only in a "qualified sense";¹²⁴ they have only "a right of use as it passes" underneath their land.¹²⁵ The regulation of the right to use is therefore

117. HENDERSON, *supra* note 21, at 226.

118. Assume, for example, a small confined aquifer over which lie four sections of land running east and west. "A" Corporation owns the westernmost section and causes pollution in the aquifer by some industrial activity, but A Corporation is a non-water right holder. Next to A are three holders of water rights, B, C, and D, the senior-most (B) being just east of the polluter. B is not actively causing the pollution, but if he continues to pump water, his pumping will cause the pollution to migrate and eventually ruin the aquifer. B seems to be totally innocent: B is not the polluter; B's use does not exceed B's water right; and B's water use itself is beneficial. If the state desires to prohibit B from pumping, could it do so without having to compensate B?

119. See *Groundwater Pollution I*, *supra* note 8, at pt. III, § B.

120. See Getches, *supra* note 40, at 628-30.

121. U.S. CONST. amend. XIV.

122. KAN. STAT. ANN. §§ 82a-701 to -731 (1984).

123. *E.g.*, *Baumann v. Smrha*, 145 F. Supp. 617, 625 (D. Kan. 1956), *aff'd*, 352 U.S. 863 (1956); *F. Arthur Stone & Sons v. Gibson*, 230 Kan. 224, 234-37, 630 P.2d 1164, 1172-74 (1981); *Williams v. City of Wichita*, 190 Kan. 317, 340-41, 374 P.2d 578, 595 (1962); *State ex rel. Emery v. Knapp*, 167 Kan. 546, 555-56, 207 P.2d 440, 448 (1949). *But cf.* *State ex rel. Peterson v. Board of Agric.*, 158 Kan. 603, 609, 149 P.2d 604, 608 (1944).

124. *Williams v. City of Wichita*, 190 Kan. 317, 329, 374 P.2d 578, 587 (1962).

125. *Id.* at 330, 374 P.2d at 588.

a "proper and reasonable exercise of the police power of the state in controlling water use for the purpose of preventing waste and to conserve a valuable natural resource."¹²⁶ Far more intrusive legislation has been upheld in other jurisdictions.¹²⁷

Such cases, however, do not mean that any statute, as applied to particular groundwater users, will always be constitutional. A curtailed water rights holder might argue that, depending on the business use of the water, the regulation could effectively deny all economic uses of the land, thereby constituting a taking of property without just compensation. Some farmland not suitable for dryland farming, for example, is nearly worthless if not irrigated. The regulated user might also contend that the regulation singles out a few individuals, does not regulate evenhandedly, and burdens innocent parties. Two other factors may suggest constitutional difficulties in some attempts to impair groundwater rights. If the regulation amounts to more than a temporary restriction, restricting use for a long time, it may rise to the level of taking prohibited by the fourteenth amendment. If the regulated rights holder is not the one making the noxious use of the property,¹²⁸ a taking is perhaps more likely.

The courts have not developed a set formula for determining when permissible regulation ends and a compensable taking begins.¹²⁹ Nevertheless, the state should prevail against a fourteenth amendment "taking" claim. First, every holder of a water right takes the right knowing it can be regulated by the state; in Kansas, the Water Appropriation Act of 1945 declares that water is dedicated to the use of the public.¹³⁰ Second, the holder of the water right will not normally be denied total use of the land; he may have to change his land use, but the land itself, if not the water, will usually still be available for

126. *Id.* at 340, 374 P.2d at 595. After these cases and the issuance of over 36,000 permits, the Act is well entrenched both in a constitutional sense and in practice. Indeed, the Kansas Supreme Court upheld the Act in 1962 in part because "the need of stability in the water laws of Kansas cannot be overstressed." *Id.* at 319, 374 P.2d at 581. In 1981, the court said that the 1962 decision "has become a rule of property law relied upon by the entire state." *F. Arthur Stone & Sons v. Gibson*, 230 Kan. 224, 233, 630 P.2d 1164, 1172 (1981).

127. *See, e.g., Town of Chino Valley v. City of Prescott*, 131 Ariz. 78, 638 P.2d 1324 (1981), *appeal dismissed*, 457 U.S. 1101 (1982) (upholding the 1980 Arizona Groundwater Management Act, ARIZ. REV. STAT. ANN. §§ 45-411 to -421 (Supp. 1985)).

128. *E.g., supra* note 118.

129. *See Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978). *See generally* Berger, *A Policy Analysis of the Taking Problem*, 49 N.Y.U. L. REV. 165 (1974); Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165 (1967); Sax, *Takings, Private Property and Public Rights*, 81 YALE L.J. 149 (1971); Sax, *Takings and the Police Power*, 74 YALE L.J. 36 (1964); Stoebuck, *Police Power, Takings and Due Process*, 37 WASH. & LEE L. REV. 1057 (1980).

130. KAN. STAT. ANN. § 82a-702 (1984). The regulation therefore does not interfere with any legitimate investment-backed expectations of the right holder. *See Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 136 (1978).

use.¹³¹ Third, this activity is a proper exercise of the police power because it attempts to protect the public health and welfare.¹³² Fourth, the government is not invading the property in a physical sense nor taking ownership as it does when it condemns land for highway purposes—it already owns the water resources of the state.¹³³ Fifth, the state has the power, indeed the obligation, to protect water resources.¹³⁴

When the subject of regulation is “innocent,” a court could conclude that the state is attempting to derive a public benefit at the expense of particular individuals, and that the state should be required to compensate the individuals for the restrictions imposed upon them.¹³⁵ Even in this situation, however, the regulation probably will not constitute a taking absent an unusually severe impact upon the economic value of the regulated land.¹³⁶ In order to further reduce the possibility that curtailment of the water rights of a person not responsible for groundwater contamination would be deemed a taking, this strategy calls for authorizing the injured person to recover damages from the pollution sources for all economic injury resulting from the curtailment.¹³⁷

J. The Financial Element: Taxes vs. Fees vs. General Revenues

Regulation of any sort costs money. The regulators must be paid and the regulated will incur expense in complying with the preven-

131. The United States Supreme Court has held that “a reduction in the value of property [as a result of regulation] is not necessarily equated with a taking.” *Andrus v. Allard*, 444 U.S. 51, 66 (1979). A regulation is not likely to be declared a taking unless it makes it “commercially impracticable” to use the regulated property for virtually any use. *See Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 136-37 (1978).

132. *See F. Arthur Stone & Sons v. Gibson*, 230 Kan. 224, 233, 630 P.2d 1164, 1171-72 (1981); *Williams v. City of Wichita*, 190 Kan. 317, 340, 374 P.2d 578, 595 (1962).

133. A permanent physical occupation of property by the government is a per se taking. *See Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 426 (1982).

134. Many cases in many jurisdictions have recited this truism. California has taken it a big step further by subjecting water rights to the public trust doctrine. *See National Audubon Society v. Superior Court of Alpine County*, 33 Cal. 3d 419, 658 P.2d 709, 189 Cal. Rptr. 346, cert. denied, 464 U.S. 977 (1983). It remains uncertain whether other states, including Kansas, will follow. *See, e.g., State ex rel. Wertz v. Berk*, 129 Kan. 645, 284 P. 386 (1930); *State ex rel. Hopkins v. Turner*, 111 Kan. 302, 207 P. 223 (1922); *Steckel v. Vancil*, 92 Kan. 591, 141 P. 550 (1914); *Winters v. Myers*, 92 Kan. 414, 140 P. 1033 (1914); *State ex rel. Dawson v. Akers*, 92 Kan. 169, 140 P. 637 (1914), *aff'd sub nom. Wear v. Kansas*, 245 U.S. 154 (1917).

135. *See, e.g., State v. Johnson*, 265 A.2d 711 (Me. 1980).

136. It is not appropriate to consider the value of the water rights apart from the value of the land to which they are appurtenant. *See Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 130 (1978).

137. Section 22h of the proposed Groundwater Conservation Act set forth in the appendix contains such authorization.

tion program. Assuming that the strategy adopted will use the state pollution control agency as the lead agency, and that the programs to be implemented will require trained personnel, the agency's budget must be increased. Assuming, similarly, that units of local government will be instrumental in implementing a prevention strategy, they too must have the wherewithal to do the job. Many potential funding sources exist, but any proposal to raise revenue for governmental purposes poses potentially severe political problems.

Federal funds almost certainly will not suffice to support an effective prevention program. The EPA has warned that states should not count on the federal government for program grants of the magnitude earlier received for air and water pollution programs.¹³⁸ Some federal monies will probably remain available for specific and limited purposes, such as Clean Water Act section 208 planning¹³⁹ and underground injection control programs under the Safe Drinking Water Act.¹⁴⁰ Modest amounts may even be forthcoming for new programs, such as the critical aquifer protection area and wellhead protection area programs created by the 1986 amendments to the Safe Drinking Water Act.¹⁴¹ Wholesale federal underwriting of state groundwater protection programs is unlikely, however; states will therefore need to develop their own sources of funding if they are to carry out comprehensive prevention and abatement strategies.

The probabilities for agreement on a fair and relatively painless funding option are slim. A state could allocate general revenue funds to groundwater regulation, or it could levy special taxes. The latter might include taxes on water use, taxes on generation of potentially contaminating substances, feedstock taxes, waste disposal taxes, or any combination of them. A state might also levy fees for permitting regulated activities.

None of these options will be politically popular. In choosing among them, the crucial questions are whether the benefits of each are worth the costs, and whether the fee or taxation system chosen is fair and nondiscriminatory. Neither question can be answered definitively at this time. This section nevertheless recommends one particular option based on present perceptions of cost/benefit and equity. In many respects, a tax on groundwater extraction (or "severance") would be the simplest and fairest solution. A severance tax is a form of property tax levied on the mineral at the time of extraction from the earth.¹⁴² Oil, gas, coal, and salt severance taxes typically require pay-

138. See *supra* note 92.

139. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § B.

140. See *id.* at pt. II, § C.

141. See Pub. L. No. 99-339, § 301(e)-(f), 100 Stat. 642, 664-65 (1986).

142. See H. WILLIAMS & C. MEYERS, *MANUAL OF OIL AND GAS TERMS* 691-92 (5th ed. 1981).

ment of a percentage of the mineral's value at the time of extraction,¹⁴³ but a severance tax on groundwater should be at a flat per gallon rate because most groundwater is not sold. If such a tax were imposed, those who directly benefit from groundwater would pay for keeping it clean. The Kansas Attorney General and the state's leading water law authority have concluded that a severance tax on groundwater in Kansas would be constitutional.¹⁴⁴

In Kansas, all groundwater is by statute dedicated to the use of the public;¹⁴⁵ before appropriation, the State apparently has a higher claim to it than any other entity.¹⁴⁶ Taxation of these public resources to meet a critical public need therefore seems appropriate. At a pumping rate of 5.6 billion gallons per day,¹⁴⁷ the current rate of groundwater use in Kansas, a tax of one cent per thousand gallons of fresh water pumped or otherwise removed would, if fully collected, yield about \$20 million in revenue, an amount that should be more than sufficient for an effective program.¹⁴⁸ Even allowing for widespread evasions and underreporting, such a tax should yield in excess of \$10 million per year. That amount could also finance a trust fund for prevention and cleanup of contamination and for procuring alternative supplies of water for those adversely affected by pollution.¹⁴⁹ A groundwater severance tax would tend to encourage water conservation and development of surface water resources, both important side benefits that would enhance a prevention strategy. For municipalities and homeowners served by municipal water systems, the financial burden would be minimal, and the benefits of a continuing supply of potable water would be well worth the cost. Towns and rural water districts would simply pass on the cost of the tax to their customers, and residential customers could easily afford a penny or two a day for this purpose.

A tax on groundwater use has several practical drawbacks, however, and would meet with serious opposition from several classes of groundwater users. First, if applied to all fresh water wells, it would require self-reporting of water usage by the owners of private drinking water

143. *E.g.*, KAN. STAT. ANN. §§ 79-4216 to -4229 (1984 & Supp. 1985).

144. *See* Op. Att'y Gen. 277 (1981); J. PECK & R. SMITH, IMPROVING EFFECTIVENESS IN PLANNING AND EQUITY FINANCING OF STATE WATER RESOURCES MANAGEMENT 46-47 (1985).

145. KAN. STAT. ANN. § 82a-702 (1984).

146. *See generally* Williams v. City of Wichita, 190 Kan. 317, 334-35, 374 P.2d 578, 591 (1962), *appeal dismissed*, 375 U.S. 7 (1963).

147. M. FUND, WATER IN KANSAS: A PRIMER 33 (1984) reports that most experts expect the pumping rate to drop drastically in coming decades.

148. By contrast, cities drawing drinking water out of federal surface impoundments pay 7¢ to 16¢ per thousand gallons. Kansas municipalities, for example, pay 12.688¢ per thousand gallons. Conversation with Terry Duvall, Kansas Water Office, Nov. 18, 1986.

149. That notion is further explored *infra* at notes 178-99 and accompanying text.

wells (of which there are more than 100,000 in Kansas)¹⁵⁰ and by those with wells used for other purposes, such as irrigation and stock-watering. Outright noncompliance and widespread underreporting would not be improbable. Second, such a severance tax would require extensive well metering, not now universal, the cost of which would be more burdensome than the tax to many.

Politically, the proposal would probably encounter intense opposition from agricultural interests and large manufacturing, oil and gas, and other energy companies. More than 70 percent of Kansas groundwater is used for irrigation,¹⁵¹ a pattern repeated in many trans-Mississippi states.¹⁵² An across-the-board per gallon severance tax would thus fall most heavily on farmers who irrigate. Legislatures have not often burdened any segment of agriculture with unique taxes or regulatory requirements. But, in states where farmers withdrawing groundwater receive tax benefits in the form of a depletion allowance,¹⁵³ a severance tax would at least be "fair."

The oil and gas industry in Kansas also uses large volumes of water in its operations. If salt brines were exempted from the tax, as they would be in this proposal,¹⁵⁴ the industry's tax burden would be low, and the industry would—appropriately—be discouraged from using fresh water for secondary recovery if other means were available. Some industrial and utility uses also require large volumes of water.¹⁵⁵ Although the amount assessed as a groundwater severance tax on some businesses might appear substantial standing alone, in relation either to a business' total operation or to the benefit it would derive from the groundwater, the amount would be miniscule.¹⁵⁶ An earmarked groundwater severance tax to be used to finance regulatory

150. See *Groundwater Pollution I*, *supra* note 8, at pt. I, § B.

151. FUND, *supra* note 147, at 24.

152. See UNITED STATES GEOLOGICAL SURVEY, WATER-SUPPLY PAPER 2275, NATIONAL WATER SUMMARY 120 (1984).

153. Such is the case for withdrawals from the Ogallala aquifer. See J. PECK & R. SMITH, *supra* note 144, at 37, 47; *United States v. Shurbert*, 347 F.2d 103 (5th Cir. 1965).

154. Groundwater Conservation Act § 8d (tax is limited to withdrawals from drinking water or usable aquifers, as defined in § 9a-b).

155. It was once estimated, for instance, that the Kansas Power & Light Company's Jeffrey Energy Center would use 25,000 gallons per minute at full operation for cooling and like purposes, much of it to be taken from percolating groundwater wells. See Coggins & Hensley, *Environmental Law Creeps into Kansas: A Commentary on the Concerned Citizens United Suit*, 23 KAN. L. REV. 421, 424 (1975). If one assumes, unrealistically, that KPL actually used that amount every minute of every day, and drew it all from the wells, KPL's yearly tax would run around \$130,000.

156. In the KPL example, *supra* note 155, the assumptions are highly unrealistic because KPL can draw from the Kansas River, it may never build all four contemplated units, and the plant will not run at full capacity all of the time.

programs and cleanup costs has problems, but it seems to be the fairest method of raising needed revenue.

Other options are less fair and less efficacious but perhaps more politically acceptable. If the CERCLA model, taxing chemical feedstocks and, perhaps, waste generated,¹⁵⁷ were followed, the tax would be more easily collectible. Such a narrow tax, however, is unlikely to generate adequate revenue. Further, hazardous wastes are already taxed and heavily regulated, and they constitute only one part of the overall contamination problem. Generators could argue with considerable force that singling them out—again—is not only politically cowardly but also grossly inequitable as they would be subsidizing all other polluting sources and groundwater users.¹⁵⁸

The CERCLA offers another funding model: litigation commenced by the government to recover cleanup costs from those responsible for contamination.¹⁵⁹ While certainly equitable in the sense that those who cause pollution would bear the burden of cleaning it up, the efficacy of this method is questionable: it is an after-the-fact remedy, applicable only when pollution has already occurred; it involves difficult cause-and-effect determinations; and it is based on the dubious assumption that responsible polluters always can be located and will be financially capable of reimbursement.¹⁶⁰ The existence of the cost-reimbursement remedy would nevertheless have some preventive effect as an economic deterrent to lax operating and disposal practices. Although litigation to recover costs by itself could not fund a full prevention program, a comprehensive strategy would still authorize the state attorney general to sue all persons who directly or indirectly cause or contribute to groundwater contamination for recovery of all costs incurred or to be incurred in its cleanup.¹⁶¹

All of the foregoing choices are legislative in character. As the earlier analysis of existing Kansas state law illustrates,¹⁶² installation of an effective program for preventing groundwater contamination requires

157. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § E.

158. Prior to its amendment in 1986, the CERCLA preempted state taxing authority to the extent that state taxes duplicated federal assessments. See *Exxon Corp. v. Hunt*, 106 S. Ct. 1103 (1986) (§ 114(c) of the CERCLA, 42 U.S.C. § 9614(c) (1982), partially preempts New Jersey Spill Compensation and Control Act, N.J. STAT. ANN. §§ 58:10-23.11 to -23.12 (West 1982 & Supp. 1986), to the extent that Act was intended to generate tax revenues to be used to finance governmental and private party cleanup of hazardous waste). The 1986 CERCLA amendments repealed this preemption provision. See Pub. L. No. 99-499, § 114(a), 100 Stat. 1613, 1652 (1986).

159. See 42 U.S.C. § 9607(a) (1982), amended by Pub. L. No. 99-499, § 107, 100 Stat. 1613, 1628-31 (1986).

160. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § E.

161. See *infra* notes 353-65 and accompanying text.

162. See *Groundwater Pollution I*, *supra* note 8, at § III.

statutory revision. The same situation apparently prevails in most other states. These writers are not experts in political reality and do not presume to tell any legislature precisely what it must or should do. But, directly or indirectly, legislators must confront the policy questions posed in this section as a precondition to statutory revision. Failure to act will have consequences as serious as radical new legislation. How legislatures decide the broad policy questions will dictate the nature of the resulting program.

II. A STRATEGY TO PREVENT GROUNDWATER CONTAMINATION

This section recommends a series of reforms that together will comprise a strategy to prevent groundwater contamination. It assumes that the legislature and administering agency generally agree with the policy choices suggested as superior in the preceding section. Many of these recommendations are given concrete form in the proposed Groundwater Conservation Act appended to this article. The recommendations and the statutory provisions were originally devised specifically to deal with the problems and legal situation in the State of Kansas but are capable of adaptation in any state.

A comprehensive strategy to prevent groundwater pollution should not only insure that new sources are not likely to contaminate but also should encompass "retrofitting" of existing potential sources.¹⁶³ The strategy should be "fair" in that it should cover at least all major sources and treat similarly situated sources equally. It should also have clear and binding ground rules which should be written in nontechnical terms that are comprehensible to all. The strategy should be "efficient" in several senses: costs of compliance should not exceed benefits, tangible and intangible, from high quality groundwater;¹⁶⁴ administrative implementation should be relatively simple and timely; and the energies of regulators, regulated, and others concerned should be channelled toward prevention and abatement of contamination rather than litigation and evasion. Given the scope of the problem and informational deficiencies concerning it, these goals will be difficult to achieve.

The legal changes suggested in this section start with existing federal and state programs that affect groundwater quality, and engraft on them additional standards, criteria, and procedures necessary for an effective overall groundwater quality program. The recommended

163. For a discussion of known contamination caused by existing Kansas sources, see *id.* at pt. I, § C(2).

164. This type of efficiency must be determined by legislatures, not economists; standard economic analysis is incapable of measuring the true value of amenities such as wildlife, solitude, or resource quality.

strategy attempts to consolidate many diverse regulatory elements into one integrated package. To coordinate and harmonize the various new and existing programs, administrative reorganization is deemed necessary for Kansas, but the need for such reorganization may be less in other jurisdictions that have already consolidated their pollution control programs under one head.

The recommended program, if adopted, would burden the implementing agency with considerable rule-writing and permitting responsibilities. Even so, this strategy rejects to the extent possible the kind of extensive and prolonged decisional procedures that have plagued much EPA regulation.¹⁶⁵ Because prevention of groundwater contamination is more desirable than after-the-fact abatement, the proposed system for the most part requires new pollution sources to demonstrate that their activities will not harm groundwater quality before they can receive a permit to conduct those activities. Also rejected was any regulatory device requiring the agency to conclusively trace actual contamination to specific sources before proceeding with prevention or abatement measures.

The recommended strategy contains a mix of seemingly diverse programs and requirements, from a Trust Fund to local zoning authorizations. Section A argues for consolidating all major prevention and abatement programs in a Groundwater Quality Division of the state's pollution control agency and authorizing that agency to take all measures necessary and proper to prevent groundwater pollution. Section B recommends establishment of a Groundwater Conservation Trust Fund to be financed by taxes on groundwater extraction and waste injection, by permit fees, and by reimbursement of cleanup costs from responsible sources. The agency would be able to use the Fund for several defined methods of avoiding, abating, and mitigating groundwater pollution.

The third section opts for a system of aquifer classification; starting from a nondegradation base, the system would allow the degree of groundwater protection to differ according to the present and potential uses of the aquifer. This aquifer classification system will assist in the development of location, design, and operating standards for potential sources of pollution and of local land use controls. Section D advocates adoption of groundwater quality standards, but only as triggers for cleanup actions and guidelines for the degree of cleanup necessary, not as pollution-tolerant ambient standards. The fifth section calls for creation and implementation of an integrated statewide

165. See, e.g., *NRDC v. Train*, 8 Env't Rep. Cas. (BNA) 2120 (D.D.C. 1976) (addressing the EPA's repeated failure to promulgate toxic effluent regulations under the Clean Water Act, despite statutory deadlines and a judicially-approved consent decree).

groundwater monitoring and testing system. Section F recommends a mandatory education program for key responsible source personnel. The next three sections address more specific means to control the four categories of groundwater contamination sources: new point sources; existing point sources; and new and existing nonpoint sources. Section J outlines a dual state and local land use control strategy to avoid future groundwater pollution. Section K explains the liability provisions of the proposed statute. The conclusion thereafter briefly summarizes the vices and virtues of the proposed strategy.

The particular combination of program elements recommended is the only unique aspect of this package. Most facets of the suggested strategy have models or antecedents in present state and federal law. The permitting system for new sources, for example, is widely used in many state and federal pollution control programs.¹⁶⁶ Even the apparently sweeping proposal for a Groundwater Conservation Trust Fund is adapted from existing models in Kansas laws governing the cleanup of hazardous waste sites¹⁶⁷ and abandoned oil and gas wells.¹⁶⁸ Those ideas and standards from other jurisdictions that seem appropriate for more general application were also borrowed. The state and local land use controls advocated below,¹⁶⁹ for instance, were inspired and influenced by similar programs in other states and counties. While the recommendations, if adopted as a whole, would institute a comprehensive and somewhat stringent new regulatory regime, every effort was made to avoid undue hardship to any class of pollution sources by tailoring requirements to the characteristics and circumstances of such classes.

A. *The Groundwater Quality Division*

Groundwater Pollution I identified dozens of federal and Kansas state laws and programs that are aimed at or somehow affect groundwater quality. At the federal level, most such programs are administered by the EPA (which has established an Office of Groundwater Quality), although other federal agencies and departments have some authority over some relevant programs.¹⁷⁰ In Kansas, the Department of Health and Environment (KDHE) has primary authority over

166. See, e.g., 33 U.S.C. § 1342 (1982) (Clean Water Act); 42 U.S.C. § 6925 (1982 & Supp. III 1985) (the Resource Conservation and Recovery Act).

167. KAN. STAT. ANN. §§ 65-3452 to -3455 (1985); see *Groundwater Pollution I*, *supra* note 8, at pt. III, § E.

168. KAN. STAT. ANN. §§ 55-139 to -143 (1983); see *Groundwater Pollution I*, *supra* note 8, at pt. III, § G.

169. See *infra* pt. II, § J.

170. These include the Departments of Transportation and the Interior and the Nuclear Regulatory Commission. See *Groundwater Pollution I*, *supra* note 8, at pt. II.

many groundwater programs, but so many state agencies are responsible for a piece of the regulatory pie that Kansas groundwater protection law accurately may be described as fragmented and confusing.¹⁷¹ Even within the KDHE, administration of the various laws and programs affecting groundwater are divided up among existing divisions, none of which is primarily concerned with groundwater. Emergency groundwater pollution situations are handled by ad hoc task forces formed from personnel in other divisions.

Parallel administrative situations in other states vary widely. This section therefore is relevant to jurisdictions other than Kansas only to the extent such jurisdictions are also afflicted with divided or uncertain administrative responsibilities.

The upshot of divided responsibility too often is that no one is responsible and too little is accomplished. The State should speak with one voice. This strategy therefore recommends both that the KDHE establish a Groundwater Quality Division, and that the Kansas Legislature give the new Division primary jurisdiction over all or most of the State's programs affecting groundwater quality.¹⁷² If consolidation is less than complete, an interagency group, composed of representatives from all Kansas agencies and departments with responsibilities related to groundwater quality and quantity (after reorganization), should be established to coordinate actions among the represented agencies and departments.¹⁷³ The Kansas Legislature should also transfer to the new Division jurisdiction over (or at least a significant voice in) health and environmental regulation of pesticide, herbicide, and fertilizer use, feedlots, grain elevators, intrastate and interstate pipelines, oil and gas wells, and mining operations, in addition to the activities already subject to KDHE oversight. Those six source classifications are now governed wholly or partially by other Kansas agencies, to the extent that they are regulated at all.¹⁷⁴ No

171. See *id.* at pt. III, § A.

172. Specifically, the Groundwater Quality Division should take over state responsibilities for implementation of the SDWA, the RCRA, the CERCLA, of the CWA insofar as it affects groundwater, and of the companion State laws in those areas. Although the subject is beyond the scope of this study, a general reorganization of Kansas agencies concerned with natural resources, energy, and the environment might have considerable merit.

173. It may also be wise for the Legislature to create a citizens' advisory board on groundwater quality to review administrative policies and actions and report to the Legislature on them annually.

174. The first four classes of sources are virtually unregulated despite the known hazards they pose to groundwater quality. New oil and gas wells in Kansas are subject to theoretically stringent KCC rules. The Kansas Legislature gave the KDHE a share of jurisdiction over oil and gas operations in 1983, KAN. STAT. ANN. §§ 55-150 to -164 (1983), but took it back in 1986. See *Groundwater Pollution I*, *supra* note 8, at pt. III, § G. Insofar as pollution potential is involved, the Legislature should centralize pollution control authority in the agency with

good reason readily suggests itself why jurisdiction over these sources should be in agencies without expertise in groundwater quality problems or sufficient authority to prevent them.

The agency responsible for prevention of groundwater pollution should be given all administrative powers necessary and proper to effectuate the policies and implement the programs set forth in the proposed Groundwater Conservation Act, including the power to subdelegate authority within the agency. Some cases in Kansas have cast doubt on the ability of the KDHE to act effectively in certain situations, due to uncertainty as to the scope of authority delegated to the agency.¹⁷⁵ As administrative agencies can exercise only those powers specifically granted by the legislature, every state should be certain that such complicating instances will not arise. The program for prevention of groundwater contamination should not be hamstrung by inadequate or dubious legal authority, so a provision spelling out requisite powers is appropriate,¹⁷⁶ including the power to curtail groundwater withdrawals when necessary to prevent the spread of contaminants.¹⁷⁷

B. A Groundwater Conservation Trust Fund

Monitoring, testing, and evaluation of groundwater quality are necessary to an effective contamination prevention strategy.¹⁷⁸ But monitoring programs are expensive and frequently cannot be accomplished within existing budgetary constraints of implementing agencies. It is fair to assume both that state legislatures will be reluctant to increase general taxes and that the federal government is unlikely to provide adequate funding.¹⁷⁹ At the same time, the need for an assured and steady source of revenue for groundwater protection is beyond question. As discussed above,¹⁸⁰ a groundwater severance tax of about one cent per thousand gallons of groundwater extracted seems to be the fairest and best alternative for funding a prevention program. This tax—or fee, if that sounds better—would not be the only source of funds to finance groundwater pollution

the most expertise in that area. Relatively little mining of interest to the Kansas Mined-Land Conservation and Reclamation Board (MLCRB) is now done in the State. Allowing the KDHE to veto MLCRB mining permits on water quality grounds will probably suffice for effective oversight in light of already strict requirements in the SMCRA. *See Groundwater Pollution I, supra* note 8, at pt. II, § H(1).

175. *E.g.*, Taylor v. Department of Health and Env't, 230 Kan. 283, 634 P.2d 1075 (1981).

176. *E.g.*, Groundwater Conservation Act § 6.

177. *Id.* § 6g.

178. *See generally* HENDERSON, *supra* note 21, at 144. *See also* NRC REPORT, *supra* note 7, at 10.

179. *See supra* note 92.

180. *See supra* notes 142-49 and accompanying text.

prevention programs under this overall strategy. Persons who cause actual or threatened pollution also will be liable for costs of cleanup or prevention,¹⁸¹ other actual damages,¹⁸² and penalties,¹⁸³ and permit applicants should be charged reasonable fees. The state should also assess a fee, based on volume of pollutants injected, for use of all waste injection wells other than oil and gas repressuring wells.¹⁸⁴

All of the monies from the groundwater severance tax and waste injection tax would be deposited in the Groundwater Conservation Trust Fund (GCTF).¹⁸⁵ This Fund would be used for a broader range of purposes than most existing state funds of similar nature or the federal Superfund. The GCTF would also receive percentages of permit fees and sums recovered by the state from responsible parties in administrative or judicial proceedings.¹⁸⁶ Pursuant to appropriations legislation, preferably on a multi-year basis, the GCTF would be used for the following main purposes.

1. Monitoring

First, the GCTF would support an expanded and refined monitoring, testing, and evaluation system for groundwater quality that would be implemented by the state pollution control agency or its contractors. Reliance on regulated sources alone yields insufficient and sometimes suspect data. Given the number of abandoned, active, and future potential sources of groundwater pollution,¹⁸⁷ an adequate state-run monitoring program, such as the one recommended below,¹⁸⁸ is crucial. The monitoring and evaluation system envisioned would also help to develop information on the location, boundaries, and movement of groundwater in recharge areas.¹⁸⁹

2. Emergencies

Second, the GCTF would finance administrative responses to emergency situations in which groundwater quality is being harmed or threatened. Like the federal Superfund, the GCTF would allow the agency to take whatever cleanup measures were necessary as soon

181. See *infra* notes 353-57 and accompanying text.

182. See *infra* notes 364-65 and accompanying text.

183. See *infra* notes 338-41 and accompanying text.

184. Groundwater Conservation Act § 8e.

185. *Id.* § 8c-e.

186. *Id.* § 8c. Monies now deposited in existing Kansas conservation funds would be consolidated with the GCTF. *Id.* § 8b.

187. See *Groundwater Pollution I*, *supra* note 8, at pt. I.

188. See *infra* pt. II, § E.

189. The components of the strategy for recharge area protection are discussed *infra* at notes 331-35 and accompanying text.

as the harm or threat was evident,¹⁹⁰ instead of wasting time trying to locate missing or unknown responsible persons or trying to persuade recalcitrant sources to take appropriate steps. If responsible parties were willing and able to abate the threat or remedy the harm, then the GCTF would not have to be used. Even in that situation, though, the existence of the GCTF and the looming liability for expenditures from it would probably convince a pollution source to take more rapid and effective action than it might otherwise be inclined to do.¹⁹¹ If the contamination site is also eligible for federal Superfund money, GCTF resources could be used to furnish the state's share of the cleanup costs.¹⁹²

3. Investigation

Third, the GCTF could fund agency efforts to seek out and rectify potential or probable pollution sources, even if the threat they pose to groundwater is not yet evident.¹⁹³ This GCTF use would apply to water wells, non-oil or -gas injection wells, abandoned open dumps, abandoned mines, abandoned manufacturing or processing facilities, abandoned storage tanks, and abandoned storage lagoons, in addition to abandoned oil and gas wells.¹⁹⁴ Again, any ascertainable (and solvent) persons who caused the pollution or threat of pollution would be liable to the state for GCTF cleanup expenditures.¹⁹⁵

4. Water Supply, Repository, and Land Purchase

Fourth, the GCTF would be used to furnish drinking water to communities and individuals whose wells are polluted, with the same possibility of reimbursement by persons responsible for the pollution.¹⁹⁶ Finally, GCTF revenues could be used for construction of a waste repository¹⁹⁷ and to pay for land or easements purchased or condemned for recharge area protection.¹⁹⁸

190. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § E for a description of the EPA's authority under the CERCLA.

191. Proposed statutory provisions for individual and corporate liability for groundwater pollution are explained more fully *infra* pt. II, § K. Abatement incentives could be increased by imposing additional penalties for failing to comply with state pollution control agency cleanup orders. See, e.g., 42 U.S.C. §§ 9606(b), 9607(c)(3) (1982).

192. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § E.

193. This aspect of the GCTF is modeled after and builds upon existing authority for Kansas agencies to plug or repair abandoned oil wells. See KAN. STAT. ANN. §§ 55-139 to -142 (1983).

194. See Groundwater Conservation Act § 15b.

195. See *infra* notes 353-57 and accompanying text.

196. See Groundwater Conservation Act § 8f(vii).

197. See *id.* §§ 8f(v), 12.

198. See *id.* §§ 8f(iv), 21.

Whether funded by a groundwater severance tax or otherwise, a Groundwater Conservation Trust Fund would be an important if not indispensable part of an overall prevention strategy. The GCTF will fund the required information-gathering system, it will offer the necessary flexibility for rapid administrative response to threatening situations, and it will provide a means to seek out and prevent future threats. In conjunction with the liability provisions discussed below,¹⁹⁹ the GCTF will also place the ultimate financial liability for contamination abatement on those who are responsible for causing the pollution.

The GCTF should not be the exclusive source of funding for groundwater protection. Standard regulatory programs concerning groundwater should continue to receive support from federal grants and state general revenues. In the event that GCTF receipts fall short of the amount reasonably necessary to effectuate its purposes, the legislature should make up the shortfall from the regular budget. In the event that GCTF receipts exceed the amounts necessary for an effective prevention and abatement program, the legislature can always divert the surplus into other deserving areas.

C. *Aquifer Classification*

Choosing forms and levels of groundwater protection is the first and most basic step in implementing a strategy to prevent groundwater contamination. Many of the jurisdictions recently instituting a groundwater protection system have adopted some sort of scheme to differentiate between aquifers or parts of them, usually by use or by condition of the waters in the aquifer.²⁰⁰ Regulators may then try to determine the measures most likely to ensure nondegradation of or non-interference with the uses of water in a particular aquifer classification.²⁰¹ Although the classification systems adopted by other states are sometimes based on insufficient information or are not well integrated into a more comprehensive pollution control program,²⁰² classification is nevertheless useful, theoretically at least, in providing degrees of protection appropriate to the present and potential uses of different underground reservoirs.²⁰³

199. See *infra* notes 338-76 and accompanying text.

200. See *supra* notes 35-36 and accompanying text; STRATEGY REPORT, *supra* note 7, at § IV and app. X; NRC REPORT, *supra* note 7, at 80-96.

201. See *supra* notes 32-40. Some classification systems appear to be based on the overly optimistic assumption that the classifier knows enough about future uses to make fully informed choices at the present time.

202. For a discussion of some of the criticisms of existing aquifer classification systems, see HENDERSON, *supra* note 21, at 75-76.

203. Aquifer classification may

[p]rovide a focus for limited state resources on protection and restoration of valuable

The strategy suggested in this article adopts a three-tiered classification scheme. The classification of the aquifer or parts of it will be a factor in determining location, design, and operating requirements for new sources²⁰⁴ and will assist local governments in making land use decisions.²⁰⁵ Like the proposed groundwater quality cleanup standards described below,²⁰⁶ the aquifer classification system would have a distinct but limited role in the overall strategy.

We recommend that the legislature initially classify all groundwater aquifers in the state—except those aquifers or parts with existing chloride (salt) concentrations of over 5000 milligrams per liter (mg/l)²⁰⁷—as “drinking water aquifers” (or some similar nomenclature). Aquifers or parts of aquifers so classified would then be protected to the fullest extent possible from any degradation of quality.²⁰⁸ The initial blanket classification should be made by the legislature instead of the agency to avoid prolonged bickering over its validity or reasonableness.²⁰⁹

While the initial “drinking water” classification is the starting point for the basic regulatory scheme recommended as a part of this strategy, it will not mandate a permanent nondegradation standard for all groundwater. The legislature should also authorize the implementing agency to reclassify aquifers or parts of them when the agency determines that specified criteria, such as degree of existing contamination, are met.²¹⁰ The classification statute, however, should place the burden on the proponent of a change to any classification lower than drinking water to demonstrate that a departure from full protection is justified by present and future circumstances, thus simplifying the administrative task.

Human consumption is by far the most important use of groundwater. To protect that vital use, the agency would be prohibited from reclassifying downward any parts of aquifers that do or can serve as sources of public or private drinking water supplies.²¹¹ Even in

and sensitive aquifers; [p]rovide a basis for coordinated management of ground water resources and the activities that potentially have an impact on the resource at all levels of government; and [p]rovide guidance for implementation of regulatory and enforcement programs.

NRC REPORT, *supra* note 7, at 80.

204. See *infra* pt. II, § G.

205. See *infra* pt. II, § J.

206. See *infra* pt. II, § D.

207. Any numerical standard is necessarily arbitrary. The 5000 mg/l standard was adapted from the Kansas oil and gas law defining salt water. See KAN. STAT. ANN. § 55-904(b) (1983); *Groundwater Pollution I*, *supra* note 8, at pt. III, § G.

208. See *infra* notes 262-65 and accompanying text.

209. See NRC REPORT, *supra* note 7, at 86.

210. See Groundwater Conservation Act § 9b.

211. *Id.* § 9b(i)-(ii).

areas where population projections do not appear to justify maintenance of enormous protected reserves of groundwater for drinking alone, future needs are too uncertain to allow denial of future choice by present pollution.²¹²

Although the legislature should prohibit the agency from allowing degradation of present or potential drinking water supplies, it should otherwise give the agency considerable flexibility in making reclassification decisions. This strategy suggests two additional classifications for aquifers or parts of them. "Usable" nondrinking water aquifers would be those that—because of current suspended solid concentrations, depth, location, or other factors as determined by regulation—are not now used for drinking, and are highly unlikely to be used for that purpose in the future, but which are being or can be used for some other beneficial purpose, such as irrigation or industrial processes.²¹³ Persons seeking reclassification of a drinking water aquifer in order to use groundwater resources in a manner inconsistent with the use of those resources for drinking would have the burden of proving that reclassification is justified under the circumstances.²¹⁴ If the agency agreed to downgrade the aquifer to "usable" status, it would nevertheless have to specify the degree and type of protection necessary to protect the aquifer for its present and potential nondrinking uses.²¹⁵

The third aquifer classification in this system would be "unusable": this category would include reservoirs or parts already so polluted by natural or manmade substances that they could not be used beneficially, except for waste disposal.²¹⁶ Aquifers containing chloride concentrations in excess of 5000 mg/l²¹⁷ at the time of initial classification would be designated as unusable. Such aquifers would not be protected at all, except to the extent that certain controls on use or extraction were necessary to prevent contamination of drinking water aquifers, usable aquifers, or surface waters to which the unusable aquifers are hydrologically connected.²¹⁸ The agency would also have authority to reclassify aquifers or parts upward as well as downward when warranted by advances in technology or other circumstances.²¹⁹

212. Naturally, degradation will be difficult to detect until "baseline" monitoring and testing have established existing contaminant levels. Section II(E) *infra* advocates creation of a comprehensive groundwater monitoring, testing, and evaluation network for each state. Section II(K), which describes the proposed liability rules, explains the financial consequences for those sources that degrade the quality of drinking water aquifers.

213. Groundwater Conservation Act § 9b(iii).

214. *Id.* § 9c.

215. *Id.*

216. *See id.* § 9d.

217. *See supra* note 207.

218. Groundwater Conservation Act § 9e.

219. *Id.* § 9f-g.

The EPA in 1984 adopted a different three-tiered groundwater classification scheme,²²⁰ and has announced its intention to incorporate that system into regulatory programs created under statutes other than the SDWA, such as the RCRA, the CERCLA, the TSCA, and the FIFRA.²²¹ In the EPA Groundwater Strategy, Class I aquifers are those that are highly vulnerable to contamination due to local geology and that serve as an irreplaceable source of drinking water;²²² Class II groundwater includes supplies that are current or potential sources of drinking water but that can be replaced;²²³ and Class III groundwater is too mineralized to be drinkable.²²⁴ The EPA has also warned that state adoption of groundwater classification systems differing from its own may have unexpected, and in some cases undesirable ramifications.²²⁵

The classification scheme described in this section for states differs from the EPA system in several ways. Most importantly, the suggested scheme would initially classify all aquifers except those with excessive chloride concentrations as drinking water aquifers entitled to the highest level of protection. The EPA Strategy, on the other hand, is meant to define very few aquifers as Class I aquifers.²²⁶ The EPA's designation of aquifers that are current but replaceable or potential sources of drinking water as Class II aquifers also reflects differences in scope, because these supplies would be drinking water aquifers under the recommended state scheme.

These differences in classification could be significant. Assume, for example, that the EPA, under the RCRA, bans the siting of hazardous waste landfills over Class I groundwater aquifers. If a state adopted the recommended classification scheme, the EPA's rule might apply to all aquifers deemed drinking water aquifers in the state. In that event, the federal hazardous waste siting rule would prohibit the location of such landfills over most groundwater supplies in the state. The impact of the federal rule could differ from state to state, depending on other provisions of state law. In Kansas, for example, an EPA siting ban, as applied to the classification system recommended here, would extend beyond existing state law, which forbids the underground burial, but not the placement into mound landfills, of hazardous waste, absent an exception granted by the KDHE.²²⁷ Similarly, an EPA ban

220. EPA STRATEGY, *supra* note 42, at 43-47.

221. See INSIDE EPA, Nov. 22, 1985, at 1, 11-14.

222. See EPA STRATEGY, *supra* note 42, at 43-45.

223. *Id.* at 45-46.

224. *Id.* at 46-47.

225. INSIDE EPA, Nov. 22, 1985, at 1, 11-14.

226. See 16 Env't Rep.—Cur. Devs. (BNA) 1078 (Oct. 25, 1985); INSIDE EPA, Nov. 22, 1985, at 11.

227. See 1985 Kan. Sess. Laws ch. 219, § 1(a).

on the use of certain septic tank cleaners over Class I groundwater might apply to all Kansas aquifers classified as drinking water sources.

These scenarios are not purely hypothetical: the EPA has already begun to restrict the use of certain agricultural pesticides in areas where groundwater used for drinking may be contaminated.²²⁸ Application of the EPA restrictions to all Class I aquifers could restrict the use of certain pesticides in large areas of the state. Further, the recommended classification system might cause a state to incur additional costs in another situation. The EPA has announced that if a CERCLA hazardous waste site has contaminated groundwater defined by the EPA as Class II or III, a state that classifies that aquifer as Class I will be responsible for paying the costs of improving the quality of the water from the level required for Class II or III supplies to a level suitable for a Class I aquifer.²²⁹

The EPA's statutory authority to impose its own classification system on the states is apparently limited; a congressional conference committee recently concluded that the agency may not assign a classification to lessen the level of protection assigned to an aquifer by a state.²³⁰ But even if the EPA is authorized to impose regulatory consequences such as those described above, states need not reject the classification system recommended in this section. That scheme would not inexorably lock a state into regulations more stringent than those derived from federal laws or into paying cleanup costs in excess of the amounts otherwise required by the CERCLA. The EPA's position on the landfill and septic tank prohibitions, for example, is not absolute. A state that initially defines aquifers as Class I can avoid the potentially drastic consequences stemming from RCRA, FIFRA, or CERCLA programs by including in its groundwater protection strategy a procedure for granting exceptions to a nondegradation standard or to a statewide drinking water aquifer classification.²³¹ The proposed Groundwater Conservation Act in the Appendix includes such a procedure. Under Section 9 of the Act, the agency would be authorized to reclassify a drinking water aquifer as "usable" or "unusable," provided the proponent could demonstrate that the criteria for such reclassification were met.²³²

Until such reclassification took place, the state program might indeed be more stringent than the minimum degree of protection required by federal law and regulation. That extra layer of protection, and the allocation of a fairly stringent burden of proof to a prospect-

228. See 16 Env't Rep.—Cur. Devs. (BNA) 1245 (Nov. 11, 1985).

229. See *id.*; 16 Env't Rep.—Cur. Devs. (BNA) 1078 (Oct. 25, 1985).

230. See H.R. REP. NO. 575, 99th Cong., 2d Sess. 45 (1986).

231. See 16 Env't Rep.—Cur. Devs. (BNA) 1078 (Oct. 25, 1985).

232. Groundwater Conservation Act § 9.

ive polluter seeking to have it stripped away, reflect two premises underlying this strategy: current federal law is not adequate to prevent groundwater contamination; and all aquifers that are or could be used as drinking water sources should be protected from any degradation to ensure the availability of these supplies to present and future generations.

D. Groundwater Quality Cleanup Standards

For purposes of groundwater quality evaluation, the state pollution control agency should be authorized and required to adopt and periodically revise groundwater quality cleanup standards. Such standards would specify maximum contaminant levels (MCLs) for all known pollutants posing hazards to health or the environment.²³³ The legislative authorization should allow the agency to adopt wholesale the present standards promulgated by the EPA and other states, a list of which has recently been compiled by the Office of Technology Assessment.²³⁴ The standards included in this list are sketchy, primitive, and perhaps not fully substantiated by scientific evidence.²³⁵ The federal government has been lax in promulgating MCLs for groundwater,²³⁶ although the EPA has recently stepped up its efforts in this area.²³⁷ The derivations of and supports for the list's diverse state standards are unknown. Nevertheless, the list apparently includes some of the best information now available. Its numbers should serve as a state's initial groundwater quality cleanup standards, except to the extent that the state agency acquires more recent, more accurate, or more scientifically verifiable information. Promulgating a complete, original list premised on defensible scientific, technological, or economic grounds, however, would clearly be beyond the resources of most state agencies, and would be too expensive, time-consuming, and subject to lengthy challenge in any event.

To the obvious objection that unproven and perhaps unrealistic (or overly lenient) groundwater quality standards should not be the basis of a regulatory program, two contrary points seem dispositive.

233. Based on EPA proposals, Congress has compiled a list of 82 pollutants potentially hazardous to human health. See H.R. REP. NO. 575, 99th Cong., 2d Sess. 30 (1986).

234. OTA REPORT, *supra* note 21, at 333-48. The list is reproduced as app. III to the STRATEGY REPORT, *supra* note 7.

235. Cf. H.R. REP. NO. 168, 99th Cong., 1st Sess. 20 (1985) (EPA's interim drinking water standards reflect the use of technology available in 1974; they have not been updated since that time).

236. See 132 CONG. REC. S6284-85 (daily ed. May 21, 1986) (statement of Sen. Durenberger) (indicating that after 12 years under the SDWA, the EPA has promulgated standards for only 23 out of 700 contaminants detected in the nation's drinking water supplies).

237. See *Groundwater Pollution I*, *supra* note 8, at pt. II, § C.

First, the standards will be interim standards, applicable only until the agency determines from its own studies or from decisions in other jurisdictions that scientific data require revision of particular MCLs. Second, these standards are not central to this recommended groundwater protection strategy. They will serve as bases for devising regulatory requirements for sources only in a limited number of instances and then only for limited purposes. The groundwater quality cleanup standards should not be the sole or major regulatory devices in themselves because cause-and-effect relationships between groundwater contamination and surface activities are very difficult to prove and because prevention measures come too late to protect groundwater quality if the standards are already being exceeded. The MCLs would instead serve as benchmarks by which the agency would be able to identify serious problems through quantified criteria and as goals in any attempt to remedy those problems.

When monitoring and testing reveal concentrations of pollutants that are approaching or in excess of these admittedly primitive standards, the agency should investigate further and take any necessary corrective actions. Groundwater quality cleanup standards would define the minimum quality to be achieved in any remedial actions resulting from the agency investigations and enforcement efforts. The standards will answer the "how clean is clean?" question that has plagued the EPA in its implementation of the CERCLA and the RCRA insofar as the standards will define how much contamination is too much.²³⁸ The suggested statutory provision for integrating groundwater quality standards into an overall prevention strategy requires the agency to continue cleanup efforts at least until the MCLs have been achieved (or until the responsible agency official issues a formal finding that further action is physically futile) and encourages complete cleanup down to zero or background contamination levels.²³⁹

E. Groundwater Monitoring And Testing

These articles have belabored the point that information on the sources, extent, and degree of groundwater contamination is thoroughly deficient. Although more difficult and expensive, monitoring is even more necessary for control of groundwater pollution than it is for air or surface water pollution.²⁴⁰ Once groundwater is con-

238. Means and methods of corrective action are discussed *infra* at pt. II, § H.

239. Groundwater Conservation Act § 10b.

240. The National Research Council recently remarked that "[a] successful [groundwater protection] program must be founded on an information base that allows proper definition of problems and evaluation of prevention strategies." NRC REPORT, *supra* note 7, at 62. It listed four major components (hydrogeology, water extraction/use patterns, potential contamination sources and characteristics, and population patterns) necessary for effective ground-

taminated, it is often very difficult and sometimes impossible to return it to its pre-existing state. Most groundwater moves relatively slowly, so identification and rectification of problems at an early stage will repay itself many times over.

The only known method of determining existing groundwater quality is to take samples from wells and test them for the presence of contaminating substances. Monitoring programs are usually based on tests from soil and water near potential pollution sources, from soil and water near well sites, or from randomly chosen aquifers to determine ambient water quality, independent of use or threat.

The United States Geological Survey long has regularly monitored ambient water quality, but its program is limited in geographic scope and substances tested.²⁴¹ Often, states require individual potential pollution sources to monitor groundwater quality in their vicinities; other sources will soon be subject to similar requirements under federal laws already on the books.²⁴² In Kansas, the KDHE usually monitors only when contamination is known or suspected, although public drinking water supplies are regularly tested for some but not all contaminants. Monitoring programs in most other states apparently are also limited in similar ways. Something more is urgently needed.

We recommend that states, with the cooperation and assistance of the state and U.S. Geological Surveys, establish a comprehensive groundwater quality monitoring, testing, and evaluation system for prevention as well as abatement purposes. Such a system would require a network of "ambient" monitoring wells in addition to "source" and "withdrawal" monitoring wells. The design and details of such a system are matters properly left to the experts, but clearly a state should move as rapidly and extensively in this direction as funding permits. Legislative action, including the creation of a Groundwater Conservation Trust Fund,²⁴³ would be critical to this effort.

The monitoring system should continue to concentrate on insuring that contaminants are not moving off the source site to threaten drinking water supplies, but it should also be designed to provide a far more complete picture of the extent, nature, quality, quantity, flow rates and directions, and hydrologic interconnections and patterns of all groundwater. Existing monitoring wells, public and private, and other relevant information, such as USGS test results, should be incorporated into the system, and monitoring requirements for both new and existing sources should be fashioned with the general

water management decisions, *id.* at 64, calling each of the components "complex and difficult to quantify." *Id.* at 63.

241. See OTA REPORT, *supra* note 21, at 146-47.

242. *E.g.*, 42 U.S.C. § 6924(o)(1)(A)(ii), (p) (Supp. III 1985).

243. See *supra* pt. II, § B.

as well as the specific monitoring purposes in mind.²⁴⁴ Current testing procedures should be expanded and refined to cover a wider variety of contaminants than are currently being evaluated.

F. Education

Ignorance is rife in the area of preventing groundwater pollution. No one fully understands the extent of the problem, its sources, or what to do about it. Only a small—but rapidly growing—number are even aware that the problem exists. Unfortunately, many who are responsible for causing groundwater contamination are unaware of the consequences of their actions.

States should mandate an educational course in preventing groundwater pollution for a defined class of employees responsible for the operation of potential pollution sources. Such a course would cover, in condensed form, sources of pollution, groundwater hydrology, means of preventing and abating contamination, and applicable legal requirements. State universities could offer short courses of this nature through their extension or continuing education programs, subject to approval by the pollution control agencies.

The agency would by regulation specify the type and size of sources required to comply and describe those employees required to complete the course. At a minimum, oil and gas drillers, water well drillers, injection well drillers, municipal sewage treatment plant operators, private wastewater lagoon operators, public and private landfill operators, hazardous and radioactive waste site operators, county extension agents, commercial pesticide applicators, septic field installers, pipeline operators, and mining companies—each entity of a certain defined size—should be required to designate one or more personnel or employees to undergo training. The educational requirements should apply to both new and existing sources. New sources could not begin operation until the appropriate employees have completed the course. Existing sources would be given a grace period to comply. The agency also would be authorized to require periodic retraining or recertification.²⁴⁵

A brief, mandatory course in preventing and abating groundwater pollution would not be a panacea or an adequate response by itself to any state's present and future groundwater pollution problems. It would, however, serve several significant purposes. Mandatory education will insure that at least one responsible person employed

244. An informational study being conducted by researchers at the Kansas Geological Survey is attempting to devise a computerized data base and method for integrating and evaluating the diverse information from monitoring and testing efforts.

245. See Groundwater Conservation Act § 13.

by every significant potential source of pollution has a rudimentary acquaintance with the problem, the law, and state-of-the-art prevention techniques. That person may be able to disseminate information and influence policy within the source. Registration requirements will also provide the state agency with a list of responsible persons for notification and response purposes.

G. *New Point Sources*

Sources of groundwater contamination can be roughly divided into four categories: new point sources, existing point sources, new nonpoint sources, and existing nonpoint sources.²⁴⁶ In this categorization, point sources are facilities, including without limitation, wells of all types, municipal and industrial wastewater lagoons, chemigation systems, plants, refineries, hazardous and solid waste sites, mines (including salt solution mines), aboveground and underground storage tanks, abandoned coal gasification plants, grain elevators, feedlots, and solid waste dumps. Nonpoint sources are all other sources, including polluted surface water, land application of sludge, use of poisons and fertilizers, road de-icing with salt, intentional dumping, and accidents causing spills from any source.²⁴⁷ This strategy treats each category of sources separately since the costs of and mechanisms for controlling pollution differ from category to category.

Present pollution law usually requires stricter environmental regulation of new sources than existing sources.²⁴⁸ Often, however, the law merely describes the categories of new sources required to apply for a construction and operating permit and delegates permitting authority

246. This terminology differs from the same terms under the CWA in several respects. First, the CWA does not define a nonpoint source except by way of illustration. See 33 U.S.C. § 1314(f) (1982). Second, the CWA's illustrative nonpoint sources include mining activities, while mines are treated as point sources in this article's categorization. See Groundwater Conservation Act §§ 5aa, cc. Third, since the CWA establishes no controls on nonpoint sources, it does not distinguish between new and existing nonpoint sources. Other commentators and regulators use varying categories but most appear to recognize the utility of this categorization. See OTA REPORT, *supra* note 21, at 44; HENDERSON, *supra* note 21, at 97.

247. These terms are more inclusively defined in §§ 51, m, z, aa, & cc of the proposed Groundwater Conservation Act.

248. See, e.g., 33 U.S.C. § 1316 (1982) (imposing standards of performance, typically more stringent than applicable effluent limitations, on new point sources of water pollution); 42 U.S.C. § 7411 (1982) (imposing similar standards on new stationary sources of air pollution); *id.* § 7412(c)(1)(A)-(B) (giving existing stationary sources a longer time to comply with emission standards for hazardous air pollutants than new sources); *id.* §§ 7502(b)(3), 7503(2) (requiring application of reasonably available control technology to existing sources in nonattainment areas but compliance with the lowest achievable emission rate by new sources in those areas); *id.* § 6924(o)(1) (Supp. III 1985) (imposing stringent control requirements on new, replacement, and expanded hazardous waste landfills and surface impoundments).

to an agency without specifying definitive standards or criteria for permit issuance.²⁴⁹ Many incidents could be cited to illustrate that agency personnel operating without legislative guidance are not always omniscient.²⁵⁰

The basic rule in this strategy is that each person proposing to construct a new point source, as defined in the proposed Groundwater Conservation Act,²⁵¹ would have to obtain a permit from the implementing agency before commencing construction.²⁵² Some prospective source operators would also need local authorization; if such operators failed to receive approval from both the state and local authorities, they could not lawfully commence construction. Persons proposing to construct a new point source in an area designated by local zoning authorities as a protected recharge area would have to apply to those authorities for a special land use permit.²⁵³ Zoning authorities could grant or deny permits and impose any conditions necessary to protect groundwater quality.²⁵⁴ If the proposed new point source would be located in a jurisdiction that had not been mapped for recharge areas, the owner would have to notify the local zoning authorities of its construction plans, thereby affording these officials the opportunity to investigate the potential impact of source construction and operation on groundwater quality.²⁵⁵

While the permit technique can be awkward and sometimes unnecessarily time-consuming, no better regulatory device is apparent.²⁵⁶ Most new point sources already must obtain permits of one kind or another under existing federal or state law, so this recommendation should not create significant new administrative burdens either for most sources or for the agency. Any incremental burdens could be reduced by several means. First, the groundwater permit could be incorporated into a more general source permit also covering other pollution aspects or media. EPA's less than successful experience with multimedia pollution permits,²⁵⁷ however, cautions against a blanket

249. *E.g.*, 33 U.S.C. § 1316 (1982).

250. *E.g.*, *supra* notes 59-60 and accompanying text.

251. Groundwater Conservation Act § 5z, cc.

252. *Id.* § 14b.

253. *Id.* § 14a.

254. *Id.* § 19b.

255. The recommended powers of local zoning authorities to impose land use controls on potential sources of groundwater contamination are discussed *infra* at notes 321-35 and accompanying text.

256. The centralized permit procedure of the CWA has been more effective than the more amorphous and discretionary procedures of the CAA. *See generally* Pederson, *Why the Clean Air Act Works Badly*, 129 U. PA. L. REV. 1059, 1096-97 (1981).

257. *See* T. SCHOENBAUM, ENVIRONMENTAL POLICY LAW 723-24 (1985) (discussing EPA's short-lived experiment with a consolidated permit system).

recommendation of this sort. Second, the agency could and should explore the issuance of permits by regulation for small sources.²⁵⁸ Third, permit fees should be tailored to the amount and kind of administrative efforts required for source evaluation.²⁵⁹

The permit application for each proposed new point source, regardless of its location, would have to include a "disposal avoidance plan."²⁶⁰ This plan would detail both the possible ways that waste from the facility could end up in groundwater and the means chosen by the applicant to insure that such disposal does not happen. The plan, which the agency could accept or modify to insure protection, would be incorporated into the permit as a series of mandatory operating conditions. In particular, each disposal avoidance plan would include at least two major components. First, the applicant would have the burden of proving to the satisfaction of the agency that the design, construction, and operation of the source will be based on the best available technology for preventing groundwater pollution. Second, the applicant would be required to devise and implement methods for minimizing the risk of accidental pollution.²⁶¹

The disposal avoidance plan for a new point source located over a drinking water or usable aquifer would have to include a third component, which would serve as a barometer for the adequacy of the first two components. The permitting agency could issue a permit to a new point source to be located in an area overlying an aquifer or portion of an aquifer classified as "drinking water" only if the source demonstrates that the location, design, construction, and operation of the source will not pollute the groundwaters of the state.²⁶² Pollution is defined as the addition of any substance other than water to the groundwater.²⁶³ The agency would be authorized to include in the permit whatever restrictions or conditions it determines are necessary to prevent groundwater contamination²⁶⁴—although absolute

258. Issuing permits by regulation means in essence allowing defined classes of sources to operate without the need to file an individual permit application, so long as those classes abide by the conditions stated in the regulations granting them the automatic permits. *See, e.g.*, 33 U.S.C. § 1344(e) (1982) (authorizing the issuance of general permits on a state, regional, or nationwide basis for categories of activities involving discharges of dredged or fill material).

259. The authority to impose "reasonable" fees based on the costs of processing permits should provide this flexibility to the implementing agency. *See, e.g.*, Groundwater Conservation Act § 6f.

260. *Id.* § 14b.

261. *Id.* § 14b(i)-(ii). The implementing agency need not require installation of a particular technological system, as long as the source indicates that its system will perform as well as the best available system.

262. *Id.* § 14b(iii)(a).

263. *Id.* § 5dd, f.

264. *Id.* § 14c.

certainty in this sort of predictive venture will probably never be possible.

The disposal avoidance plan for a person proposing to locate a new source over a usable, nondrinking water aquifer or portion would have to include, in addition to the best available technology and accident avoidance components, proof that any contamination caused by the source would be minimal and would not jeopardize the present or potential utility of the aquifer.²⁶⁵ If such an assurance cannot be made, or if the source applicant refuses to accept proposed permit terms, the agency must deny the permit. Unusable aquifers could be used by new and old point sources for waste disposal. For this reason, the third component of the disposal avoidance plan would be inappropriate for persons proposing to locate over such aquifers.²⁶⁶

All permits issued to new point sources should impose regular monitoring and reporting requirements, using RCRA regulations, whenever applicable, as minimum standards, and in other cases as models for appropriate regulatory requirements.²⁶⁷ Judicial review of permit denial or issuance, based on the administrative record, would be available in the state's court of appeals on an expedited basis to any person adversely affected.²⁶⁸

Not all new point sources operate in a similar manner or pose the same degree of threat to groundwater resources. Some sources already are regulated more or less extensively by existing law while others are not. The original Strategy Report recommends ways to overcome more specific administrative difficulties likely to be encountered in the regulation of these groundwater pollution source classes in Kansas:

- (1) Oil, gas, and repressuring wells, hydrocarbon storage, and brine disposal;²⁶⁹
- (2) Water wells and septic fields;²⁷⁰
- (3) Municipal sewage treatment lagoons;²⁷¹
- (4) Waste injection wells;²⁷²
- (5) Industrial and commercial waste holding lagoons;²⁷³
- (6) Surface and underground mines;²⁷⁴

265. *Id.* § 14b(iii)(b).

266. *See id.* § 14b(iii) (requiring proof of no or minimal pollution only by sources located over drinking water or usable aquifers).

267. *Id.* § 14e; *see supra* notes 187-89 and accompanying text.

268. *See infra* pt. II, § K(7).

269. STRATEGY REPORT, *supra* note 7, at § VIII(H)(1).

270. *Id.* at § VIII(H)(2).

271. *Id.* at § VIII(H)(3).

272. *Id.* at § VIII(H)(4).

273. *Id.* at § VIII(H)(5).

274. *Id.* at § VIII(H)(6).

- (7) Storage tanks;²⁷⁵
- (8) Municipal/sanitary landfills and private dumps;²⁷⁶
- (9) Feedlots;²⁷⁷
- (10) Hazardous waste disposal sites;²⁷⁸
- (11) Radioactive waste disposal;²⁷⁹ and
- (12) Chemigation systems.²⁸⁰

In summary, the strategy recommends regulation of new point sources of groundwater pollution in a manner analogous to their regulation under existing law and, in several cases, suggests additional statutory provisions to insure the efficacy of the overall regulatory program. The general rationale is that a proposed new point source must comply with land use requirements,²⁸¹ and it must obtain a permit before commencing construction of the facility. The agency must insure, through permit conditions based on best available technological and hydrological data, that the source's design and operation will minimize groundwater pollution potential.

H. Existing Point Sources

Point sources of groundwater pollution already in existence could pose a larger threat to groundwater quality than future sources of the same type.²⁸² Controlling groundwater contamination from existing point and nonpoint sources is much more difficult—legally, politically, and practically—than regulating new sources. It is much easier in all three senses to impose even drastic controls on new facilities than it is to require “retrofit” of existing facilities, which presumably complied with applicable requirements when they were constructed, to achieve newly-defined environmental goals. As a result, federal and state regulations typically impose more stringent conditions and restrictions on new than existing facilities.

Despite this tendency to focus the most comprehensive regulatory efforts on new sources, experience under such statutes as the Clean Air and Water Acts shows that it is not only constitutionally permissible to require existing operations to make expensive and even ruinous changes in their physical plant or operations,²⁸³ it is often

275. *Id.* at § VIII(H)(7).

276. *Id.* at § VIII(H)(8).

277. *Id.* at § VIII(H)(9).

278. *Id.* at § VIII(H)(10).

279. *Id.* at § VIII(H)(11).

280. *Id.* at § VIII(H)(12).

281. *See infra* at pt. II, § J.

282. *See Groundwater Pollution I, supra* note 8, at pt. I.

283. *E.g., Union Elec. Co. v. EPA*, 427 U.S. 246 (1976).

absolutely necessary to do so if environmental goals are to be achieved. Although equity supports somewhat more lenient treatment for existing facilities, an effective protection program must address all major threats to groundwater quality. We suggest a six-part strategy to prevent groundwater pollution posed by existing point sources.

The first part of the strategy involves the use of the Groundwater Conservation Trust Fund to find and clean up abandoned point sources with pollution potential, preferably before the threat of contamination becomes imminent. The statute should grant the agency access rights to all forms of inactive point sources to investigate and to take remedial action if necessary.²⁸⁴ Once the agency locates and evaluates an inactive point source with pollution potential, it must devise a remedy. Such remedies will be easier to implement in some cases than in others. Abandoned wells can be plugged, for example, and waste disposal lagoons can be drained, but other kinds of inactive point sources are less amenable to corrective action. For instance, contaminated soil and subsoil in recharge or other vulnerable areas will continue to threaten groundwater quality even after the original contamination source is removed. If the contaminated soil is removed to eliminate the threat to groundwater quality, it must be placed somewhere where it will not threaten other resources.

The legislature should authorize use of GCTF funds to investigate the possibility of establishing a state-owned and -operated repository for contaminated soils and sludges, using the most advanced known technology. The repository would serve both as the safest possible temporary resting place for pollution products from state cleanups until a better and more permanent disposal technology is developed, and also as a model for private industry to emulate. Whether such a repository would accept contaminated soil and other waste products from private as well as public cleanups depends on the contemplated size and scope of the proposal, if any, developed by the agency.²⁸⁵

The second part of the strategy for existing point sources encompasses the imposition of monitoring and reporting requirements on active, existing point sources. Private reporting would supplement and complement the agency's own monitoring system²⁸⁶ and would enhance the statewide groundwater data base. The legislature should

284. Groundwater Conservation Act § 15b.

285. For proposed legislation authorizing a study of the need for such a repository, see Groundwater Conservation Act § 12. The Arizona Legislature has authorized the establishment of a state hazardous waste facility to be financed, constructed, operated, and maintained by a private contractor. The facility, whose estimated construction cost was \$14 million, was scheduled to open in 1986. NRC REPORT, *supra* note 7, at 105.

286. See *supra* pt. II, § E.

authorize the agency to promulgate regulations detailing the type and size of existing sources for which monitoring and testing are appropriate, and specifying the timing and degree of such monitoring and testing. The agency should be able to exempt—either by regulation or on a case-by-case basis—classes of existing point sources, or small sources within classes, from these requirements if it finds small pollution potential from such sources and justifies its exemption or modification decision on the basis of a written record.²⁸⁷ The agency also could and should differentiate on the basis of geology and location.²⁸⁸ Monitoring of groundwater near all septic systems, for instance, should not necessarily be required, but source monitoring of septic systems located within certain distances from drinking water wells or within aquifer recharge zones might be, if the agency determines that contamination is possible under the circumstances.

The third strategic element involves regulations that phase in over time safeguards against potential contamination from existing point source categories whose construction or current operating practices do not adequately protect groundwater.²⁸⁹ These safeguards, applicable to all similarly situated operational point sources, would be of the same kind as those required for new sources of the same type, but only to the extent deemed necessary by the agency. The agency could only impose technologically and economically feasible measures inasmuch as existing sources presumably complied with regulations applicable at the time of construction, if any. In other words, the agency would carry the burden of justifying “retrofit” regulations by showing that they will contribute to prevention of groundwater contamination and are within the resources of the class or category of source to install.²⁹⁰ Exemptions or more lenient treatment for small or insignificant sources could be accomplished by an automatic regulatory permit for defined classes with automatic conditions attached, or by case-by-case modifications of the classwide standards.²⁹¹

The fourth part of the strategy for existing point sources is case-by-case design of “retrofitted” safeguards to be imposed on an active individual source when the agency determines that the individual source is causing or is likely to cause groundwater pollution.²⁹² This element will clarify agency authority to require corrective action by any source posing such a present or potential danger to groundwater

287. Groundwater Conservation Act § 15e(i).

288. *See id.* § 15c.

289. *Id.* § 15d.

290. *Id.* New point sources, in contrast, carry the burden of demonstrating a lack of harm. *See supra* notes 260-66 and accompanying text.

291. Groundwater Conservation Act § 15d-e.

292. *Id.* § 15f.

resources. Such requirements will not be susceptible to general treatment by means of across-the-board regulations, but rather will be applied through individual administrative decisions based on consideration of all relevant factors and circumstances. In the event of judicial review, the statute should contain a presumption of administrative regularity for the remedy chosen by the agency, as long as it establishes a present threat to groundwater quality.²⁹³

Fifth, the agency should have explicit authority to shut down those sources that are polluting groundwater and cannot be physically retrofitted or operationally changed to abate the pollution.²⁹⁴ To expedite agency efforts in such emergency situations, the statute should presume a cause-and-effect relationship between the targeted source and the pollution if the source is in reasonable hydrological proximity to the groundwater and the same kind of substances or their derivatives are found at both the source and in the groundwater. If such proximity were established, the source would have the burden of proving the lack of causal relationship.²⁹⁵

Shutdown is, of course, a drastic remedy that should be used only in drastic situations, but it must be available to the administering agency for use in those situations. To protect against arbitrary agency action, the statute should limit shutdown authority to the circumstances described: the presence of pollution; a likely causal relationship between the pollution and the source; and the lack of effective remedial alternatives other than shutdown.²⁹⁶

The sixth strategic element is administrative authority to design land use requirements and best management practices (BMPs) to ameliorate potential adverse effects of operational practices used in conjunction with existing point sources. For example, the agency should screen septic tank cleaning agents for pollution potential and notify owners of the most effective means with the least pollution probabilities. In some cases, prudence and enforcement problems dictate that the land use guidelines or BMPs be advisory only, merely informing facility operators of the possible consequences of various operating practices. In other instances, greater familiarity with source conditions and political considerations may suggest that if these land use requirements and BMPs are to be made mandatory, they be administered locally. But, as with defective facilities, the state agency should have clear power to impose such practices on an existing point

293. *Id.*

294. When the KDHE shut down the Furley hazardous waste site, it was unable to cite any statutory authority for its action, which all now concede was a necessary and proper action. Whether other states have similar problems is unknown.

295. Groundwater Conservation Act § 15g.

296. *Id.* § 15f-g.

source where actual or threatened contamination is reasonably traceable to it.²⁹⁷

In summary, these recommendations for existing point sources of groundwater pollution attempt to give the implementing agency appropriate powers and flexibility to accomplish these tasks:

- (1) plugging or otherwise "fixing" inactive sources;
- (2) acquiring the necessary information on threats to groundwater quality posed by existing sources;
- (3) bringing existing sources gradually closer to contemporary design and operational standards for new sources;
- (4) retrofitting individual source operations posing a present or potential threat to groundwater quality;
- (5) shutting down specific, traceable pollution problems where no other effective remedy is available; and
- (6) imposing best management practices and land use requirements to reduce actual or threatened contamination by existing sources.

There is no magic formula for preventing groundwater pollution from sources already in place. The best that can be done is to tailor regulatory requirements to the type and degree of threat posed, and much of that tailoring can only be done through case-by-case determinations of experts in groundwater quality protection. In the event that groundwater pollution from existing point sources continues to increase, the middle-of-the-road regulatory approach advocated above should be reexamined by the legislature and made more strict and less flexible where necessary.

I. New And Existing Nonpoint Sources

Point sources, in this categorization, are characterized by fixed locations and fairly direct relationships between surface activities and subsurface pollution; point sources tend to "discharge" more or less directly into the groundwater. Nonpoint sources cannot be categorized so easily, although, like nonpoint sources of surface water pollution, they often pose as great a threat to water quality as do point sources.²⁹⁸ In several cases, the line between point and nonpoint sources can only be drawn arbitrarily. Nonpoint sources in this lexicon include

297. A tentative draft of a provision to walk this narrow line is § 15h of the proposed Groundwater Conservation Act.

298. See *Groundwater Pollution I*, *supra* note 8, at pt. I. For a review of existing programs to control nonpoint source pollution, see generally Note, *State and Federal Land Use Regulation: An Application to Groundwater and Nonpoint Source Pollution Control*, 95 S. CAL. L. REV. 1433 (1986).

all human surface activities other than point sources that do or can contribute to groundwater contamination.²⁹⁹ That definition takes in a lot of ground: very few human activities do not have such pollution potential to some extent.

Nonpoint activities or practices known to have significant groundwater pollution potential include land application of sludge, use of pesticides and fertilizers, road de-icing with salt, irrigation leaching, urban runoff, intentional dumping, and accidents from various sources.³⁰⁰ The severity of the threat to groundwater posed by nonpoint sources apparently varies widely by state and region. In Kansas, the most serious nonpoint sources appear to be accidents and agricultural practices.³⁰¹ This section is limited to agricultural nonpoint sources, both new and existing. The specific controls proposed here should be supplemented by the land use controls outlined below,³⁰² which will apply to all potential sources of groundwater pollution.

Agriculture pollutes groundwater in two major and several minor ways. Of most immediate concern are leaching of fertilizers into aquifers, causing harmful concentrations of nitrates and associated chemicals, and the use of economic poisons such as herbicides and insecticides.³⁰³ Testing across the country, including Kansas, has often found alarming concentrations of these sometimes carcinogenic substances in groundwater.³⁰⁴ Irrigation can also contribute to contamination when irrigation water leaches salts or metals such as selenium from the soil (or poisons from the surface) into groundwater tables.³⁰⁵ In addition, runoff from farmland pollutes streams that recharge aquifers. In agricultural states such as Kansas, the first two kinds of nonpoint pollution sources pose especially grave dangers to groundwater quality.³⁰⁶

The agricultural sector of the Kansas economy is currently exempt from nearly all environmental and zoning requirements that constrain other sectors³⁰⁷ and, apparently, no state controls agricultural activities as much as other source categories. To the extent that agricultural

299. Groundwater Conservation Act § 5aa.

300. See OTA REPORT, *supra* note 21, at 45; HENDERSON, *supra* note 21, at 9. Polluted surface water and deposition from air pollution are also nonpoint sources, but they will not be addressed by this strategy because those sources are already subject to relatively comprehensive control programs under existing state and federal law.

301. See FUND, *supra* note 147, at 32-38; *Groundwater Pollution I*, *supra* note 8, at pt. I, § C(2).

302. See *infra* at pt. II, § J.

303. See *Groundwater Pollution I*, *supra* note 8, at pt. I, § B.

304. *Id.* at pt. I, §§ B, C.

305. *Id.*

306. *Id.* at pt. I, § C(2).

307. See, e.g., KAN. STAT. ANN. §§ 19-2908, -2921, -2929 (1981).

practices are major contributors to groundwater contamination, equity and efficacy argue that they too should be controlled. Rural residents often are more directly affected by groundwater quality than any other population segment and thus should share the burden of keeping their own drinking and other usable water supplies pure. For the same reason, rural residents may be more willing to contribute to efforts to prevent groundwater pollution than some politicians and regulators might anticipate.

Six reforms should reduce groundwater pollution from agricultural practices. Zoning laws should be amended to bring agriculture within their ambit for the limited purpose of groundwater quality protection. As explained in the following section, such an amendment would permit local governments to restrict the location of certain new and existing sources threatening recharge and other vulnerable areas or water wells.³⁰⁸ Local authorities could impose more general standards on both new and existing uses through master plan revision and "environmental performance zoning" in appropriate circumstances.³⁰⁹

Second, the legislature should direct the agency with jurisdiction over the health and environmental aspects of pesticide and fertilizer use to rate such substances in common use according to their polluting characteristics. Those judged to present unreasonable risks to groundwater quality by virtue of their toxicity, persistence, reactivity, and leachability should be banned from sale or use in the state.³¹⁰ Those judged to present lesser but still serious risks should be subject to less stringent controls, such as outlawing their use on land overlying drinking water aquifers or recharge or other vulnerable areas. At a minimum, mandatory BMPs should be applied to persons using these materials.³¹¹

Third, the same agency should be authorized to devise rules defining best management practices for applications of fertilizers and pesticides not subject to more stringent controls.³¹² Such rules would be advisory only, and would be distributed to farmers through county extension agents. Farmers are an independent lot, but their self-interest lies in keeping groundwater supplies pure for their own use. Even a purely educational venture has some chance of success. Such advisory rules would also be helpful to local governments considering means to protect groundwater resources.

Fourth, when the agency finds that contaminants in groundwater

308. See *infra* pt. II, § J.

309. See Groundwater Conservation Act § 19.

310. *Id.* § 16d. The federal pesticide laws preserve state authority to impose such controls. See 7 U.S.C. § 136v(a) (1982).

311. Groundwater Conservation Act § 16d.

312. *Id.* § 16b.

are traceable to specific agricultural sources, it should have the authority to enter an abatement order limiting the times, amounts, and methods of future applications of the offending chemicals, including the power to ban use of particularly toxic, persistent, reactive, or soluble substances. The order would be enforceable in judicial proceedings to enjoin future violations and to assess fines for past violations of specific orders.³¹³ This procedure recognizes the special status of agriculture by surrounding farmers with more procedural safeguards and fewer substantive controls than other classes of pollution sources.

Fifth, commercial pesticide applicators should be required to complete the groundwater pollution course advocated above.³¹⁴ They should also be prohibited from spraying within defined distances of water wells and from spraying more than defined quantities in recharge or other vulnerable areas.³¹⁵

Sixth, the pollution control agency, possibly in cooperation with the state wildlife commission, should be authorized to use funds from the GCTF for condemnation of easements in or full title to especially sensitive recharge areas when it determines that agricultural practices in those areas pose a substantial danger to groundwater quality and the landowner refuses to alter those practices. Fee simple land acquired in this fashion would be managed as wildlife habitat. Because eminent domain is often seen as a radical remedy, we suggest that authority to condemn be conditioned on specific legislative approval.³¹⁶

The original Strategy Report also contains recommendations for measures to control four other categories of nonpoint sources: accidents from pipelines;³¹⁷ handling and transportation of materials and industrial spills;³¹⁸ land application of sludge;³¹⁹ and intentional dumping.³²⁰ The latter should be classified as a serious felony.

J. Land Use Controls

Most states have long recognized that some controls on land use are necessary to prevent groundwater pollution; sanitary laws and regulations for reservoirs and wells, for example, typically require certain potential pollution sources to be located more than specified distances from drinking water sources.³²¹ Some states and localities

313. Groundwater Conservation Act § 16c.

314. *See supra* pt. II, § F.

315. Groundwater Conservation Act § 16e.

316. *Id.* § 21.

317. STRATEGY REPORT, *supra* note 7, at § VIII(J)(2)(a).

318. *Id.* at § VIII(J)(2)(b)-(c).

319. *Id.* at § VIII(J)(3).

320. *Id.* at § VIII(J)(4).

321. *E.g.*, KAN. STAT. ANN. §§ 65-184 to -189c (1985); *see Groundwater Pollution I, supra* note 8, at pt. III, § D.

making a concerted effort to prevent groundwater contamination have adopted similar rules on wider scales.³²²

Conceptually, attempts to prevent groundwater pollution through the use of land use controls could take three different forms. The first is the standard zoning approach of prohibiting certain land uses in certain designated areas.³²³ The second is imposition of specific design, construction, or operating requirements on all or some activities within a designated area.³²⁴ The third involves prohibiting any use that generates more than a specified amount of environmentally detrimental by-products, but allowing the source to comply with that prohibition by whatever means it chooses. This third type of regulatory system is called "environmental performance zoning."³²⁵ The strategy suggested here opts for a mix of these three kinds of land use controls to protect water wells and recharge areas.

1. Water Well Protection

The first part of the strategy emphasizes both the standard zoning approach of use prohibitions in designated areas and the imposition of regulatory requirements through either the second or third type of land use controls. Specifically, the state pollution control agency should expand present rules on septic field location and similar re-

322. Several states are experimenting with land use controls on a relatively extensive basis to prevent groundwater pollution. These efforts typically take one of several forms. Some states and localities have set up mechanisms for protecting broadly-defined aquifer protection districts or critical water quality zones. Southington, Connecticut's zoning laws prohibit a wide range of potentially contaminating industrial activities from locating in these areas. Austin, Texas also applies best management practices, such as erosion control and standards for sewer construction, in these areas. Vermont prohibits the location of certain sources, authorizes others only by permit, and applies best management practices to pesticide applications within aquifer protection areas. Other jurisdictions focus more narrowly on activities adjacent to wells and other drinking water sources. California, for example, prohibits surface impoundments within one-half mile of such sources. Massachusetts regulates the location of hazardous waste disposal facilities near wells. Colorado prohibits land disposal of wastes near wells. Under one of the most extensive land use control programs, Dade and Broward Counties in Florida have begun to protect areas of influence around drinking water wells. Different requirements apply to each of a series of concentric circles surrounding a well. The closer the circle is to the well, the more restrictive the applicable prohibitions and requirements. Another group of jurisdictions seeks to protect recharge or other vulnerable areas from contamination. Dade and Broward Counties in Florida are again among the leaders in these efforts. Texas' attempt to protect the recharge zone of the Edwards Aquifer near San Antonio is also relatively extensive. As with controls on activities near wells, the recharge area controls include prohibitions on the location of certain sources within recharge zones and design and operating requirements or best management practices for other activities. See generally STRATEGY REPORT, *supra* note 7, at app. X; NRC REPORT, *supra* note 7, at 134-52.

323. See *Groundwater Pollution I*, *supra* note 8, at pt. III, § H(2)(C)(1).

324. *Id.*

325. *Id.*

quirements to include all potential sources of groundwater contamination located within certain distances of any water well, public or private.³²⁶ All sources, point and nonpoint, new and existing, would be covered.

Based on available hydrological and contamination data, these rules would first establish three concentric zones around all drinking water wells within the state. The width of the zones would vary depending on the well volume and other topographic features. For new sources, the closer to the well the proposed source would be located, the fewer the types and degrees of potentially polluting activities would be allowed. In other words, the area immediately around each well would be off-limits to all new potential sources of serious groundwater pollution; in the next zone further from the well, location of a wider variety of sources and activities would be permitted, but only under stringent conditions. These conditions could take the form of specific technological or operating requirements or be imposed in terms of maximum production of environmentally harmful by-products. All but the most hazardous types of sources would be allowed in the outer concentric zone, subject again to necessary pollution-avoiding conditions.³²⁷

The water well land use regulations would also control existing point and nonpoint sources within the protective zones, but more slowly and to a lesser degree. Existing point sources that contravene the criteria for new point sources in the same class would be deemed nonconforming uses; they could be neither expanded nor replaced without the joint approval of the local zoning authority and the state agency.³²⁸ For classes of sources with high pollution potential, the state agency could require those located within the protective zones to be phased out over time. In the event of actual or threatened contamination of groundwater from such sources, the agency could force the offending source to shut down immediately, cease the activity, or relocate.³²⁹ Existing nonpoint sources, including agricultural practices, would have to abide by the best management practices the agency would by regulation develop for areas surrounding water wells.³³⁰

2. Recharge Area Protection

The other major prong of the proposed land use strategy is a frankly experimental attempt to protect recharge zones and other vulnerable

326. Groundwater Conservation Act § 20a.

327. *Id.*

328. *Id.* § 20b.

329. *Id.* § 20c.

330. *Id.* § 16b.

areas from incompatible point and nonpoint source activities. It will involve three major elements. First, cities and counties should, with the assistance of the relevant state agencies, map the known and suspected recharge zones within their boundaries. Such mapping admittedly is a very difficult task. If possible, it should discriminate between general and especially vulnerable recharge areas.³³¹ Funds from the GCTF could be used to support recharge area mapping.³³²

Second, the state agency should identify which point and nonpoint sources pose serious threats to groundwater quality when located in or near recharge zones. It should then develop rules specifying advisory criteria for source placement and operation which minimize pollution potential.³³³ This effort will require extensive consultation with other jurisdictions that have imposed restrictions on activities in recharge areas. Given the almost insuperable difficulties inherent in the task, it will be a long and possibly unfruitful job, but one with a potential payoff that appears to make it worth the effort.

Third, the legislature should amend present zoning statutes to explicitly require local government units to consider including groundwater protection provisions in master land use plans. The discretion of local zoning authorities would be constrained only in that they would be required to hold public hearings to determine whether, in light of existing threats and practices, the recharge zone information warrants revisions in comprehensive or official land use plans for the purpose of protecting local water quality; no particular result will be mandated.³³⁴

The local zoning officials will be authorized but not required to grant or deny land use permits and otherwise make land use decisions concerning sources desiring to locate in recharge areas on the basis of statewide groundwater protection criteria. Cities and counties would also be authorized to couple land use restrictions by zone either with specific conditions (such as the installation of particular technologies) in special land use permits or with result-oriented environmental performance zoning standards for individual sources or classes of sources.³³⁵ The choice of method, technique, and standard will remain within local discretion. Procedure, too, will be up to local officials as long as the procedures utilized comport with minimum due process and equal protection guarantees.

331. Cf. Pub. L. No. 99-339, § 203, 100 Stat. 642, 657 (1986) (authorizing federal grants for state programs to protect critical aquifer protection areas, a designation based in part on an aquifer's vulnerability to contamination due to hydrogeologic characteristics).

332. Groundwater Conservation Act § 8f(vi).

333. *Id.* § 19a.

334. *Id.*

335. *Id.* § 19b.

The virtues of this second part of the land use control strategy are its flexibility, local control, and possible comprehensiveness. If effectively implemented at both governmental levels, local governments would have the final say on whether or not to allow potentially polluting uses, but local officials will have the expert guidance of the state agency in making individual land use decisions. The "downside" of this proposal is its novelty, the difficulty of determining recharge zone locations and boundaries, and the possibility that local governments will shun what they may see as an unduly complex system that tends to stifle economic development.

K. Liability

If regulatory systems are to achieve their objectives, they must at a minimum create disincentives for violations. To be acceptable, such disincentives must be both realistic in fitting the punishment to the offense, and tough enough to heavily influence choices made by regulated entities whose activities affect groundwater quality. This strategy incorporates a variety of disincentives to potential polluting facilities, activities, and behaviors, while also giving certain strong incentives for compliance and enforcement at several levels.

Recommendations for civil and criminal penalties are run-of-the-mill if not pro forma. Civil penalties for violation of environmental regulations historically were assessed only in relatively rare instances and criminal prosecutions for violation of pollution laws were virtually nonexistent.³³⁶ In recent years, assessment of both civil and criminal sanctions has become more common,³³⁷ although it may be surmised that only a small fraction of those technically liable are actually fined. Such deterrents must nevertheless be included in the regulatory arsenal as backup measures to encourage compliance by particularly recalcitrant or scofflaw sources and to provide an example for other potential violators. Many state and federal pollution control systems stop at those standard penalties; this strategy also incorporates several forms of civil damage liability that offer considerably more promise as deterrents.

This section describes recommended standards of liability for actions that cause, threaten to cause, or may contribute to groundwater pollution. The first subsection defines a limited class of offenses for

336. See generally McMurry & Ramsey, *Environmental Crime: The Use of Criminal Sanctions in Enforcing Environmental Laws*, 19 Loy. L.A.L. Rev. 1133 (1986).

337. E.g., *Apex Oil Co. v. United States*, 530 F.2d 1291 (8th Cir.), cert. denied, 429 U.S. 827 (1976) (corporation convicted of failure to notify agency of known oil spill); *United States v. Kennecott Copper*, 523 F.2d 821 (9th Cir. 1975) (same); *NRC v. Radiation Technology Inc.*, 519 F. Supp. 1266 (D.N.J. 1981) (civil penalties upheld).

which criminal liability would be appropriate. Subsection two describes the acts that should lead to imposition of civil penalties. The third subsection argues for administrative authority to bring suit to enjoin sources posing imminent hazards to groundwater quality. Subsection four advocates the use of civil suits by the state against responsible parties to recover cleanup costs, compensation for damage to natural resources, and noncompliance penalties. The fifth subsection recommends creating a statutory private right of action by injured persons to redress personal and property damage caused by groundwater polluters. Subsection six suggests that the legislature should authorize citizens' suits against the implementing agency and polluters in a few limited instances. The seventh subsection advocates clear and uniform rules for judicial review of agency decisions under the proposed Groundwater Conservation Act.

1. Criminal Liability

Only persons who willfully or intentionally commit acts that pollute or threaten to pollute drinking water or usable aquifers should be subject to criminal sanctions, including imprisonment. Criminal proceedings are as awkward as they are drastic, and should be used only as last resorts against totally recalcitrant sources or egregious violators of critical regulatory requirements.³³⁸

2. Civil Liability

The state agency should be authorized to assess civil penalties in a wide variety of circumstances, subject to judicial review of the basis on which liability was found and the reasonableness of the amount assessed. The legislature should define acts giving rise to civil penalty liability as:

- (1) constructing or operating a new source without a permit;
- (2) violating statutory provisions;
- (3) violating applicable regulations or agency orders;
- (4) violating permit terms;
- (5) failing to monitor, test, or keep records as required;
- (6) falsifying or failing to file required reports;
- (7) failing to pay applicable groundwater severance taxes or waste injection taxes; and
- (8) otherwise endangering drinking or usable groundwater sources.³³⁹

Willful or intentional violations should be subject to civil penalties

338. Groundwater Conservation Act § 25a.

339. *Id.* § 24.

of up to a specified amount (*e.g.*, \$5000) per day or per violation, whichever is more. Assessments for negligent or innocent violations should be limited to a lower amount (*e.g.*, \$2000) per day or per violation, whichever is more. Notwithstanding the monetary limitations, the agency and the courts should be instructed to assess a penalty that recovers from the violating source an amount at least equal to the economic saving the source realized by noncompliance.³⁴⁰ The agency should be authorized to hold hearings and assess the penalties on its own findings, with violators having a right then to seek judicial review.³⁴¹

3. Imminent Hazard

Most federal laws and many state laws allow the responsible agency to bring suit against persons whose polluting activities pose imminent hazards to human health or the environment.³⁴² The state agency should have equivalent authority over sources of groundwater pollution — in addition to that given the agency by laws implementing the CWA, SDWA, RCRA, and CERCLA — to insure against loopholes in existing state law.³⁴³ When both federal and state agencies may wish to pursue parallel remedies, the state agency should have authority to intervene in suits initiated by federal authorities in the interest of promoting judicial economy.³⁴⁴

4. Cleanup Costs and Natural Resources Damage

A simple and basic legal principle is that one who damages the person or property of another should pay for the harm caused. That principle has long been applied in nuisance actions in which the defendant has injured the quality of, or the plaintiff's ability to use, air, surface water, or groundwater resources in connection with the plaintiff's own land.³⁴⁵ But the principle has not been widely applied to actions that damage public resources by pollution; instead, the common legislative approach has been to require indirect internalization

340. *Id.* § 25b.

341. *Id.* §§ 25b, 23.

342. *E.g.*, 42 U.S.C. § 6973 (1982 & Supp. III 1985); 42 U.S.C. § 9606 (1982), *amended by* Pub. L. No. 99-499, § 106, 100 Stat. 1613, 1628 (1986).

343. Groundwater Conservation Act § 25b(iv).

344. *Id.* Some federal courts have permitted such intervention. *See, e.g.*, *United States v. Ottati & Goss, Inc.*, 23 Env't Rep. Cas. (BNA) 1705 (D.N.H. 1985). *But cf.* *United States v. Hooker Chem. & Plastics Corp.*, 749 F.2d 968, 981 (2d Cir. 1984) (private parties have no right to intervene in imminent hazard suits initiated by the federal government under the RCRA and SDWA).

345. *See Groundwater Pollution I, supra* note 8, at pt. III, § I.

of external pollution costs by imposition of costly controls on polluting activities.

Recently, however, federal and state legislatures have been moving toward more direct application of the "polluter pays" principle. The Superfund law is the most prominent example: Congress not only ordained that every hazardous waste generator, transporter, and site owner will be both strictly and jointly and severally liable for all response costs incurred in cleaning up leaking hazardous waste sites,³⁴⁶ it also decreed that those parties will be liable for the damage they cause to natural resources owned or managed by the government.³⁴⁷ State legislatures are following suit, as did Kansas in the provisions for cleanup of abandoned oil and gas wells.³⁴⁸ In a comprehensive groundwater pollution prevention strategy, liability for cleanup costs and damage to groundwater resources should be imposed on parties responsible for groundwater pollution in addition to applicable civil penalties.³⁴⁹

The CERCLA has generated considerable litigation in part because the statute is unclear on many important liability questions. The courts now have clarified many of the basic requirements, holding that responsible parties are liable even in the absence of negligence or other fault, and that, unless certain yet-to-be-defined circumstance are present, each responsible party is jointly and severally liable for all response costs and damages to natural resources.³⁵⁰ Parties jointly liable may obtain contribution from one another, probably based on volume of wastes generated, but if one of two responsible parties is insolvent, the other must bear the full burden.³⁵¹

Even though the Superfund's cleanup cost and natural resource damage provisions operate only after the fact of actual or threatened pollution, the deterrent effect of these provisions may be stronger than the mere possibility that a relatively small civil penalty will be imposed in the indefinite future. The CERCLA experience shows that responsible parties may be more willing to clean up "voluntarily" when faced with substantial civil liability. All potentially responsible parties have strong incentives to bring in other such parties to contribute to cleanup costs, so that the original defendant's liability is

346. See 42 U.S.C. § 9607(a)(1)-(4)(A) (1982), amended by Pub. L. No. 99-499, § 107, 100 Stat. 1613, 1628-29 (1986).

347. See *id.* § 9607(a)(1)-(4)(C), amended by Pub. L. No. 99-499, § 107, 100 Stat. 1613, 1628-29 (1986).

348. KAN. STAT. ANN. §§ 55-139 to -142 (1982); see *Groundwater Pollution I*, *supra* note 8, at pt. III, § G.

349. The statutory provision to accomplish these purposes is § 22 of the Groundwater Conservation Act.

350. *Groundwater Pollution I*, *supra* note 8, at pt. II, § E(2).

351. *Id.*

reduced. Some legislators and attorneys have criticized the delay and expense likely to accompany such complex litigation with so many conflicting interests involved,³⁵² but the countervailing considerations are that where before-the-fact regulation fails to prevent a problem from developing, after-the-fact litigation to determine responsibility for cleanup costs and natural resource damages may serve to deter future pollution incidents. Furthermore, despite the complexity of multi-party litigation, such litigation at least serves to dispose of the entire matter in one proceeding. Because a strong deterrent against groundwater pollution is crucial to the preservation of groundwater resources, many of the Superfund liability aspects should be adapted to a groundwater pollution prevention strategy.

The liability system proposed here would work approximately as follows. When the agency became aware of actual or threatened groundwater contamination, it could respond immediately, either by ordering responsible parties to take all possible corrective actions or by taking such actions itself, using GCTF monies, if the responsible parties were absent, insolvent, recalcitrant, or incompetent.³⁵³ During or at the conclusion of the cleanup, the state could bring a civil lawsuit against all responsible parties to recover all the funds it has expended in responding to the pollution incident, damages for harm done to the state's groundwater and surface resources, and civil penalties if warranted.³⁵⁴ Responsible parties would be those who caused or contributed to the occurrence or threat of contamination, regardless of fault;³⁵⁵ all would be strictly liable for all response costs and natural resources damage,³⁵⁶ although penalties could be assessed only for violations of laws and regulations as specified above.³⁵⁷

A party would be exonerated from all forms of liability only if it proved that the pollution was caused solely by an act of God,³⁵⁸ an act of war, or an act of a third party who was not an employee, contractor, or associate of (or otherwise related to) that party.³⁵⁹ Each responsible party would have a right of contribution (not a percentage limitation of liability) against other such parties, the extent of the right to be determined by courts on a case-by-case basis using

352. See Light, *A Defense Counsel's Perspective on Superfund*, 15 *Envtl. L. Rep.* (Envtl. L. Inst.) 10,203, 10,204-07 (1985).

353. Groundwater Conservation Act § 15b, f-g.

354. *Id.* § 22d.

355. *Id.* § 22f.

356. *Id.* § 22c.

357. See *supra* pt. II, § J(2).

358. Why is it that only harmful occurrences, usually catastrophes, are said to be "Acts of God"?

359. Groundwater Conservation Act § 22c.

traditional equitable principles.³⁶⁰ All recoveries by the state would be deposited in the Groundwater Conservation Trust Fund.

The items for which liability will be imposed deserve further explanation. "Response costs" would be roughly the same sorts of costs for which reimbursement is appropriate under the CERCLA.³⁶¹ These would include costs of studies, tests, and monitoring, time of state personnel, costs of litigation, and incidental expenses as well as costs of actual cleanup. "Civil penalties" would be those defined above³⁶² and could be assessed only if some statutory or regulatory violation were involved in the pollution incident.³⁶³ "Natural resources damage" is a more amorphous category. The concept is taken from the CERCLA,³⁶⁴ but neither that statute nor the agencies charged with implementing it have yet fully fleshed out its meaning.³⁶⁵ For purposes of preventing groundwater pollution, the legislature should define the term to mean a precise amount of money per volume of water contaminated. One dollar per thousand gallons might be a fair figure, but any number assigned necessarily will be arbitrary.

5. Personal Injury and Private Property Damage

Ordinary nuisance law provides one avenue to recovery for those who have suffered personal or property injury from groundwater pollution. This avenue, however, is paved with legal pitfalls. This strategy includes a statutory right of action to expedite and make more certain individual rights and liabilities arising from groundwater pollution.³⁶⁶

The proposed statutory provision has several innovative features. First, the standard for liability would be strict liability, the injured party should not be required to prove that the defendant's actions were intentional, negligent, or reckless. Second, the statute would presume joint and several liability, but when more than one party was responsible for the injury, any defendant would be able to limit its liability to that proportion of the damage it proved was attributable to its contribution.³⁶⁷ Third, the plaintiff could make out a prima facie case by showing that the groundwater underlying his or her land

360. *Id.*; *cf.* *United States v. Price*, 688 F.2d 204 (3d Cir. 1982) (describing the courts' equitable powers in judicial fashioning of remedies under the RCRA).

361. See 42 U.S.C. § 9601(25), (23)-(24) (1982), *amended by* Pub. L. No. 99-499, § 101(d)-(e), 100 Stat. 1613, 1615-16 (1986).

362. See *supra* pt. II, § J(2).

363. Groundwater Conservation Act §§ 22d, 25b.

364. See 42 U.S.C. § 9601(6) (1982).

365. See Breen, *CERCLA's Natural Resource Damage Provisions: What Do We Know So Far?*, 14 *Envtl. L. Rep.* (Envtl. L. Inst.) 10,304, 10,306-08 (1984).

366. Groundwater Conservation Act § 22g.

367. *Id.*

is polluted³⁶⁸ and that the defendant(s) maintains in the vicinity a facility or conducts an activity of a potentially polluting nature involving the same kind of or derivative substances as those found in the water.³⁶⁹ Defendant(s) could show as matters of affirmative defense that the pollution was caused solely by some other, unrelated person, or that there is no causal relationship between its facility or activity and the pollution.³⁷⁰

6. Citizen Suits

An endemic problem with many complex pollution control systems is agency inability or disinclination to carry out fully the legislative will. The EPA, for instance, has failed to meet congressional deadlines dozens of times, and it did not always make a good faith effort to do so.³⁷¹ Its enforcement also has long been criticized, especially in the Gorsuch-Burford tenure.³⁷²

All major federal environmental legislation since 1970, except the CERCLA, has included provisions specifically authorizing affected citizens to bring suit for injunctive or declaratory relief against the agency or violators in certain limited circumstances.³⁷³ To remove doubts about the scope of private persons' rights to initiate such litigation, the legislature should confirm a similar right for affected citizens of the state.

The proposed statutory section is largely taken from the federal models, but with a few significant differences. Like the federal laws, this statute requires notice to the prospective defendant before suit can be brought.³⁷⁴ The federal laws speak in terms of a right to sue to compel performance of the agency's "nondiscretionary duty";³⁷⁵ but because the line between discretionary and nondiscretionary is so difficult to draw, a superior solution is to allow citizens to seek declaratory and injunctive relief against the implementing agency whenever it has failed to perform *any* duty required by law.

368. *Id.* § 22g(i).

369. *Id.* § 22g(ii).

370. *Id.*

371. *E.g.*, *Sierra Club v. Ruckelhaus*, 21 *Env't Rep. Cas.* (BNA) 2153, 2155 (N.D. Cal. 1984) (holding the EPA Administrator in contempt of court for failure to issue regulations ordered by court).

372. *See generally* Comment, *Federal Water Pollution Laws: A Critical Lack of Enforcement by the Environmental Protection Agency*, 20 *SAN DIEGO L. REV.* 945 (1983).

373. *E.g.*, 33 U.S.C. § 1365 (1982); 42 U.S.C. § 6972 (1982 & Supp. III 1985); 42 U.S.C. § 300j-8 (1982). For one assessment of the usefulness of these provisions, see Boyer & Meidinger, *Privatizing Regulatory Enforcement: A Preliminary Assessment of Citizen Suits Under Federal Environmental Law*, 34 *BUFF. L. REV.* 833 (1985).

374. Groundwater Conservation Act § 23b-c.

375. *E.g.*, 42 U.S.C. § 300j-8(a)(2) (1982).

Citizens' suits against polluters have only come into prominence in recent years. To ensure that the law is something more than a paper tiger, as political preference waxes and wanes, it is imperative to have an independent check on administrative investigative diligence and prosecutorial discretion. Therefore a successful plaintiff in a suit against a pollution source found to be in violation of a law or regulation should be awarded one half of the fine assessed (the other half going to the GCTF) in addition to attorneys fees.³⁷⁶

7. Judicial Review

Many states have a general administrative procedure act which governs the operations of its pollution control agencies. Kansas does not.³⁷⁷ Consequently, standards used by Kansas courts in reviewing administrative action are sometimes vague if not confused.³⁷⁸ In any state lacking clear procedures and standards of judicial review, the legislature should integrate judicial review into the general strategy for preventing groundwater contamination and define the scope and procedure of such review.

A few special judicial review provisions for specific situations already have been discussed.³⁷⁹ For questions or actions not otherwise specifically dealt with, a general judicial review provision, modelled after similar federal legislation, and available to all parties and others adversely affected by agency action, is appropriate.³⁸⁰

However unpopular in some circles, judicial review is an unavoidable modern reality. It should be encouraged as a primary safeguard against arbitrary or overzealously harsh regulatory action and against unduly slow or weak administrative implementation. The proposed statute thus clarifies that both regulated sources and persons affected by pollution have equal rights to invoke oversight by judges. Because court review can be used for delay by recalcitrant sources, however, polluters should litigate at their own risk; if the court upholds the administrative action at issue, the source should be liable for non-compliance sanctions to the extent that the source violated the regulation or restriction during the pendency of the lawsuit. To insure that judicial review will be as expeditious as possible, the statute requires that review of regulations of general applicability be commenced in

376. Groundwater Conservation Act § 23c.

377. See *Groundwater Pollution I*, *supra* note 8, at pt. III, § A.

378. See Ainsworth & Shapiro, *Rethinking Kansas Administrative Procedure*, 28 KAN. L. REV. 419 (1980). Whether the Kansas Legislature should consider a statute governing operations of all agencies and judicial review of all administrative action is beyond the scope of these articles.

379. See *supra* notes 268, 293, 341, and accompanying text.

380. Groundwater Conservation Act § 23.

an appellate court within 30 days of final promulgation.³⁸¹ The statute also adopts the United States Supreme Court's approach in *Sierra Club v. Morton*³⁸² of allowing an organization or association, some of whose members will or might be adversely affected, to sue on behalf of its members.³⁸³

8. Summary

The seven sets of recommendations above for integrating and harmonizing the judicial system and function with the administrative process in an overall groundwater protection strategy are now common and unremarkable remedies. Many contemporary state and federal pollution laws allow judicial review of administrative action, set up criminal and civil penalties for violations, encourage citizen suits, and empower the agency to seek judicial relief against imminent hazards. This strategy incorporates a few additional wrinkles to enhance the usefulness and effectiveness of the standard provisions. The only major innovations in the proposed law are provisions creating a state right of action for cleanup costs and natural resource damage and allowing injured persons to sue for damages.

III. CONCLUSION

The strategy for preventing groundwater pollution recommended in this article is only a strategy; it is not a cookbook. Even in the unlikely event that a state enacted the proposed Groundwater Conservation Act in its present form, difficult tasks of implementation and serious problems of interpretation would still lie ahead, and groundwater contamination would not magically disappear. Responsible officials would still have to make many basic decisions and deal with an infinity of details. Almost certainly, the strategy has neglected specific recommendations for control of particular sources or source categories that later will be revealed as serious contributors to groundwater pollution. Some recommendations may be politically unacceptable, and others may turn out to be unworkable in practice. The United States Congress conceivably could render many of these recommendations moot,³⁸⁴ and the federal EPA might be inclined to resist or disapprove others. Different and better ideas are likely to emerge as knowledge and experience grow. This strategy does not purport to

381. *Id.* § 23a.

382. 405 U.S. 727 (1972).

383. Groundwater Conservation Act § 23d.

384. See 132 CONG. REC. S6290 (daily ed. May 21, 1986) (statement of Sen. Durenberger) (indicating Senator's intent to introduce legislation creating a comprehensive federal groundwater protection program).

provide a reliable blueprint for the future which, as always, is uncertain.

These commonsense disclaimers should not, however, detract appreciably from the proposed strategy as a strategy, *i.e.*, as a framework for beginning to solve the groundwater contamination problem. The need for a prevention strategy is incontrovertible: many if not most states depend heavily on the quantity and quality of their groundwater to supply drinking water and to support economic activity; groundwater pollution is an increasingly serious problem; and present legal and administrative means of combatting that problem are fragmented and inadequate. For all its probable deficiencies of foresight, the strategy recommended here promises to be more effective than existing equivalent plans in any other jurisdiction, at least according to conventional criteria.

The proposed strategy is comprehensive. It provides for control of all known major categories of pollution sources. It requires classification of all groundwater in the state. It imposes cleanup standards for all currently recognized contaminant substances. The remedies recommended in this strategy are equally comprehensive. While primary emphasis is on direct prevention and abatement of pollution from existing and new sources, the strategy also encompasses education, monitoring and testing, disposal avoidance plans, and adequate financial deterrents.

The proposed strategy is fair. It burdens similarly situated polluters and potential polluters with similar responsibilities and liabilities. Recognizing historical practice, the strategy provides special safeguards for special classes such as farmers. It imposes the costs of prevention and abatement on those who benefit from pure groundwater as well as those who have caused or may cause its pollution. The strategy leaves intact groundwater rights perfected under state law. The proposed Groundwater Conservation Act provides relatively speedy remedies for those adversely affected by decisions made under it, and it authorizes judicial control over administrative overzealousness, arbitrariness, or undue laxity.

The proposed strategy is relatively efficient. It centralizes implementation in one division of one agency, and gives that division clear statutory direction. At the same time, the strategy avoids making impossible demands on the agency: it is not required to classify independently all groundwaters of the state; it is not commanded to itself determine tolerable levels for each pollutant or combination of pollutants; it does not carry the burden of proof in issuing permits; and it does not have to meet unrealistic deadlines. From the perspective of the potential pollution source, the strategy should also prove efficient. The source will only have to deal with a single state agency and comply with a single statute in most instances, and that

statute seeks to clearly define the rights and responsibilities of persons affected by it.

The proposed strategy should be effective. It combines a variety of incentives and disincentives that should lead potential polluters to make their best efforts to avoid groundwater contamination. It gives the implementing agency adequate legal tools to administer the proposed strategy and sources of revenue to finance necessary implementing actions. It also protects citizens from groundwater pollution and affords them remedies when their rights to pure groundwater are being violated.

This article undoubtedly will not be the last word about the best means to protect groundwater. We hope it at least provides a basis for an informed public debate.

APPENDIX

KANSAS GROUNDWATER
CONSERVATION ACT

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APPENDIX

KANSAS GROUNDWATER
CONSERVATION ACT

1. *Citation.* This Act may be cited as the Kansas Groundwater Conservation Act.
2. *Findings.* The Legislature finds that:
 - a. The waters of the State include all of the groundwater underlying the lands of the State.
 - b. Prior to appropriation and use under law, groundwater belongs to the State of Kansas in trust for all of the people of the State.
 - c. The abundance and purity of the State's groundwater resources are of the highest importance to the health and well-being of all Kansans.
 - d. The economy of the State depends heavily upon assured supplies of high quality groundwater for drinking and other beneficial purposes.
 - e. Inadequate and environmentally unsound practices by industrial, commercial, domestic, agricultural, recreational, and other activities in the State threaten the quality of the State's groundwater resources, the health and well-being of Kansans, and the vitality of the State's economy.
 - f. The State of Kansas has the duty to safeguard its groundwater resources for present and future generations of Kansans.
 - g. The inherent police power of the State of Kansas authorizes the enactment, implementation, and enforcement of legislation for the protection of the health, safety, and general welfare of the people of Kansas and of the State's environment and natural resources, including groundwater.
 - h. Existing state and federal programs are not sufficiently comprehensive, coordinated, or stringent to prevent groundwater pollution.
3. *Policies.* The Legislature declares that it is the policy of the State of Kansas to:
 - a. Protect the groundwater resources of the State from degradation and enhance such resources to ensure the continued availability of such resources for their present and potential uses;
 - b. Assure that potential sources of groundwater pollution are

- managed in a manner that minimizes the need for corrective action in the future;
- c. Cooperate fully with the federal government in implementing cooperative federal/state programs that maintain and enhance groundwater quality;
 - d. Consolidate regulatory programs or parts of programs affecting groundwater quality in a Groundwater Quality Division of the Kansas Department of Health and Environment;
 - e. Encourage and assist in the development and operation of local groundwater prevention and control programs, including the dissemination of information concerning the protection of groundwater quality;
 - f. Authorize units of local government in the State to regulate through land use controls activities and facilities that can contaminate groundwater resources;
 - g. Protect wells used to produce drinking water groundwater and usable groundwater, aquifer recharge areas, and other areas vulnerable to groundwater contamination;
 - h. Protect existing property rights to use groundwater to the extent consistent with the protection and conservation of groundwater resources as provided in this Act;
 - i. Regulate point and nonpoint sources of groundwater pollution to minimize risks of contamination in a cost-effective, administratively efficient fashion;
 - j. Create a Groundwater Conservation Trust Fund to be used for prevention and abatement of groundwater pollution;
 - k. Charge the costs of preventing and abating groundwater pollution to those who use groundwater and those who are responsible for its pollution;
 - l. Encourage conservation and wise use of groundwater by imposing a fee on its extraction and in other ways;
 - m. Safeguard the health and welfare of all Kansans from the adverse effects of groundwater pollution;
 - n. Assist those responsible for implementing the provisions of this Act in gathering further information concerning the nature, extent, and sources of groundwater contamination and the available means of preventing and remedying such contamination; and
 - o. Disseminate to present and potential users and polluters of groundwater the information gathered pursuant to this Act as well as information concerning their rights and obligations under this Act and related federal, state, and local laws and regulations.

4. *Interpretation.* This Act and all other laws and regulations of

the State of Kansas shall be interpreted, implemented, administered, and enforced consistently with the policies stated in the preceding section of this Act. To the extent that any of the provisions of this Act conflict with or are inconsistent with any other laws or regulations of the State of Kansas, the provisions of this Act shall control.

5. *Definitions.* In this Act, the following words, phrases, abbreviations, and acronyms shall have the following meanings:
- a. "Act" means act or omission.
 - b. "Activity" means any act or series of acts by any person.
 - c. "Aquifer" means any geological formation containing any underground deposit or reservoir of water, including moving bodies of groundwater, whether or not connected to other aquifers or to surface water, or any part or portion thereof.
 - d. "CERCLA" means the federal Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, 42 U.S.C. §§ 9601 *et seq.*, as amended.
 - e. "Cleanup" means any and all means by which sources of contamination are abated and pollutants are removed from groundwater.
 - f. "Contaminant" means any substance other than water.
 - g. "Contamination" means the addition, directly or indirectly, of any contaminant to the waters of the State.
 - h. "CWA" means the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, as amended.
 - i. "Disposal" means the discharge, deposit, injection, dumping, spilling or leaking, or placement by any means of any contaminant into or on any land or water in a manner whereby such contaminant or constituent thereof may enter the groundwater.
 - j. "Division" means the Groundwater Quality Division of the Kansas Department of Health and Environment.
 - k. "EPA" means the federal Environmental Protection Agency.
 - l. "Existing source" means any point source or nonpoint source that is in existence and operational on the effective date of this Act or on the date of promulgation of regulations or orders applicable to that point source or nonpoint source, whichever is later.
 - m. "Facility" means any site, pond, impoundment, lagoon, building, pipe, pipeline, ditch, landfill, motor vehicle, storage container, or other structure or combination of them used for any purpose.
 - n. "FIFRA" means the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136 *et seq.*, as amended.

- o. "GCTF" means the Groundwater Conservation Trust Fund.
- p. "Groundwater" means water in any aquifer or other waters of the State that are below the surface of the ground, whether or not hydrologically connected to surface water.
- q. "HMTA" means the federal Hazardous Materials Transportation Act, 49 U.S.C. §§ 1802 *et seq.*, as amended.
- r. "Inactive source" means any point source or nonpoint source that is not in operation or otherwise active.
- s. "KCC" means the Kansas Corporation Commission.
- t. "KDHE" means the Kansas Department of Health and Environment.
- u. "K.S.A." means the Kansas Statutes Annotated.
- v. "Maximum contaminant levels" or "MCLs" means the groundwater quality cleanup standards promulgated by the Secretary under this Act.
- w. "Mg/l" means milligrams per liter.
- x. "Modified" or "modification" means the physical alteration, including expansion, of a source in any way that increases the threat or volume of groundwater contamination.
- y. "Monitoring and testing" means any program using any device or process capable of obtaining groundwater samples and measuring them for the presence of contaminants.
- z. "New source" means any point source or nonpoint source that is not constructed on the effective date of this Act, or on the date of promulgation of regulations affecting its construction, whichever is later, or that is modified after the later of those two dates.
- aa. "Nonpoint source" means any source other than a point source, including without limitation, use of fertilizers, pesticides, and herbicides, road de-icing, accidents, land application of sludge, and intentional dumping.
- bb. "Person" means any natural, corporate, or governmental person or entity, including partnerships and associations.
- cc. "Point source" means any source that is a facility, including without limitation, hazardous and solid waste disposal sites, municipal, industrial, and commercial waste storage or treatment lagoons, wells of every kind, chemigation systems, storage tanks, grain elevators, septic tanks and fields, mines (including salt solution mines), grain elevators, and feedlots, whether or not in use or active.
- dd. "Pollution" means the addition, directly or indirectly, of any contaminant to the groundwaters of the State.
- ee. "RCRA" means the federal Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et seq.*, as amended.
- ff. "Recharge area" or "recharge zone" means those parts of

the land surface from which waters percolate or otherwise move into groundwater.

- gg. "Repository" means a facility for storage of contaminated soil.
- hh. "Response" means any effort to clean up, abate, or prevent groundwater pollution.
- ii. "Response costs" means any expenditure made for the purpose of response, including without limitation, costs of cleanup; monitoring, testing, and evaluation; alternative water supplies; studies; personnel time; and litigation.
- jj. "Secretary" means the Secretary of the Kansas Department of Health and Environment.
- kk. "SDWA" means the federal Safe Drinking Water Act, 42 U.S.C. §§ 300f *et seq.*, as amended.
- ll. "Source" means any activity, facility, or event with the potential to cause groundwater pollution by disposal, percolation, accident, or otherwise, whether directly or indirectly, or negligently or inadvertently.
- mm. "This Act" means the Kansas Groundwater Conservation Act.
- nn. "TSCA" means the federal Toxic Substances Control Act, 15 U.S.C. §§ 2601 *et seq.*, as amended.
- oo. "Well" means a bored, drilled, or driven shaft, or a dug hole, the depth of which is larger than the largest surface dimension.

6. Powers of the Secretary.

- a. Except as otherwise expressly provided in this Act, the Secretary shall administer this Act. The Secretary is authorized to take all actions, by regulation, order, or otherwise, necessary to implement and enforce this Act.
- b. Except as otherwise expressly provided in this Act, promulgation of regulations by the Secretary to implement this Act shall be preceded by public notice and opportunity to comment at a public hearing. The extent and form of opportunities to comment, either in writing or orally, shall be within the discretion of the Secretary.
- c. The Secretary is authorized to issue compliance orders to any source and to assess civil penalties in accordance with section 25 of this Act against any person found by the Secretary to have violated, or to be in violation of, this Act, regulations implementing this Act, orders and permits issued under the authority of this Act, or any other legal requirement under this Act.

- d. The Secretary may delegate secretarial powers and duties under this Act to subordinate personnel in the KDHE.
- e. The Secretary is authorized to enter upon any property which the Secretary reasonably believes to contain a source or sources of groundwater pollution, to inspect, monitor, and test such source or sources and underlying groundwater, and to clean up, abate, or prevent groundwater pollution to the extent and with the means the Secretary deems necessary, appropriate, and consistent with the policies set forth in section 3 of this Act.
- f. The Secretary is authorized to charge reasonable fees for services performed or permits issued by the KDHE; provided, however, that such fees shall not exceed the reasonable costs of providing such services or issuing such permits.
- g. The Secretary is authorized to order groundwater users to cease or modify groundwater extraction or use if the Secretary finds that existing or future extraction or use will pose a substantial danger to groundwater quality.

7. *The Groundwater Quality Division of the KDHE.*

- a. The Secretary shall create a Division of Groundwater Quality within the KDHE from personnel now within other divisions of the Department and such additional personnel as are necessary to carry out the purposes of this Act, consistent with appropriations therefor.
- b. The Secretary through the Division shall assume responsibility for all present and future KDHE programs or parts of programs that affect groundwater quality.
- c. The Secretary through the Division shall also assume responsibility for:
 - i. regulation of mining operations and oil and gas wells, repressuring wells, abandoned wells, and other aspects of oil and gas operations with the potential to contaminate groundwater in accordance with sections 7d and 15 of this Act;
 - ii. certification and regulation of use of pesticides, fertilizers, feedlots, grain elevators, and chemigation systems in accordance with sections 7d and 16 of this Act;
 - iii. regulation of intrastate and interstate pipelines in accordance with sections 7d and 18 of this Act; and
 - iv. implementation of this Act.
- d. [This section will make appropriate amendments in other laws to transfer to the KDHE authority over groundwater pollution aspects of oil and gas operations, fertilizers, pesticides, feedlots, radioactive waste disposal, pipelines, and

mining operations to the extent and with the limitations specified in Part VIII, section H of the Strategy Report.]

8. *The Groundwater Conservation Trust Fund.*

- a. There is created in the State Treasury an account for the Groundwater Conservation Trust Fund, which shall be funded and expended as provided in this section.
- b. The Conservation Fund created by K.S.A. §§ 55-139 *et seq.* shall be transferred to the GCTF, and all current and future receipts for the Conservation Fund shall be deposited in the GCTF.
- c. One half of all service and permit fees charged and collected by the KDHE pursuant to this Act, all recoveries for cleanup costs and for damage to natural resources as provided in section 22 of this Act, and one half of all penalties payable to the State under section 25 of this Act shall be deposited in the GCTF.
- d. All receipts from the groundwater severance tax as hereinafter provided shall be deposited in the GCTF. Beginning on the effective date of this Act, any person who extracts groundwater from aquifers classified as drinking water or usable shall pay to the State Treasurer one cent for each thousand gallons so extracted. Public bodies extracting groundwater are authorized to charge their customers and other users a fee equal to the tax on the amount of water delivered by the public body to each user.
- e. All receipts from the underground waste injection tax as hereinafter provided shall be deposited in the GCTF. Beginning on the effective date of this Act, any person who injects wastes into groundwater strata shall pay to the State Treasurer one cent for each gallon of waste injected.
- f. Funds from the GCTF may be expended by the Secretary for the following purposes:
 - i. To locate, evaluate, and clean up or otherwise respond in accordance with this Act to sources polluting or threatening to pollute groundwater;
 - ii. To locate, plug, repair, clean up, or otherwise respond to inactive potential sources in accordance with section 15 of this Act;
 - iii. To purchase, install, and operate components of the monitoring and testing system in accordance with section 11 of this Act and to evaluate the data generated by such system; provided, however, that not more than 50 percent of the GCTF may be used for this purpose in any one fiscal year;

- iv. To purchase or condemn easements or fee interests in recharge areas in accordance with section 21 of this Act; provided, however, that the Secretary may use the power of condemnation for this purpose only after both Houses of the Legislature, by joint resolution, and the Governor, have concurred;
 - v. To study the design, construction, and operation of a waste repository as provided in section 12 of this Act; provided, however, that no more than 10 percent of the GCTF may be used for this purpose in any one fiscal year;
 - vi. To support the mapping of recharge areas by local governments as provided in section 19a of this Act; and
 - vii. To provide drinking water supplies to persons and communities deprived of their supplies by groundwater pollution.
- g. Funds from the GCTF may be expended only in accordance with departmental appropriations for the fiscal year or years specified in appropriations legislation.

9. *Aquifer Classification.*

- a. On the effective date of this Act, every aquifer located wholly or partially within the boundaries of the State of Kansas that contains chloride concentrations of 5000 or fewer mg/l shall be classified as a "drinking water aquifer." The Secretary shall protect aquifers so classified from any degradation in quality.
- b. Upon the written application of any person, or upon the Secretary's own motion, the Secretary may reclassify a drinking water aquifer to "usable" status after public notice and hearing if the applicant demonstrates and the Secretary finds by clear and convincing evidence, which is recorded and made available to the public no later than fifteen days after the Secretary's decision, that:
 - i. the aquifer is not then being used as a public or private source of drinking water;
 - ii. there is no reasonable possibility that the aquifer will be used as a public or private source of drinking water in the future;
 - iii. the aquifer is being used, or there is a reasonable possibility that it could be used, for beneficial purposes other than drinking water or waste disposal; and
 - iv. minimal degradation in quality will not adversely affect present or possible future uses of the aquifer.
- c. Whenever an aquifer is reclassified to usable status, the Secretary shall specify and impose whatever measures or con-

ditions that the Secretary deems necessary for the protection of all present and possible future uses identified in the reclassification proceeding. The burden shall be on the applicant for or proponent of reclassification to demonstrate by clear and convincing evidence that its use of or impact upon such an aquifer will not degrade groundwater quality beyond the extent necessary for the protection of all present and possible future uses identified in the reclassification proceeding.

- d. On the effective date of this Act, every aquifer that is not classified as a drinking water aquifer under subsection a of this section shall be classified as an "unusable" aquifer. Upon the written application of any person or upon the Secretary's own motion, the Secretary may reclassify a drinking water aquifer or a usable aquifer to "unusable" status after public notice and hearing if the applicant demonstrates and the Secretary finds by clear and convincing evidence, which is recorded and made available to the public no later than fifteen days after the Secretary's decision, that:
 - i. by reason of existing natural or manmade contamination or other causes, the aquifer is so polluted or otherwise unusable that its waters cannot be used for any beneficial purpose (other than waste disposal), and there is no reasonable possibility that it could be so used in the future;
 - ii. for physical, economic, or technological reasons, the aquifer cannot be rendered suitable for any beneficial purpose (other than waste disposal); and
 - iii. the water in the aquifer is not so connected hydrologically with other surface water or groundwater that its contamination poses a threat that such other waters of the State may become polluted.
- e. An aquifer reclassified to unusable status may be used for waste disposal, if, in the judgment of the Secretary, such use will not pose a threat that surface water, groundwater, or other natural resources of the State may become polluted.
- f. Upon the written application of any person or upon the Secretary's own motion, the Secretary shall reclassify a usable aquifer or an unusable aquifer to drinking water status if the Secretary finds that there is a reasonable possibility that its waters could be used for drinking.
- g. Upon the written application of any person or upon the Secretary's own motion, the Secretary shall reclassify an unusable aquifer to usable status if the Secretary finds that there is a reasonable possibility that its waters could be used

for any beneficial purpose other than drinking or waste disposal.

10. *Groundwater Quality Cleanup Standards.*

- a. The Secretary shall, within 30 days of the effective date of this Act, adopt as groundwater quality cleanup standards for the State of Kansas the maximum contaminant levels (MCLs) and similar standards for the substances and at the levels identified in the table at pages 333-348 of Volume II of the federal Office of Technology Assessment work entitled "Protecting the Nation's Groundwater From Contamination." The Secretary may revise any such standard or adopt new standards without prior notice or opportunity for hearing at any time according to the best information available to the Secretary or solely on the basis of the adoption or revision of MCLs or similar standards by the EPA or by other federal or state authorities. Persons adversely affected by the adoption or revision of a standard may obtain judicial review of the Secretary's decision in accordance with section 23 of this Act; provided, however, that a court may invalidate such decision only if the court determines that the newly adopted or revised standard does not adequately protect the health of Kansas citizens or the integrity of the environment.
- b. Whenever the Secretary finds, on the basis of monitoring, testing, or other information, that a contaminant is present in an aquifer in quantities exceeding the groundwater quality cleanup standard for that contaminant, the Secretary shall issue such orders or take such other action under this Act as may be necessary to reduce the levels of that contaminant. The costs of achieving that reduction shall be borne or assessed in the manner provided by section 22 of this Act. Subject to the remainder of this paragraph, the levels of contamination shall be reduced to the point at which the Secretary finds and determines on the record that the cost of achieving further reduction exceeds the benefit to be derived from such reduction. In issuing orders or taking other action to reduce contaminant levels, the Secretary shall attempt to reduce contaminant levels until they reach or approach zero. At a minimum, contaminant levels shall be reduced to the levels set forth in the applicable groundwater quality cleanup standards or until the Secretary finds and determines on the record that further cleanup efforts are physically futile.

11. *Monitoring, Testing, and Evaluation.*

- a. The Secretary shall use funds in the GCTF, within the limits

set forth in section 8 of this Act, to design, construct, and operate a network of monitoring wells and devices and a testing and evaluation system for the purpose of detecting, preventing, and abating contamination in groundwater at the earliest possible time. Such network and system shall be designed to integrate information from monitoring wells and devices installed by potential contamination sources and by other state and federal agencies, and any other such information available to the Secretary.

- b. The Secretary is authorized to require any source, new or existing, which in the judgment of the Secretary poses a threat to pollute the State's groundwater, to install and operate monitoring wells and devices and to furnish samples and reports to the Secretary at the times and to the extent that the Secretary deems necessary for prevention as well as abatement of groundwater pollution. All information derived from public and private monitoring wells and devices and groundwater testing shall be available to any member of the public.

12. *Repository Study.*

The Secretary shall study whether the State of Kansas should construct and operate a repository for contaminated soil and shall report to the Legislature the findings of the study within 18 months of the effective date of this Act. Such study shall consider all relevant factors, including without limitation, cost, technological feasibility, need or demand, probable use, and location.

13. *Education in Prevention of Groundwater Pollution.*

- a. Every point source and every commercial pesticide applicator shall, within 90 days of the effective date of this Act, submit to the KDHE the name of one or more persons deemed responsible for prevention of groundwater pollution from the source or pesticide applicator, unless the class or size of the source is exempted by regulations to be promulgated by the KDHE within 30 days of the effective date of this Act. Such person or persons shall be required to successfully complete a course in prevention of groundwater pollution as provided in this section within 18 months of the effective date of this Act. For point sources that must demonstrate technical competence as a condition of obtaining a license to conduct the activity or commence operation or construction of the facility, successful completion of the course provided in this section shall be prima facie evidence of technical competence in prevention of groundwater pollution.

- b. Each university in the State of Kansas is authorized to offer short courses of no less than five full days duration on prevention of groundwater contamination, subject to approval in writing by the Secretary of the content of and instructors for the course. Each such course shall cover the subjects of groundwater pollution sources, groundwater hydrology, applicable legal requirements, means and techniques of prevention, and such other topics as the Secretary may by regulation require. The Secretary shall require the same training of all replacement personnel for such sources and may require periodic retraining.

14. *New Point Sources.*

- a. Prior to commencing construction, every person who proposes to construct a new point source shall apply to the local zoning authority for a special land use permit if the source is to be located in a designated recharge area. If the local jurisdiction has not been mapped for recharge areas, such person shall give the local zoning authority notice of its intention to construct a new point source and an opportunity to investigate the possible consequences for groundwater quality of the construction and operation of that source. The local zoning authority shall have the power to prohibit the construction or operation of a new point source for the purpose and through the means set forth in section 19 of this Act.
- b. Prior to commencing construction, every person who proposes to construct a new point source shall apply to the Division for a construction permit. The applicant shall include in each permit application a disposal avoidance plan which demonstrates to the satisfaction of the Secretary that:
 - i. the design, construction, and normal operation of the source will encompass or utilize the best available technology for prevention of groundwater contamination;
 - ii. the source has considered all likely ways in which malfunctions, accidents, and similar events could cause groundwater pollution, directly or indirectly, and has devised and will implement methods of minimizing the risk of accidental pollution to the maximum extent possible; and
 - iii. (a) for a source located in an area overlying an aquifer classified as drinking water, the location, design, construction, and operation of the source will not pollute the groundwater; or
(b) for a source located in an area overlying an aquifer

classified as usable, the source will not cause pollution of the groundwater in that aquifer that is more than ____ percent in excess of any applicable groundwater quality cleanup standard under section 10 of this Act, and in any event, will not adversely affect any present or possible future uses of the aquifer.

- c. Each permit issued by the Secretary under this section shall include as a condition of operation the obligation to comply fully with the provisions of the applicant's disposal avoidance plan as modified, if at all, by the Secretary.
- d. [This section will amend existing law and define new requirements for the following classes and types of new point sources as discussed in Part VIII, section H of the Strategy Report:
 - i. Oil and gas operations
 - ii. Septic fields and water wells
 - iii. Municipal sewage treatment lagoons
 - iv. Injection wells
 - v. Industrial and commercial waste lagoons
 - vi. Mines
 - vii. Storage tanks
 - viii. Landfills and dumps
 - ix. Feedlots
 - x. Hazardous waste sites
 - xi. Radioactive waste sites
 - xii. Chemigation systems.]
- e. The Secretary is authorized to promulgate regulations requiring new point sources to monitor and test groundwater quality in the vicinity of the sources, and to keep such records and make such reports based on the monitoring and testing as the Secretary deems appropriate. The regulations shall specify the type, class, location, and size of point source for which monitoring, recordkeeping, and reporting requirements are mandatory. In issuing such regulations, the Secretary shall take into account the location of new point sources over aquifers classified as drinking water or usable.
- f.
 - i. The Secretary may exempt in whole or in part classes of new point sources from the requirements of subsections b, c, d, or e of this section, if the Secretary finds on the record that such class of point source poses a relatively insignificant pollution threat; provided, however, that administrative convenience shall not be an adequate basis for an exemption.
 - ii. Upon application by a new point source, the Secretary

may modify in whole or in part the requirements of subsections b, c, d, or e of this section as applied to that source, if the Secretary finds on the record that, due to circumstances unique to that source (including undue hardship caused by compliance with such requirements), the requirements applicable to the class to which that source belongs should not be applied to that source. No modification may be granted under this subsection unless the applicant demonstrates that, despite the modification requested, it will meet the requirements of subsection b. iii of this section.

15. *Existing Point Sources.*

- a. Existing point sources shall be subject to the requirements of this section in addition to any other applicable requirements under this Act.
- b. The Secretary is authorized to enter any lands on which are located any known or suspected point sources, including point sources that are inactive, in order to inspect such point sources for potential to pollute groundwater. If in the judgment of the Secretary an inactive point source has the potential to pollute groundwater, the Secretary is authorized to take response action or to order responsible persons, if known, to take such action. Response costs shall be borne or assessed in accordance with section 22 of this Act. For purposes of this section, responsible persons include the owner or operator of the point source at the time of the response action, owners or operators of the point source during any time that the pollution or threat thereof occurred, the original builder of the source, and the owner of the land on which the point source is located. Liability for response costs incurred in connection with the inactive source shall be joint and several, but responsible persons may obtain contribution or indemnity from other responsible persons based on degree of relative fault.
- c. The Secretary is authorized to promulgate regulations requiring existing point sources to monitor and test groundwater quality in the vicinity of the sources, and to keep such records and make such reports based on the monitoring and testing as the Secretary deems appropriate. The regulations shall specify the type, class, location, and size of point source for which monitoring, recordkeeping, and reporting requirements are mandatory. In issuing such regulations, the Secretary shall take into account the location of existing point sources over aquifers classified as drinking water or usable.

- d. If the Secretary finds:
 - i. that any class or category of existing point source poses a substantial pollution threat to groundwater quality; and
 - ii. that preexisting standards for the design, construction, or operation of that class or category of existing point source are inadequate to prevent groundwater pollution, the Secretary is authorized to promulgate and periodically revise regulations imposing design, construction, or operating requirements on such class or category of source to the extent that the Secretary finds that such requirements are (1) necessary to abate the threat to groundwater quality and (2) technologically and economically feasible.
- e.
 - i. The Secretary may exempt in whole or in part classes of existing point sources from the requirements of subsections b, c, d, or h of this section if the Secretary finds on the record that such class of point source will not cause pollution of the groundwater in any aquifer that is more than ____ percent in excess of any applicable groundwater quality cleanup standard under section 10 of this Act; provided, however, that administrative convenience shall not be an adequate basis for an exemption.
 - ii. Upon application by an existing point source, the Secretary may modify in whole or in part the requirements of subsection b, c, d, or h of this section as applied to that source, if the Secretary finds on the record that, due to circumstances unique to that source (including undue hardship caused by compliance with such requirements), the requirements applicable to the class to which that source belongs should not be applied to that source. No modification may be granted under this subsection unless the applicant demonstrates that, despite the modification requested (a) it will not pose a substantial threat to groundwater quality, and (b) the modification requested is adequate to prevent groundwater pollution.
- f. If the Secretary finds that any existing point source is causing or is threatening to cause groundwater pollution, the Secretary shall order such source to take whatever response/action, including without limitation redesign of the facility and construction or operation of corrective structures or equipment, as the Secretary deems necessary to abate the pollution or avert the threat. If the source is in close hydrological proximity to the polluted or threatened groundwater, and the same kinds of substance or substances or their derivatives are found both at the source and in the ground-

water or threat, the Secretary may presume that the source is causing or has caused the pollution or threat. In the event the source seeks judicial review of the Secretary's decision under section 23 of this Act, the court shall adhere to this presumption unless the source demonstrates by clear and convincing evidence (1) the absence of any hydrological proximity between the source and the polluted or threatened groundwater; (2) that the source could not have caused the pollution or threat; or (3) that another source caused or is causing the pollution or threat.

- g. If an existing point source that has received an order issued by the Secretary under the preceding subsection is unable or refuses to comply with that order, the Secretary may order the source to cease operations and either clean up the pollution or abate the threat, or the Secretary may clean up the pollution or abate the threat. Response costs incurred by the source or the Secretary shall be borne or assessed in accordance with section 22 of this Act. In the event the source seeks judicial review under section 23 of this Act of an order issued under this subsection, the court should adhere to the presumption created in section 15f of this Act, unless the source makes the demonstration set forth in that section.
- h. The Secretary is authorized to promulgate regulations advising classes of existing point sources about best management practices that reduce the risk of groundwater pollution. If any existing point source is causing or threatening to cause groundwater pollution, the Secretary may order such source to comply with such best management practices.

16. *Nonpoint Sources; Agriculture.*

- a. [This section will amend the Kansas zoning laws to allow cities and counties to regulate agricultural land use practices to prevent groundwater pollution.]
- b. The Secretary shall, within one year of the effective date of this Act, with the advice of the Kansas State Board of Agriculture, promulgate guidelines defining best management practices for application of fertilizers and pesticides. The Secretary may consider data and models from other state and federal jurisdictions in promulgating such guidelines. Such guidelines shall be written in clear and concise language, and shall be distributed to farmers in the State by county extension agents.
- c. If the Secretary finds that the use of fertilizers or pesticides by any person is polluting or threatening to pollute groundwater, the Secretary may issue an order to such person

limiting the amounts of such substance that can be applied by such person and the times and methods of such application. If the Secretary further finds that the substance, because of its toxicity, persistence, reactivity, or solubility, presents an imminent and substantial danger to the health, safety, or welfare of residents of the State, to the environment (including groundwater), or to the State's economy, the Secretary may ban its use by such person altogether. If the person against whom the order is directed fails or refuses to comply with the order, the Secretary may request the Attorney General to bring a civil action against such person for injunctive relief and assessment of civil penalties.

- d. The Secretary shall, within two years of the effective date of this Act, with the advice of the Kansas State Board of Agriculture, rate the fertilizers and pesticides used in the State according to their toxicity, persistence, reactivity and solubility. The Secretary is authorized to ban the sale or use of those fertilizers or pesticides deemed by the Secretary to present an unreasonable risk of pollution by reason of their characteristics. The Secretary is also authorized to impose as mandatory requirements the best management practices promulgated in accordance with section 16b of this Act on any person using any fertilizers or pesticides deemed by the Secretary to present a substantial threat to groundwater quality by reason of their characteristics.
- e. The Secretary shall, within one year of the effective date of this Act, promulgate regulations prohibiting practices by commercial pesticide applicators that pose unreasonable or substantial threats to groundwater quality.

17. *Nonpoint Sources; Intentional Dumping.*

- a. It shall be unlawful to dump substances with the potential to pollute groundwater into any groundwaters or surface waters or onto land of the State or onto the property of another person.
- b. Violation of this section is a Class E felony.

18. *Nonpoint Sources; Spills and Accidents.*

- a. [This section will amend Kansas law to give the Secretary authority to regulate safety aspects of intrastate and interstate pipelines compatibly with the federal pipeline legislation described in Part II, section H(3) of *Groundwater Pollution I.*]
- b. Any person who treats, transports, stores, disposes of, or uses substances that the Secretary has determined by regula-

tion may present risks of groundwater pollution shall immediately report to the KDHE any accident or spill of such substances in which defined quantities of such substances have escaped or spilled onto the ground or into any groundwaters or surface waters of the State. Such person shall comply with any cleanup orders the Secretary may issue. The Secretary is authorized to take response actions in the event of any such accident or spill. Liability for response costs incurred under this subsection shall be governed by section 22 of this Act.

- c. The Secretary is authorized to promulgate regulations defining best management practices for the treatment, transportation, storage, disposal, and use of the substances identified by the Secretary pursuant to the preceding subsection. Such regulations shall specify means of response to be taken by responsible persons in the event of a spill or accident.

19. *Local Land Use Controls.*

- a. Counties, cities, and other units of local government with zoning powers shall, within five years of the effective date of this Act, hold public hearings to determine whether the master, comprehensive, or other official land use plans for the jurisdiction should be revised to authorize the use of zoning and other land use controls to protect groundwater resources in or adjacent to the jurisdiction. The Secretary shall assist such units of local government by mapping recharge and other vulnerable areas in the jurisdiction to the extent possible, and by promulgating advisory regulations explaining
 - i. the effect that classes of point and nonpoint sources located in or near recharge and other vulnerable areas can have on groundwater quality, and
 - ii. methods of avoiding adverse effects from such sources on groundwater quality.
- b. Counties, cities, and other units of local government with zoning powers are authorized to grant or deny zoning changes, plats, variances, exceptions, land use permits, and other permissions to use land on the basis of groundwater quality considerations, and to condition permitted land uses, including the imposition of specific operating conditions or the achievement of designated levels of performance, in a manner the zoning authority deems necessary to protect groundwater quality.
- c. Counties, cities, and other units of local government with zoning powers are authorized to adopt and apply reasonable

regulations for the gradual elimination of nonconforming uses, where such elimination is necessary to prevent pollution or the threat of pollution of groundwater resources in or adjacent to the unit of local government adopting the regulations.

20. *Protection of Water Wells.*

- a. The Secretary shall promulgate land use regulations for protection of public and private drinking water wells and the zones around such wells. Such regulations may control or forbid new facilities or activities in designated water well protection zones, regulate the kind and extent of existing activities in such zones, declare existing facilities or activities nonconforming, and require the gradual elimination of such nonconforming uses.
- b. No facility or activity deemed to be a nonconforming use under the KDHE's regulations may be expanded or replaced without receiving a permit from both the KDHE and the local zoning authority in the jurisdiction where the facility or activity is located.
- c. The Secretary is authorized to issue orders prohibiting the operation of any facility or the continuation of any activity that is deemed to be a nonconforming use under the KDHE's regulations and that is polluting or threatening to pollute groundwater resources.
- d. In the event of a conflict between regulations issued by the KDHE under this section and the regulations, ordinances, or other land use controls issued by any unit of local government with zoning powers, the Secretary's regulations shall take precedence.

21. *Purchase or Condemnation of Recharge Areas.*

If the Secretary finds that a recharge or other vulnerable area cannot be protected from pollution by any other means, the Secretary is authorized to purchase such recharge or other vulnerable area or an easement governing use of it; provided, however, that such recharge or other vulnerable area shall not exceed 100 acres and that the Secretary shall not expend more than 10 percent of the GCTF for such purpose in any one fiscal year. The Secretary is also authorized to request permission from the Legislature to condemn title to such a recharge or other vulnerable area or an easement governing use of it. Lands so purchased or condemned shall be managed for wildlife propagation and protection purposes by the Kansas Fish and Game Commission.

22. *Public and Private Compensation for Groundwater Pollution.*

- a. Any person whose act, whether occurring before or after the effective date of this Act, causes or caused groundwater pollution shall be liable to the State of Kansas and to any other responsible person for all response costs incurred by the State or other responsible person in the process of responding to the pollution after the effective date of this Act.
- b. Any person who causes groundwater pollution after the effective date of this Act (whether or not the polluting facility or activity was in existence on the effective date of this Act) shall be liable to the State of Kansas for whatever damage the pollution does or has done to natural resources in the State. Damage to natural resources includes, without limitation, damage to groundwater resources; provided, however, that a responsible person shall not be liable for more than one dollar per thousand gallons of groundwater contaminated.
- c. Liability for response costs and natural resources damages under this section shall be strict, joint, and several. A defendant may show by way of affirmative defense that the pollution resulted solely from an act of God, an act of war, or a unilateral act of a third person who is not an employee, partner, relative, or associate of the defendant and who is not and has not been contractually or otherwise related to the defendant. Responsible persons may obtain contribution from one another in the proportion that the pollution traceable to each bears to the total pollution in accordance with traditional equitable principles, including degree of relative fault.
- d. The Attorney General of the State of Kansas is authorized and directed to bring suit against any and all responsible persons in the district court of any county where the pollution occurred to recover the costs and damages specified in the preceding subsections when requested to do so by the Secretary. Civil penalties, as provided for and under the circumstances defined in section 25 of this Act, may be sought in the same action.
- e. Any recovery by the State for response costs or natural resources damages and one half of any civil penalty collected shall be deposited in the Groundwater Conservation Trust Fund.
- f. As used in this section, "responsible person" means a person whose act or acts caused or contributed to the pollution or threat of pollution requiring the expenditure of response costs or resulting in natural resources damage.

- g. Any person who causes groundwater pollution shall be strictly liable to any person whose person or property is injured by reason of such pollution. In the event that the injury is caused by more than one person, each such person shall be jointly and severally liable unless such person can demonstrate that its contribution to the total pollution was limited to a certain percentage. If the plaintiff in an action brought under this subsection demonstrates
- i. that the groundwater under the plaintiff's land is polluted, and
 - ii. that the defendant, within reasonable hydrological proximity of the plaintiff's land, maintains a facility or conducts an activity that has the potential to pollute groundwater with the same kinds of substances (or their derivatives) found in the groundwater under the plaintiff's land,
- the plaintiff shall be entitled to recover, unless the defendant demonstrates (a) that the pollution was caused solely by the acts of a person unrelated (by contract or otherwise) to the defendant or (b) that there is no causal relationship between the defendant's facility or activity and the polluted groundwater.
- h. If the Secretary orders a person under section 6g of this Act to cease or modify groundwater extraction or use in order to abate a substantial danger to groundwater quality, such person may recover from any person who has caused or is causing the groundwater contamination creating such danger damages for the value of the extraction or use curtailed by the Secretary's order. Suits for such damages shall be brought in the district court of the county in which extraction or use has taken place. If the plaintiff in an action brought under this subsection demonstrates
- i. that the groundwater which is the subject of the Secretary's order is polluted, and
 - ii. that the defendant, within reasonable hydrological proximity of the polluted groundwater, maintains a facility or conducts an activity that has the potential to pollute groundwater with the same kinds of substances (or their derivatives) found in the polluted groundwater,
- the plaintiff shall be entitled to recover, unless the defendant demonstrates (a) that the pollution was caused solely by the acts of a person unrelated (by contract or otherwise) to the defendant or (b) that there is no causal relationship between the defendant's facility or activity and the polluted groundwater.

23. *Judicial Review.*

- a. Any person adversely affected by any regulation, order, or other action of the Secretary pursuant to this Act may petition the Kansas Court of Appeals for review of such action within 30 days of the effective date of the regulation, order, or action. The Court of Appeals shall give petitions under this section priority of hearing and decision. The Court of Appeals shall vacate the regulation, order, or action only if it is made without observance of procedure required by law, is made without basis in fact, is arbitrary or capricious, or is otherwise unlawful or ultra vires. The court may award costs and reasonable attorneys fees to any prevailing or partially prevailing party.
- b. Any person, after 30 days notice to the Secretary, may commence a civil action in the district court for Shawnee County for injunctive and declaratory relief against the Secretary for failing to perform any duty required by this Act. If the court finds that the Secretary has failed to perform such a duty, the court shall order the Secretary to perform such duty as expeditiously as possible. If the court finds the Secretary's failure was without substantial justification, the court shall award the prevailing or partially prevailing party costs and reasonable attorneys fees.
- c. Any person, after 30 days notice to the Secretary and to the person alleged to be in violation, may commence a civil action in the district court for the county in which the violation is alleged to have occurred against any person alleged to have violated or to be in violation of any provision of this Act or any order, regulation, or permit issued under the authority of this Act. No action may be commenced under this subsection if the Secretary is pursuing or has pursued administrative or judicial actions under this Act to abate, redress, or respond to the same violation alleged in the action commenced under this subsection. All relevant KDHE records, including records that the KDHE requires the alleged violator to keep, shall be admissible in evidence in any action commenced under this subsection. If the court finds a violation, the court may order abatement of the violation and response to any pollution caused or threatened by the violation, enjoin future conduct of the same nature, and assess civil penalties as specified in section 25 of this Act. The court may award costs and reasonable attorneys fees to any prevailing or partially prevailing party, and one-half of any civil penalty assessed to a prevailing or partially prevailing plaintiff.

- d. For purposes of this section, the term "person" includes an organization, association, or similar entity, some of whose members have been or may be adversely affected by the acts of the Secretary or of persons alleged to be in violation of the provisions of this Act or of any regulation, order, or permit issued thereunder.

24. *Prohibited Acts.*

It shall be unlawful for any person to:

- a. fail or refuse to comply with any provision of this Act or of any applicable regulation, order, or permit issued under this Act;
- b. construct or operate a new source without a permit issued by the Secretary;
- c. fail to comply with any applicable monitoring, testing, or recordkeeping requirements established by the Secretary under this Act;
- d. falsify or fail to file reports required by the Secretary under this Act;
- e. refuse any entry or inspection authorized under this Act;
- f. fail to pay any groundwater severance tax or underground waste injection tax assessed against such person under section 8 of this Act; or
- g. otherwise endanger drinking water or usable groundwater resources.

Any person who commits any of the preceding acts shall be liable for civil penalties and may be the subject of compliance proceedings initiated by the Secretary under section 25 of this Act.

25. *Penalties for Violation.*

- a. Intentional or willful violation of this Act or of any regulation, order, or permit issued thereunder in a manner that causes or is likely to cause groundwater pollution of a drinking water or usable aquifer by any person is a Class E felony. Intentional or willful violation of this Act or of any regulation, order, or permit issued thereunder in a manner that does not cause or is not likely to cause groundwater pollution of a drinking water or usable aquifer by any person is a Class B misdemeanor.
- b. If the Secretary, on the basis of information available to the Secretary, has reason to believe that any person has violated or is violating this Act or any regulation, order, or permit issued thereunder, the Secretary shall request the Attorney General of the State of Kansas to bring criminal or civil proceedings against such person or shall assess civil

penalties against such person. Any person who is or may be adversely affected, upon timely application, shall be allowed to intervene in civil proceedings initiated under this section pursuant to K.S.A. § 60-224. The Secretary or a court may assess against any person found to have intentionally or willfully violated any provision of this Act or of any regulation, order, or permit issued thereunder a penalty of \$10,000 (\$25,000 if the violation involves hazardous waste, as defined in K.S.A. § 65-3430(f)) per day of violation, \$10,000 per violation, or the amount necessary to recover from such person the economic saving that such person realized by non-compliance, whichever is greatest. The Secretary or a court may assess against any person found to have violated any provision of this Act or of any regulation, order, or permit issued thereunder, notwithstanding that such violation may have been inadvertent or negligent, a penalty of \$2000 per day of violation, \$2000 per violation, or the amount necessary to recover from such person the economic saving that such person realized by noncompliance, whichever is greatest.

- i. Except as provided in subsection (iv) of this section, before issuing any compliance order to or assessing any civil penalty against any person, the Secretary shall give to such person a notice of violation in writing, describing the legal requirements that the person allegedly has violated or is violating.
- ii. Any person who receives a notice of violation under this section may submit a written response, including a request for a hearing, within 30 days of the issuance of the notice of violation.
- iii. If the Secretary does not receive a written response within 30 days, the Secretary may issue a compliance order or assess civil penalties or both against the person to whom the Secretary issued the notice of violation. If the Secretary receives a written response within 30 days that includes a request for a hearing, the Secretary shall convene such a hearing within 60 days of the date of such response. After considering any information included in written comments or presented at the hearing, the Secretary may terminate the compliance proceedings, or issue a compliance order or assess civil penalties or do both. If the Secretary issues a compliance order to or assesses civil penalties against a source under this subsection, that source may seek judicial review of the Secretary's actions under section 23 of this Act.
- iv. If the Secretary finds that a source is presenting an im-

minent and substantial endangerment to the quality of the groundwater of the State, the Secretary may issue a compliance order immediately, without prior notice. In such circumstances, the source may seek judicial review of the Secretary's actions under section 23 of this Act. If the EPA or another agency or representative of the federal government brings suit to enjoin a source located in this State from presenting such an endangerment under federal law, the Secretary may intervene in such suit to the extent permitted by federal law.

- v. In any administrative compliance proceeding initiated by the Secretary under this section, the burden shall be on the Secretary to demonstrate by a preponderance of the evidence that the person assessed civil penalties or ordered to comply with the provisions of this Act or of any regulation, order, or permit issued thereunder committed the violation. After completion of the hearing referred to in this section and issuance of a decision by the Secretary, any person adversely affected by the Secretary's decision may commence a civil action in district court in the county in which the violation occurred for review of the decision on the administrative record.

26. Participation in Administrative Proceedings.

- a. In all administrative proceedings not covered by section 6b of this Act, the Secretary shall provide an opportunity for participation by any person who is or may be adversely affected by such proceedings. Such opportunity shall include, but need not be limited to, the right to submit written data, views, or arguments, and to review nonconfidential documents prepared by the Secretary or any parties to the proceedings.
- b. Any person referred to in section 26a of this Act shall have the right to judicial review pursuant to section 23 of this Act of any order or other action of the Secretary in the proceeding in which such person participated.

27. Repealer and Severability.

- a. [This section will repeal any present Kansas laws that are inconsistent with the foregoing statute.]
- b. If any provision of this Act, or the application of any provision of this Act to any person or circumstance, is held invalid, the application of such provision to other persons or circumstances and the remainder of this Act shall not be affected thereby.
- c. [This section is reserved for similar procedural matters.]

