The National Agricultural Law Center

University of Arkansas
NatAgLaw@uark.edu • (479) 575-7646

An Agricultural Law Research Article

Protecting the Hidden Resource: The Quiet Crisis in Nebraska Pesticide and Ground Water Protection Policies

by

J. David Aiken

Originally published in CREIGHTON LAW REVIEW
26 CREIGHTON L. REV. 639 (1993)

www.NationalAgLawCenter.org

PROTECTING THE HIDDEN RESOURCE: THE QUIET CRISIS IN NEBRASKA PESTICIDE AND GROUND WATER PROTECTION POLICIES[1]

J. DAVID AIKEN†

Ground water is Nebraska's primary source of water for virtually all water uses. Ground water supplies 100% of rural domestic water use, 86% of industrial water use, 78% of municipal use, 78% of livestock watering, 71% of irrigation water use, and 71% of total Nebraska water use (excluding power production).[2] Nonetheless, drinking water constitutes only a small portion of total ground water use. Ninety-three percent of total ground water use is for irrigation, 4% for municipal water supply, 0.4% for rural domestic water supply, and 1.8% for livestock watering.[3]

Although drinking water is only a small portion of total ground water use in Nebraska, it is the most important use of ground water. The public has become concerned over the quality of our drinking water, and in turn, ground water quality protection. Domestic ground water use has the highest water preference, but leaching from agricultural chemical use may threaten the quality of Nebraska's ground water in both rural and urban areas.[4] Ten percent of

---

† Professor of Agricultural Economics (Water & Agricultural Law Specialist), University of Nebraska-Lincoln. B.A. Hastings College (Nebraska) 1972, J.D. George Washington University 1975.

1. Paper No. 10215, Journal Series, Nebraska Agricultural Experiment Station. The research for this Article was funded by the Nebraska Research Initiative with the assistance of the University of Nebraska Water Center.

2. WAYNE B. SOLLEY ET AL., ESTIMATED USE OF WATER IN THE UNITED STATES IN 1985, at 59 (U.S. Geol. Sur. Cir. 1004, 1988). Ground water supplies only seven percent of mining water supplies and one percent of water used for power generation. *Id.* Power generation is excluded from the total water use calculation as power production is considered a nonconsumptive use. In prior water use reports, "domestic" water use was referred to as "rural use." *See id.* at 14. The previous nomenclature is retained here as constituting a more accurate description.

3. *Id.* at 59.

4. NEB. REV. STAT. § 46-613 (Reissue 1991). This statute states:

> Preference in the use of underground water shall be given to those using the water for domestic purposes. They shall have preference over those claiming it for any other purpose. Those using the water for agricultural purposes shall have the preference over those using the same for manufacturing or industrial purposes.
>
> As used in this section, domestic use of ground water shall mean all uses of ground water required for human needs as it relates to health, fire control, and sanitation and shall include the use of ground water for domestic livestock as related to normal farm and ranch operations.

Nebraska's municipalities have nitrate levels of eight parts per million ("ppm") or above, near the Environmental Protection Agency's ("EPA") 10 ppm drinking water limit.[5] An important source for nitrate contamination of ground water is field application of fertilizer.[6] Spring atrazine readings in Lincoln and Omaha municipal wellfields flirt with the new EPA drinking water standard of three parts per billion ("ppb").[7] Atrazine is the most widely used agricultural herbicide in Nebraska.[8]

Fertilizer and pesticides applied to crops may leach into ground water supplies and cause contamination.[9] Ground water contamination from agrichemical use may be controlled through implementing "best management practices" ("BMPs") to minimize leaching.[10] Fertilizer BMPs include reducing application rates to the quantity needed to accomplish a producer's yield goal and accounting for fertilizer already present in the soil and fertilizer applied with nitrate-contaminated irrigation water.[11] Pesticide BMPs include reducing application rates, applying pesticides when only pests emerge rather than in anticipation of emergence, banding rather than broadcast application, using pest-resistent crop varieties, and rotating crops.[12] The policy challenge includes determining how to accomplish more widespread BMP implementation to reduce ground water contamina-

---

Id. However, under Nebraska water law, water preferences are largely symbolic. For a discussion of the limited role of preferences in Nebraska water law, see RICHARD S. HARNSBERGER & NORMAN W. THORSON, NEBRASKA WATER LAW AND ADMINISTRATION §§ 3.17, 5.16 (1984).

5. *See infra* note 209 and accompanying text.

6. MARY E. EXNER & ROY F. SPALDING, OCCURRENCE OF PESTICIDES AND NITRATE IN NEBRASKA'S GROUND WATER 1990, at 25-27 (University of Nebraska Water Center, Institute of Agriculture and Natural Resources, 1990) [hereinafter PESTICIDES AND NITRATES].

7. Deborah Lanner, *Study shows 95 percent of Lincoln's water is from the Platte*, 6 RESOURCE NOTES 18-19 (1991-92). Levels of the popular herbicide atrazine in the Platte River, upon which Lincoln and Omaha wells depend for their recharge, exceed 18 ppb during spring runoff, six times the EPA drinking water standard of 3 ppb. *Id.*

Atrazine levels in Lincoln municipal wells rise with a one month lag as atrazine levels in the Platte River rise, but only to 10 ppb, still three times the EPA standard. Omaha wells are 20 miles upstream from the Lincoln wells, and their atrazine levels would mirror those of the Lincoln wellfield. Telephone Interview with Jerry Obrist, Chief Engineer, Lincoln Water System (Oct. 26, 1992).

8. PESTICIDES AND NITRATES, *supra* note 6, at 12.

9. Herman Bouwer, *Agricultural Chemicals and Groundwater Quality*, 45 J. SOIL & WATER CONSERVATION 184, 184 (1990); Elizabeth G. Nielsen & Linda K. Lee, The Magnitude and Costs of Groundwater Contamination from Agricultural Chemicals: A National Perspective 14 (USDA Ag. Econ. Rep. No. 576, 1987).

10. Terry J. Logan, *Agricultural Best Management Practices and Groundwater Protection*, 45 J. SOIL & WATER CONSERVATION 201, 201 (1990); Bouwer, 45 J. SOIL & WATER CONSERVATION at 187-88.

11. Logan, 45 J. SOIL & WATER CONSERVATION at 203.

12. *Id.* at 202-03; Bouwer, 45 J. SOIL & WATER CONSERVATION at 188.

tion, and deciding when more severe control methods, such as prohibiting or limiting the use of specific agrichemicals contaminating ground water, should be implemented.[13]

Until 1980, the prevailing view was that normal field application of pesticides according to label directions would not result in ground water contamination.[14] Detection of pesticides in drinking water supplies in several states, however, led EPA officials to reevaluate their pesticide regulatory policies under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA") to include ground water quality protection.[15] EPA's new policy, as announced in its 1991 Pesticides and Ground-Water Strategy, will require states to regulate pesticide use through state pesticide management plans ("SMPs") designed to prevent pesticides from leaching into ground water supplies. More stringent regulations will be required to control contamination once pesticides are detected in ground water. The EPA will limit the continued availability of pesticides contaminating ground water only to states with EPA approved SMPs. Pesticides contaminating ground water will not be available for use in states without an EPA approved SMP.[16]

Nebraska has a special incentive to engage in aggressive ground water quality protection policies because ground water is Nebraska's primary source of drinking water. Paradoxically, Nebraska is the only state currently ineligible to implement a SMP because Nebraska does not implement the current FIFRA user certification and enforcement programs. Nebraska's inability to implement a SMP ironically may result in better ground water quality protection in that pesticides contaminating Nebraska ground water supplies would be banned by the EPA for use in the State. Users then would be required to use other pesticides presumably with less ground water contamination potential. The absence of a SMP, however, also would preclude use of banned pesticides in areas of Nebraska where such use would not result in ground water contamination. For this and

13. *See* Lawrence W. Libby, *A Public Policy Perspective on Groundwater Quality*, 45 J. SOIL & WATER CONSERVATION 190, 191-93 (1990) (advocating new contamination policies); Sondra S. Batie & Penelope L. Diebel, *Key Policy Choices in Groundwater Quality Management*, 45 J. SOIL & WATER CONSERVATION 194, 194-97 (1990) (discussing public policy considerations); Susan A. Schneider, *The Regulation of Agricultural Practices to Protect Groundwater Quality: The Nebraska Model for Controlling Nitrate Contamination*, 10 VA. ENVTL. L.J. 1, 33-44 (1990) (discussing Nebraska nitrate control methods).

14. Pesticides and Ground Water Strategy, Pub. No. 21T-1022, at 2 (Oct. 1991) [hereinafter EPA Pesticides Strategy]; Bouwer, 45 J. SOIL & WATER CONSERVATION at 184.

15. *See infra* notes 72-126 and accompanying text.

16. EPA Pesticide Strategy, *supra* note 14, at 32. *See infra* notes 193-208 and accompanying text.

other reasons, Nebraska policymakers should not simply abdicate the State's ground water quality protection responsibilities to the EPA.

Nebraska does have significant ground water quality protection programming in the ground water quality management area ("QMA") statutes and special ground water quality protection area ("SPA") statutes.[17] One of the first restrictions on farmer fertilizer use in the United States was implemented in a QMA. These programs have focused exclusively on nitrate contamination of ground water from field fertilizer application, the most widespread agrichemical contamination problem in Nebraska.[18] Additional legislation beyond simple FIFRA assumption will be needed to integrate the QMA and SPA programs into a more comprehensive pesticide SMP.[19]

Nebraska's ineligibility to administer the new EPA pesticide regulations stems from its solitary and steadfast refusal to assume administration of the FIFRA program for training pesticide users and enforcing pesticide use regulations. The EPA requires states to administer the current FIFRA regulations before states can implement, with EPA approval, the new water quality pesticide regulations through a SMP.[20] The reasons for Nebraska's refusal to implement the FIFRA certification and enforcement programs include (1) the State's traditional local control philosophy for ground water management, (2) opposition to funding FIFRA programs with fees on fertilizers and pesticides, (3) disagreement regarding how the State pesticide program should be administered, and (4) concerns that FIFRA assumption would result in more vigorous State enforcement of FIFRA requirements than current EPA enforcement.[21] These issues must be resolved so that Nebraska can move ahead in developing an effective ground water protection policy.

This Article considers state and federal programs for regulating drinking water quality and pesticide use. Part I examines state and federal drinking water and pesticide regulations, innovative state programs for dealing with the federal regulatory vacuum regarding pesticide contamination of ground water, and development of the EPA's Pesticides and Ground-Water Strategy in response to pesticide contamination concerns. Part II discusses agrichemical regulation pro-

17. *See infra* notes 261-308 and accompanying text; Schneider, 10 VA. ENVTL. L.J. at 19-33.

18. Interview with Jack Daniels, Supervisor, Division of Drinking Water and Environmental Sanitation, Nebraska Department of Health (Oct. 26, 1992).

19. *See infra* notes 315-42.

20. Agriculture Committee Hearing on FIFRA Assumption 3-6 (Dec., 16, 1992) (statement of Art Spratlin, Director, Air and Toxics Division, Region VII, U.S. Environmental Protection Agency).

21. *See infra* notes 314-42 and accompanying text.

grams in Nebraska, including state pesticide regulations under Nebraska economic poisons statutes, and local natural resource district ("NRD") regulation of ground water depletion under the Nebraska Ground Water Management and Protection Act.[22] Part III briefly recounts the history of unsuccessful state assumption of the federal pesticide program in Nebraska and the most recent FIFRA assumption attempts. Part IV evaluates FIFRA assumption options available to Nebraska policymakers, drawing upon the FIFRA assumption statutes of neighboring states, and explores how state and NRD ground water agrichemical regulations can be coordinated in a SMP meeting EPA requirements and providing effective protection of Nebraska's ground water.

I. PESTICIDES AND DRINKING WATER PROTECTION

Understanding how pesticide use is regulated to protect drinking water quality requires a brief consideration of both drinking water regulations and pesticide regulations. Under the federal Safe Drinking Water Act ("SDWA"), the EPA establishes water quality standards (including pesticide contamination levels) that public water suppliers must meet for the water supplied to customers.[23] Under FIFRA, on the other hand, the EPA regulates what pesticides may be used in the United States and establishes conditions on their use.

Under the SDWA, the EPA identifies contaminants and establishes drinking water limits for each contaminant. Public water suppliers are required to periodically monitor drinking water for contaminants. However, the SDWA does not authorize the EPA to regulate the sources of drinking water contamination, a major policy gap. EPA authority to do so, regarding nonpoint contamination by agrichemical use, is limited to federal pesticide laws.[24] Since 1972, the EPA has been authorized to regulate pesticide use to prevent ground water contamination (including the banning of specific prod-

22. *See infra* notes 260-308 and accompanying text.

23. 42 U.S.C.A. § 300f *et seq.* (West 1992).

24. A draft EPA guidance document defines "nonpoint source" ("NPS"):

> NPS pollution is caused by diffuse sources that are not regulated as point sources and normally is associated with agricultural, silvicultural and urban runoff, runoff from construction activities, etc. Such pollution results in human-made or human-induced alteration of the chemical, physical, biological, and radiological integrity of water. In practical terms, nonpoint source pollution does not result from a discharge at a specific, single location (such as a single pipe) but generally results from land runoff, precipitation, atmospheric deposition, or percolation. Pollution from nonpoint sources occurs when the rate at which pollutant materials entering waterbodies or ground water exceeds natural levels.

2 SHELDON M. NOVICK, LAW OF ENVIRONMENTAL PROTECTION § 12.04[2][a][i] n.102.1 (1992) [hereinafter NOVICK] (quoting EPA Nonpoint Source Guidance (Aug. 1987)).

ucts contaminating ground water).[25] However, the EPA is only now beginning to meaningfully implement its ground water quality protection authority. The Pesticides and Ground-Water Strategy is the EPA's blueprint for how the agency will modify its pesticide regulations to protect ground water quality, which will include restricting or banning the use of pesticides most likely to contaminate ground water.[26]

A. SAFE DRINKING WATER ACT

Under the Safe Drinking Water Act,[27] the EPA establishes maximum contaminant levels ("MCLs") or drinking water standards which public water suppliers ("PWSs") (principally community water systems) must meet.[28] Standards are enforced through testing of water supplied by the PWS to customers. If a PWS's water violates a drinking water standard, the system must notify customers of the violation and may continue to operate only with an exemption. Prior to 1991, there were few pesticide MCLs. The 1986 SDWA amendments, however, directed the EPA to establish eighty-two MCLs, including several pesticide MCLs. Pesticides for which the EPA establishes MCLs are likely to be regulated first under the EPA's Pesticides and Ground-Water Strategy.

1. Public Water Suppliers

The SDWA defines "public water system" as a public water "system for the provision to the public of piped water for human consumption, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals."[29] The EPA defines "community water system" as "a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents."[30] "Non-community water systems" are defined as "a public water system that is not a community water system."[31] This would include highway restaurants, motels, hotels, schools, factories, and churches with their own water

25. Regarding pre-1972 federal pesticide statutes and the 1972 federal pesticide regulations, see Marshall L. Miller, *Federal Regulation of Pesticides*, *in* ENVIRONMENTAL LAW HANDBOOK 328-32 (1991) [hereinafter Miller].

26. *See infra* notes 193-208.

27. 42 U.S.C.A. § 300f *et seq.* (West 1991).

28. *Id. See* Russell V. Randle, *Safe Drinking Water Act (SDWA)*, *in* ENVIRONMENTAL LAW HANDBOOK 405-12 (1989) [hereinafter Randle] (discussing the history of the EPA's drinking water standard setting, including a discussion of the events leading to the 1986 SDWA amendments).

29. 42 U.S.C.A. § 300f(4) (West 1991).

30. 40 C.F.R. § 141.2 (1991).

31. *Id.*

source.[32] A "non-transient non-community water system" is defined as "a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year."[33] These systems would include schools, factories, and hospitals with their own water source. Originally, non-community systems were subject to MCLs only for acutely toxic contaminants. This did not take into account the chronic long-term health risks of those drinking water from a non-community system for more than twelve months. Thus, the distinction between transient and non-transient community systems was initially designed to allow the EPA to reduce the chronic exposure of those using non-transient, non-community water systems by subjecting them to the same requirements as community systems.[34]

Private water supplies, such as on farms and ranches, are not subject to SDWA regulation. However, MCLs are typically used as a reference point to determine whether a private water supply is safe.

2. *Maximum Contaminant Levels*

MCLs are part of "national drinking water regulations" promulgated by the EPA according to each regulated contaminant.[35] The national drinking water regulation includes the MCL, or a water treatment technique if measurement of the contaminant is impractical, as well as quality monitoring procedures.[36] The EPA establishes

32. 3 NOVICK, *supra* note 24, § 16.02[2].

33. 40 C.F.R. § 141.2 (1991).

34. 3 NOVICK, *supra* note 24, § 16.02[2].

35. 42 U.S.C.A. § 300f(3) (West 1991). The SDWA defines maximum contaminant level as "the maximum permissible level of a contaminant in water which is delivered to any use of a public water system." *Id.* Contaminant is defined as "any physical, chemical, biological, or radiological substance or matter in water." *Id.* § 300f(6).

36. *Id.* § 300f(1). This section provides:

> For purposes of this subchapter:
>
> (1) The term "primary drinking water regulation" means a regulation which —
>
> (A) applies to public water systems;
>
> (B) specifies contaminants which, in the judgment of the Administrator, may have any adverse effect on the health of persons;
>
> (C) specifies for each such contaminant either—
>
> (i) a maximum contaminant level, if, in the judgment of the Administrator, it is economically and technologically feasible to ascertain the level of such contaminant in water in public water systems, or
>
> (ii) if, in the judgment of the Administrator, it is not economically or technologically feasible to so ascertain the level of such contaminant, each treatment technique known to the Administrator which leads to a reduction in the level of such contaminant sufficient to satisfy the requirements of section 300g-1 of this title; and
>
> (D) contains criteria and procedures to assure a supply of drinking water which dependably complies with such maximum contaminant levels; including quality control and testing procedures to insure compli-

MCLs after lengthy tests estimating the short-term (acute) and long-term (chronic) human health effects of ingesting the contaminant.[37]

The first step in establishing a MCL is setting a MCL goal. A MCL goal is an unenforceable health goal "set at the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety."[38] The MCL must be set as close as feasible to the MCL goal.[39] MCLs are essentially MCL goal health standards adjusted for available treatment technology including costs. The basic policy is to limit the health risk to one increased case of cancer or similar fatal health risk per million people exposed per lifetime (seventy-year) exposure.[40] MCL goals are used as reference points as MCL proxies when MCLs have not been established.[41]

One SDWA implementation issue has been the EPA's slowness in promulgating MCLs. Although there are literally hundreds of contaminants found in drinking water supplies across the United States, only twenty-three MCLs were established prior to 1991. Reasons for this include the difficulty of establishing a scientifically valid MCL.[42] The 1986 SDWA amendments require the EPA to establish MCLs for eighty-three contaminants by June, 1989, (a deadline the EPA missed), and establish twenty-five additional MCLs every three years thereafter.[43] Thirty-three new MCLs were promulgated by the EPA January 30, 1991, including reaffirming the 10 ppm nitrate MCL, and establishing a new 3 ppb atrazine MCL and a new 2 ppb alachlor MCL.[44]

> ance with such levels and to insure proper operation and maintenance of the system, and requirements as to (i) the minimum quality of water which may be taken into the system and (ii) siting for new facilities for public water systems.

Id.

37. *See* 3 NOVICK, *supra* note 24, § 16.03[1][b] (stating how EPA decides what contaminants to regulate and how MCLs are established).

38. 42 U.S.C.A. § 300g-1(b)(4) (West 1991). *See* 3 NOVICK, *supra* note 24, § 16.03[1][c] (discussing how MCL goals are established).

39. 42 U.S.C.A. § 300g-1(b)(4) (West 1991). Feasible means "feasible with the use of the best technology, treatment techniques and other means which the [EPA] Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration)." *Id.* § 300g-1(b)(5).

40. Bouwer, 45 J. OF SOIL & WATER CONSERVATION at 186-87 (explaining the difficulty of acceptable risk assessment); PESTICIDES AND NITRATES, *supra* note 6, at 3-6 (discussing the EPA concentration guidelines for chemicals in drinking water).

41. Randle, *supra* note 28, at 150. MCLs and MCL goals are also reference points in establishing Superfund cleanup requirements and have been adopted in several states as ground water quality standards.

42. *Id.* at 154.

43. *Id.* at 152-57.

44. 56 Fed. Reg. 3526 (1991).

The new atrazine and alachlor standards will have significant implications for future agrichemical use in Nebraska. Approximately 65% of the pesticides applied in Nebraska are now covered by MCLs.[45] Communities must begin monitoring for alachlor and atrazine by January 1, 1993.[46] Thus, emerging policies to restrict pesticide use will have a significant impact on pesticide use in Nebraska because regulatory efforts are likely to focus on pesticides regulated under the SDWA, and because pesticides most widely used in Nebraska will be governed under SDWA regulations.

3. *Water Supply Monitoring*

MCLs are enforced through periodic testing of water supplied by public water suppliers to customers.[47] If a public water supplier's water violates a MCL, the system may continue to operate only with an exemption, and water consumers must be notified of the violation.[48] The PWS must remedy the MCL violation by obtaining a new water source meeting drinking water standards, blending contaminated water with uncontaminated water, or reducing the contaminant to drinking water standards through advanced water treatment. The EPA requires interim practices to protect water system customers from drinking contaminated water. This includes providing bottled water to susceptible populations (such as infants and nursing mothers), and installation of point-of-entry and point-of-use water treatment devices.[49] The SDWA public notification requirements have done much to raise the consciousness of Nebraskans regarding contamination of drinking water supplies by agrichemicals, particularly nitrate contamination from commercial fertilizers.

4. *Variances and Exemptions*

Variances may be granted when public water suppliers are un-

45. *See* MAURICE BAKER ET AL., PESTICIDE USE ON CROPS IN NEBRASKA — 1987, at 6-10 (Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, 1990) [hereinafter Baker]. Atrazine represented 52% of 1987 total pesticide use, and alachlor represented 13%. *Id.*

46. 56 Fed. Reg. 3610 (1991) (amending 40 C.F.R. § 141.24(f)).

47. 42 U.S.C.A. § 300j-4(a)(1) (West 1991). The frequency of testing depends on the nature of the contaminant and the source of drinking water. Communities using ground water must have their water tested every three years for inorganics (which includes many pesticides) and nitrates. 40 C.F.R. § 141.23(a)(2) (1991).

48. 42 U.S.C.A. § 300g-4 (West 1991). *See* Randle, *supra* note 28, at 163-64 (discussing available variances from the regulation); 3 NOVICK, *supra* note 24, § 16.03[2] (analyzing the exemptions available to drinking water suppliers). The notification requirement has been instrumental in raising public concern regarding nitrate contamination of rural ground water supplies in Nebraska.

49. 40 C.F.R. §§ 142.57, 142.62(e)-(g). Point-of-entry devices treat water entering a building. Point-of-use devices treat water at a particular point (*e.g.*, the kitchen sink).

able to meet an MCL because of the characteristics of the raw water sources reasonably available to the system despite application of the best available technology.[50] Whether technology is available to remove the contaminant from drinking water takes into consideration costs, the size of the system, and technological factors.[51] Advanced water treatment is not required if it would have only a de minimis improvement on water quality.[52] A variance cannot cause an unreasonable risk to health, and must include a compliance schedule and interim control measures.[53] There is no explicit limit for the length

50. 3 NOVICK, *supra* note 24, § 16.03[2]; Randle, *supra* note 28, at 163-64.

51. 42 U.S.C.A. § 300g-4(a)(1)(A) (West 1991). This section provides:

> Notwithstanding any other provision of this part, variances from national primary drinking water regulations may be granted as follows:
>
> (1)(A) A State which has primary enforcement responsibility for public water systems may grant one or more variances from an applicable national primary drinking water regulation to one or more public water systems within its jurisdiction which, because of characteristics of the raw water sources which are reasonably available to the systems, cannot meet the requirements respecting the maximum contaminant levels of such drinking water regulation. A variance may only be issued to system after the system's application of the best technology, treatment techniques, or other means, which the Administrator finds are available (taking costs into consideration). The Administrator shall propose and promulgate his finding of the best available technology, treatment techniques or other means available for each contaminant for purposes of this subsection at the time he proposes and promulgates a maximum contaminant level for each such contaminant. The Administrator's finding of best available technology, treatment techniques or other means for purposes of this subsection may vary depending on the number of persons served by the system or for other physical conditions related to engineering feasibility and costs of compliance with maximum contaminant levels as considered appropriate by the Administrator. Before a State may grant a variance under this subparagraph, the State must find that the variance will not result in an unreasonable risk to health. If a State grants a public water system a variance under this subparagraph, the State shall prescribe at the time the variance is granted, a schedule for —
>
> (i) compliance (including increments of progress) by the public water system with each contaminant level requirement with respect to which the variance was granted, and
>
> (ii) implementation by the public water system of such additional control measures as the State may require for each contaminant, subject to such contaminant level requirement, during the period ending on the date compliance with such requirement is required.
>
> Before a schedule prescribed by a State pursuant to this subparagraph may take effect, the State shall provide notice and opportunity for a public hearing on the schedule. A notice given pursuant to the preceding sentence may cover the prescribing of more than one such schedule and a hearing held pursuant to such notice shall include each of the schedules covered by the notice. A schedule prescribed pursuant to this subparagraph for a public water system granted a variance shall require compliance by the system with each contaminant level requirement with respect to which the variance was granted as expeditiously as practicable (as the State may reasonably determine).

Id.

52. 40 C.F.R. § 142.62 (1991).

53. *See supra* note 50 and accompanying text.

of a variance, although the EPA will not approve variances where the contaminant level poses an "unreasonable risk to health."[54]

If a system cannot meet an MCL for reasons other than the characteristics of its water supply or cannot install a required treatment technology, it may receive an exemption.[55] Justification for an exemption may include "compelling factors (which may include economic factors)."[56] Exemptions, similar to variances, cannot cause an unreasonable risk to health and must be accompanied by compliance schedules and interim control measures.[57] Exemptions may be extended for three years only, although small systems with less than 500 service connections may receive additional exemptions if, for example, the community is attempting to obtain state or federal finan-

54. *See* National Primary Drinking Water Regulations; Variances and Exemptions; Guidance for Determining Unreasonable Risks to Health (Draft Nov. 22, 1991) [hereinafter URTH Guidance]. The EPA has proposed formal unreasonable risk to health ("URTH") levels for selected contaminants. *Id.* This number is higher than the MCL but represents a contaminant level that can be safely ingested for typically up to seven years. The nitrate MCL is 10 ppm. The nitrate URTH is 10 ppm for infants up to six months old and 20 ppm for all other individuals for up to seven years. *Id.* at 27. It typically takes months or years to implement the changes required to deal with drinking water contamination. Financing water system improvements is often difficult for smaller communities. The URTH guidance gives system operators some time to arrange for needed system changes but also establishes an upper contamination limit beyond which no further variances will be granted and system improvements must be made. Thus, in the nitrate situation where the nitrate level was between 10 and 20 ppm, the EPA would approve the variance or exemption so long as nitrate levels did not exceed 20 ppm. However, the EPA would require the water supplier to deliver bottled water to households with infants up to six months old. *See* 40 C.F.R. §§ 142.57, 142.62(e)-(g). The atrazine URTH is 30 ppb, compared to the 3 ppb MCL. URTH Guidance at 38-39. The draft guidance is followed by the EPA even though it has not been formally promulgated.

55. 42 U.S.C.A. § 300g-5(a) (West 1991). This section provides:

> (a) Requisite findings
>
> A State which has primary enforcement responsibility may exempt any public water system within the State's jurisdiction from any requirement respecting a maximum contaminant level or any treatment technique requirement, or from both, of an applicable national primary drinking water regulation upon a finding that —
>
> (1) due to compelling factors (which may include economic factors), the public water system is unable to comply with such contaminant level or treatment technique requirement,
>
> (2) the public water system was in operation on the effective date of such contaminant level or treatment technique requirement, or, for a system that was not in operation by that date, only if no reasonable alternative source of drinking water is available to such new system, and
>
> (3) the granting of the exemption will not result in an unreasonable risk to health.

Id.

56. *Id.* § 300g-5(a)(1). This section provides: "[D]ue to compelling factors (which may include economic factors), the public water system is unable to comply with such contaminant level or treatment technique requirement." *Id.*

57. *Id.* § 300g-5(a)(3). This section provides: "[T]he granting of the exemption will not result in an unreasonable risk to health." *Id.*

cial assistance to construct a new water system.[58] The EPA will not approve exemptions where the contaminant level poses an unreasonable risk to health.[59]

5. *State Programs*

States may administer the SDWA if their drinking water standards are "no less stringent" than the EPA's, if state enforcement capability is adequate, if the EPA recordkeeping requirements are met, if state variance and exemption conditions are "no less stringent" than the EPA's, and if the state has adopted contingency plans for provision of safe drinking water under emergency conditions.[60] States must notify the EPA of any variances and exemptions granted,

---

58. *Id.* § 300g-5(b)(2)(B). This section provides:

> (B) The final date for compliance provided in any schedule in the case of any exemption may be extended by the State (in the case of a State which has primary enforcement responsibility) or by the Administrator (in any other case) for a period not to exceed 3 years after the date of the issuance of the exemption if the public water system establishes that —
>
> (i) the system cannot meet the standard without capital improvements which cannot be completed within the period of such exemption;
>
> (ii) in the case of a system which needs financial assistance for the necessary improvements, the system has entered into an agreement to obtain such financial assistance; or
>
> (iii) the system has entered into an enforceable agreement to become a part of a regional public water system; and the system is taking all practicable steps to meet the standard.

Id. *See id.* § 300g-5(b)(2)(C). This section provides:

> (C) In the case of a system which does not serve more than 500 service connections and which needs financial assistance for the necessary improvements, an exemption granted under clause (i) or (ii) of subparagraph (B) may be renewed for one or more additional 2-year periods if the system establishes that it is taking all practicable steps to meet the requirement of subparagraph (B).

Id.

59. *See supra* note 56 and accompanying text.

60. 42 U.S.C.A. § 300g-2(a) (West 1991). This section provides:

> (a) For purposes of this subchapter, a State has primary enforcement responsibility for public water systems during any period for which the Administrator determines (pursuant to regulations prescribed under subsection (b) of this section) that such State —
>
> (1) has adopted drinking water regulations which are no less stringent than the national primary drinking water regulations in effect under sections 330g-1(a) and 300g-(b) of this title;
>
> (2) has adopted and is implementing adequate procedures for the enforcement of such State regulations, including conducting such monitoring and making such inspections as the Administrator may require by regulation;
>
> (3) will keep such records and make such reports with respect to its activities under paragraphs (1) and (2) as the Administrator may require by regulation;
>
> (4) if it permits variances or exemptions, or both, from the requirements of its drinking water regulations which meet the requirements of paragraph (1), permits such variances and exemptions under conditions and in a manner which is not less stringent than the conditions under,

and submit annual status reports on all public water supply systems within the state.[61] All but two states have assumed SDWA administration.[62]

6. *Contaminant Sources*

When Congress adopted the SDWA, it presumed that sources of drinking water contamination would be controlled under other pollution control programs. Although this is largely true for point sources, such as factory discharges into streams, it is not true for nonpoint sources, such as agrichemical use in crop production.[63] Field application of agrichemicals, including both pesticides and fertilizers, is considered a nonpoint source of water pollution. Federal law has not regulated nonpoint sources, although section 319 of the Clean Water Act provides federal funding for state nonpoint pollution control programs.[64]

The SDWA program does not regulate the sources of contami-

---

and the manner in, which variances and exemptions may be granted under sections 300g-4 and 300g-5 of this title; and

(5) has adopted and can implement an adequate plan for the provision of safe drinking water under emergency circumstances.

Id.

61. 40 C.F.R. § 142.15.

62. Randle, *supra* note 28, at 164.

63. *See* 33 U.S.C.A. § 1362(14) (West Supp. 1992). The federal Clean Water Act defines point source as

> any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

Id.

64. *Id.* § 1329(a)(1). This section provides:

(a) State assessment reports

(1) Contents

The Governor of each State shall, after notice and opportunity for public comment, prepare and submit to the Administrator for approval, a report which—

(A) identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of this chapter;

(B) identifies those categories and subcategories of nonpoint sources or, where appropriate, particular nonpoint sources which add significant pollution to each portion of the navigable waters identified under subparagraph (A) in amounts which contribute to such portion not meeting such water quality standards or such goals and requirements;

(C) describes the process, including intergovernmental coordination and public participation, for identifying best management practices and measures to control each category and subcategory of nonpoint sources and, where appropriate, particular nonpoint sources identified under subparagraph (B) and to reduce, to the maximum extent practicable, the

nants polluting a public drinking water supply, although the new wellhead protection program encourages states to do so. The 1986 SDWA amendments establish a new wellhead protection ("WHP") program to provide federal funding for state programs protecting underground sources of drinking water.[65] A wellhead protection area ("WHPA") is defined as "the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield."[66] States must adopt and submit to the EPA a state program to protect WHPAs from contaminants that may have an adverse effect on human health.[67] The state program must, as a minimum, (1) specify the duties of state agencies, local governments, and public water supply systems with regard to development and implementation of the WHPA program; (2) deter-

---

level of pollution resulting from such category, subcategory, or source; and

(D) identifies and describes State and local programs for controlling pollution added from nonpoint sources to, and improving the quality of, each such portion of the navigable waters, including but not limited to those programs which are receiving Federal assistance under section (h) and (i) of this section.

Id.

65. 42 U.S.C.A. § 300h-7 (West 1991). This section provides:

(a) State programs

The Governor or Governor's designee of each State shall, within 3 years of June 19, 1986, adopt and submit to the Administrator a State program to protect wellhead areas within their jurisdiction from contaminants which may have any adverse effect on the health of persons. Each State program under this section shall, at a minimum—

(1) specify the duties of State agencies, local governmental entities, and public water supply systems with respect to the development and implementation of programs required by this section;

(2) for each wellhead, determine the wellhead protection area as defined in subsection (e) of this section based on all reasonably available hydrogeologic information on ground water flow, recharge and discharge and other information the State deems necessary to adequately determine the wellhead protection area;

(3) identify within each wellhead protection area all potential anthropogenic sources of contaminants which may have any adverse effect on the health of persons;

(4) describe a program that contains, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects to protect the water supply within wellhead protection areas from such contaminants;

(5) include contingency plans for the location and provision of alternate drinking water supplies for each public water system in the event of well or wellfield contamination by such contaminants; and

(6) include a requirement that consideration be given to all potential sources of such contaminants within the expected wellhead area of a new water well which serves a public water supply system.

Id. *See* Randle, *supra* note 28, at 182-83; 2 WILLIAM H. ROGERS, JR., ENVIRONMENTAL LAW: AIR AND WATER § 4.20A, at 67-68 (West Supp. 1992) [hereinafter ROGERS].

66. 42 U.S.C.A. § 300h-7(e) (West 1991).

67. *Id.* § 300h-7(a).

mine, for each wellhead, the WHPA based on all reasonably available hydrogeologic information on ground water flow, recharge and discharge and other information deemed necessary by the state; (3) identify within each WHPA all potential sources of contaminants which may have adverse human health effects; (4) describe the WHPA program containing, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects to protect the WHPA water supply from contaminants; (5) include contingency plans for locating and providing alternative drinking water supplies for each public water system in the event of well or wellhead contamination by such contaminants; and (6) include a requirement that consideration be given to all potential sources of such contaminants within the expected wellhead area of a new water well which serves a public water supply system.[68]

The WHP program provides technical assistance to local governments to identify WHPAs. This may include, for example, designating sixty-day time of travel zones around public water supply wells as well as twenty-year time of travel zones.[69] Through their own land use control authorities, local governments then can deal with potential contaminant sources that pose both immediate and longer-term threats to the integrity of the public water supply, both point sources, such as chemical storage, and nonpoint sources. Basically, the WHP program is encouraging local governments to exercise their own zoning and related authorities (which the EPA does not possess) to regulate contaminant sources within a designated WPA to protect the integrity of the water supply. The SDWA does not, however, require public water suppliers to implement their land use controls to protect the WHPA.

In addition to the WHP program, most point sources of water pollution (such as factory discharges, feedlots, leaky chemical storage tanks, landfills, and chemigation) are already regulated by other pollution control programs.[70] Agrichemical use, however, a nonpoint source of ground water pollution, is not directly regulated under fed-

68. *Id.*

69. Guidance For Applicants For State Wellhead Protection Program Assistance Funds Under The Safe Drinking Water Act 15-18 (Office of Ground-Water Protection, E.P.A., June, 1987). A 60-day time of travel ("TOT") zone represents the geographic area within which contaminants will contaminate a well within 60 days, whereas a 20-year TOT represents the geographic area within which contaminants will contaminate a well within 20 years. EPA recommends a 15- to 25-year minimum TOT for WHPA planning.

70. Chemigation refers to applying fertilizers and pesticides through the irrigation system by adding the chemicals directly to the irrigation water. *See* NEB. REV. STAT. § 46-1106 (Reissue 1988).

eral law. Agrichemical use may be regulated in problem areas in Nebraska through special ground water quality protection areas and ground water management areas.[71]

B. FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT ("FIFRA")

One of the most rapidly developing areas in ground water law is regulation of agricultural chemical use to prevent ground water contamination. The law is evolving, with gaps in federal policy opening the way for state regulation. FIFRA provides the basic regulatory framework, authorizing the EPA to regulate pesticide availability and use to protect human health and the environment.[72] Until recently, the EPA has not perceived pesticide use as a potential ground water contaminant, and has not protected ground water quality through FIFRA pesticide use regulations. This has led to special pesticide regulations in a few states to protect ground water quality. The EPA now realizes that its FIFRA regulations must be changed to protect ground water from pesticide leaching. The 1991 Pesticides and Ground-Water Strategy is the EPA's blueprint for changing the FIFRA regulatory focus from applicator safety also to include ground water quality protection.[73] The pesticide strategy will require states to regulate pesticide use through state pesticide management plans ("SMPs") to protect ground water quality. However, a few states have already developed a variety of programs to protect ground water quality from normal field application of pesticides and fertilizers that incorporate state pesticide MCLs, and state label and other restrictions on pesticide use. These innovative state programs were a guide to the EPA in developing its pesticides strategy and are previews of how the strategy may be implemented.[74] Because agrichemicals (pesticides and fertilizers) are increasingly being found in ground water as contaminants, state and federal programs regulating agrichemical use are crucial elements of any ground water protection policy. This section of the Article reviews FIFRA and how the EPA is integrating ground water protection into pesticide regulations through the EPA Pesticides and Ground-Water Strategy.

FIFRA gives the EPA four methods of protecting ground water quality from contamination by pesticide use: (1) pesticides are evaluated by the EPA before they can be distributed and are prohibited from distribution if pesticide use would have unreasonable adverse

71. *See infra* note 260 and accompanying text.
72. 7 U.S.C.A. § 136 *et seq.* (West 1991).
73. EPA Pesticides Strategy, *supra* note 14, at 4.
74. *Id.* at iii.

environmental effects; (2) special applicator training is required to apply "restricted use" pesticides which pose significant health risks to the applicator or might cause unreasonable adverse environmental effects if applied without special care; (3) training in safe pesticide use is required for private applicators (*i.e.*, farmers) using restricted use pesticides, as well as for commercial applicators; and (4) pesticides must be used according to label directions, which may restrict the quantity of pesticide applied as well as application method.[75] These measures by themselves do not ensure that pesticide application will not lead to ground water pollution, or that pesticides will be improperly used or disposed. However, FIFRA does authorize the EPA to control what pesticides are available for use, helps keep pesticides with unreasonable adverse environmental effects off the market, and does require private and commercial applicators to be trained in proper pesticide use. The EPA is in the process of revising FIFRA regulations to protect ground water quality through its Pesticides and Ground-Water Strategy.

1. Pesticide Registration

All pesticides sold in the United States must be registered with the EPA.[76] An applicant for pesticide registration must supply information regarding the pesticide's chemical contents, use, proposed label (including effectiveness claims and directions for use), and test results.[77] The EPA may approve the pesticide registration if: (1) its contents warrant the proposed claims regarding the pesticide's effectiveness; (2) FIFRA labeling requirements are met; (3) the pesticide will perform its intended function without unreasonable adverse environmental effects; and (4) when used with widespread and commonly recognized practices, the pesticide will not cause unreasonable adverse environmental effects.[78] The EPA must use a cost-benefit approach in evaluating the environmental effects of pesticide use.[79] If the pesticide does not meet these requirements, the EPA may (but is not required to) refuse to register the pesticide, in effect banning its sale.[80] Congress intended in FIFRA to limit the EPA's evaluation principally to the pesticide's environmental effects, not to whether the pesticide is needed or whether it will perform as claimed.[81]

75. *See infra* notes 76-113 and accompanying text.

76. 7 U.S.C.A. § 136a(a) (West Supp. 1992). Pesticide producers also must be registered with the EPA. *Id.* § 136e(a); *see* Miller, *supra* note 25, at 332.

77. 7 U.S.C.A. § 136a(c)(1)-(4) (West Supp. 1992).

78. *Id.* § 136a(c)(5).

79. *Id.* § 136(bb).

80. 7 U.S.C.A. § 136a(6) (West 1980).

81. The EPA is not authorized to consider whether a pesticide is necessary or even effective. The EPA cannot deny registration if the pesticide is not "essential."

A pesticide's certification automatically lapses after five years unless the registrant petitions the EPA to have the pesticide reregistered.[82] The EPA can cancel a pesticide's registration or change its use classification (from general use to restricted use) if pesticide use causes unreasonably adverse environmental effects. The EPA must consult with the United States Department of Agriculture ("USDA") before canceling a pesticide's registration or changing its classification regarding the economic impact of such change unless further use constitutes an imminent hazard to human health.[83] The EPA also may suspend a pesticide's registration and use in emergency situations.[84] On-farm disposal of excess pesticides and their containers is a significant ground water quality threat. The EPA must establish regulations for disposal or storage of pesticides and their containers.[85] The EPA also may prevent the sale and distribution of unregistered pesticides.[86]

2. *Label Directions*

Applicants for pesticide registration must submit a proposed pesticide label as part of the registration process.[87] The EPA must approve the proposed label as part of pesticide registration.[88] The label must include the pesticide use classification, directions for use, and a warning statement.[89] The directions for use must be clear, and must be adequate to protect the public from injury and unreasonable adverse environmental effects.[90] Warning statements must include the pesticide's toxicity classification and human hazard warning, a child hazard warning, a statement of practical treatment, environmental hazard warnings (including warnings regarding wildlife and domestic

---

The EPA cannot register one pesticide instead of another having the same effect if both meet all requirements but must register both pesticides. The EPA may waive data requirements regarding effectiveness, and must waive effectiveness requirements if a state has determined that it is effective in that state. *Id.* § 136a(c)(5).

82. *Id.* § 136d(a)(1).

83. *Id.* § 136d(b). FIFRA defines "imminent hazard" as "the situation which exists when the continued use of a pesticide during the time required for cancellation proceeding would be likely to result in unreasonable adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered or threatened by the secretary pursuant to the Endangered Species Act of 1973." *Id.* § 136(l).

84. *Id.* § 136d(c)(3).

85. 42 U.S.C.A. § 136a(a). The EPA has yet to satisfactorily address this problem but pledges in its strategy to propose a pesticide mixing-loading-disposal rule in 1991 and adopt a final rule in 1992. EPA Pesticides Strategy, *supra* note 14, at 27, 67.

86. 7 U.S.C.A. § 136k (West 1980).

87. 42 U.S.C.A. § 136a(c)(1)(C) (West 1980).

88. *Id.* § 136a(c)(5)(B).

89. 40 C.F.R. § 156.10(a)(1) (1992).

90. *Id.* § 156.10(i).

animals), and flammability or explosiveness hazard warnings.[91] FIFRA prohibits use of a pesticide inconsistent with its label.[92]

3. State Pesticide Registration

States may regulate the sale or use of any federally registered pesticide so long as the state does not authorize any sale or use prohibited by FIFRA.[93] This means that states may establish more stringent regulations on pesticide application and use through state pesticide requirements to protect ground water quality. However, states cannot substitute their own label for the EPA pesticide label.[94] The Nebraska Department of Agriculture is authorized to regulate "economic poisons" (*i.e.*, pesticides).[95] However, Nebraska has not elected to assume state administration of the FIFRA program, and does not evaluate the environmental effects of pesticide use in its state pesticide registration program.[96]

4. Pesticide Reregistration

Many pesticides currently registered with the EPA have not been tested regarding toxicity and health effects, information which is essential for establishing pesticide MCLs. Only 10% of all pesticides currently marketed have complete health hazard assessment, and 38% have no toxicity information available.[97] The 1988 FIFRA amendments required the EPA to accelerate reregistration of older pesticides under current health and safety standards.[98] Approximately 600 pesticides must be reregistered by 1997.[99]

---

91. *Id.* § 156.10(h).

92. 7 U.S.C.A. § 136j(a)(2)(G) (West 1980).

93. 7 U.S.C.A. § 136v(a) (West Supp. 1992). A state may authorize reregistration of federal registered pesticides for additional uses if the pesticide has been specially formulated for distribution and use within that state to meet special local needs, and if federal registration for such use has not previously been denied, disapproved, or canceled by EPA. *Id.* § 136v(c)(1). State registration authorizes distribution and use only within the registering state. Such state registration shall not be effective for more than 90 days if disapproved by the EPA within such period. *Id.* § 136v(c)(2). The EPA must consult with the state before disapproving its registration. The EPA may immediately disapprove a state registration if the EPA determines that the pesticide's use constitutes an imminent hazard. The EPA may suspend state pesticide registration authorities where the EPA determines that the state has failed to exercise adequate controls for state registration. *Id.* § 136v(c)(4).

94. *Id.* § 136v(b).

95. NEB. REV. STAT. § 2-2603 (Reissue 1991).

96. *See* 55 Fed. Reg. 46,890 (1990).

97. 3 ROGERS, *supra* note 65, § 6.6. Twenty-four percent of all pesticides on the market have partial health hazard assessment, 2% have minimal toxicity information available, and 26% have some (less than minimal) toxicity information available. *Id.*

98. 3 NOVICK, *supra* note 24, § 17.02[3][a].

99. 3 ROGERS, *supra* note 65, at xi.

5. Pesticide Classification

Registered pesticides are classified as general use or restricted use.[100] FIFRA wisely presumes that pesticides may be applied other than according to label directions and requires the EPA to consider this in its pesticide classification decisions. If the EPA determines that the pesticide, when applied either according to label directions or according to widespread and commonly recognized practices, will not generally cause unreasonable adverse environmental effects, the pesticide is classified for general use.[101] If the EPA determines the pesticide may generally cause either unreasonable adverse environmental effects or applicator injury, the pesticide is classified for restricted use.[102] Restricted use pesticides, those which may injure the applicator or the environment even when applied according to label directions, may be applied only by certified applicators.[103]

When the EPA classifies pesticides as restricted use or general use, applicator safety is the primary criterion. Restricted use pesticides are categorized by their toxicity.[104] On May 13, 1991, the EPA proposed adding to the restricted use determination criteria relating to whether the pesticide may contaminate ground water, such as persistence and leachability. The EPA also proposed reclassifying twenty-four pesticide active ingredients (including atrazine) as restricted use because of their ground water pollution potential.[105]

6. Applicator Certification

Persons wishing to apply restricted use pesticides must be certified.[106] Applicator certification programs may be conducted by the EPA or by the state with EPA approval.[107] The two categories of certified applicators are commercial applicators, who apply restricted use pesticides for hire, and private applicators, farmers who apply restricted use pesticides on property they own or operate, or for a neighbor with whom the applicator trades labor.[108] Certification involves pesticide use training such that the applicator is competent to use and handle pesticides, and has been instructed in integrated pest management.[109] Private applicators may not be required to pass an

100. 7 U.S.C.A. § 136a(d)(1)(A) (West Supp. 1992).
101. *Id.* § 136a(d)(1)(B).
102. *Id.* § 136a(d)(1)(C).
103. *Id.* § 136a(d)(1)(C)(i)-(ii).
104. 40 C.F.R. § 152.170 (1992).
105. 56 Fed. Reg. 22,076 (May 13, 1991).
106. 7 U.S.C.A. § 136i(a)(1), (2) (West Supp. 1992).
107. *Id.* §§ 136i(a)(2), 136i(b).
108. *Id.* § 136(e)(2), (3).
109. *Id.* § 136i(a)(1), (c).

examination to receive certification.[110] Commercial and private applicators must maintain records of restricted use pesticide applications.[111]

7. State Programs

It is significant that FIFRA does not preempt more stringent state pesticide regulations; FIFRA requires only that state pesticide regulations be at least as strict as the EPA's.[112] Thus, states may, under state pesticide statutes, establish mini-FIFRA programs. Such programs may include: (1) establishing pesticide use restrictions more stringent than EPA restrictions through state pesticide requirements, and (2) banning pesticides in a particular state that has been authorized for use in that state by the EPA. All states, excluding Nebraska, administer the EPA's FIFRA program.[113] Pesticide laws in these states may authorize more stringent pesticide regulations to protect ground water quality through state pesticide registration requirements. The Iowa atrazine regulations, discussed below, are an example of state pesticide regulations more stringent than the EPA's.

C. STATE PESTICIDE USE RESTRICTIONS

A few states have established pesticide use restrictions more stringent than required under FIFRA to protect ground water quality. These programs reflect state frustration with the large backlog of EPA pesticide registrations and reregistrations, the EPA's inability to promulgate pesticide MCLs under the SDWA, and the EPA pesticide label directions that did not protect ground water quality. California and Wisconsin, among others, have banned the use of certain pesticides to protect ground water quality.[114] Most states, however, continue to rely on the EPA to make pesticide cancellation determinations under FIFRA.

Although federal law establishes MCLs for many contaminants and quality monitoring requirements for public drinking water supplies under the SDWA, it is only now beginning to address the issue of controlling nonpoint sources of contamination, including agrichemical use. A few states have not waited for the EPA to de-

110. *Id.* § 136i(a)(1).
111. *Id.* § 136i-1(a).
112. 3 NOVICK, *supra* note 24, § 17.10.
113. *See infra* notes 360-63 and accompanying text. Colorado only partially implemented FIFRA in that it certifies commercial applicators while the EPA certifies private applicators (*i.e.*, farmers) in Colorado. The EPA certifies both private and commercial applicators (*i.e.*, all applicators) in Nebraska. See 55 Fed. Reg. 46,890 (1990).
114. WIS. STAT. ANN. § 94.707 (West 1990).

velop pesticide MCLs or pesticide use restrictions to prevent contamination and have done so under state law, either through mini-FIFRA programs or through statutes allowing special agrichemical regulations in problem areas. In addition, some states, including Wisconsin, California, and Arizona, have established state MCLs for contaminants for which no federal MCLs have been promulgated. Wisconsin programs prevent MCL violations from pesticide use by regulating pesticide use before MCLs are exceeded. Wisconsin and Iowa have pioneered the use of special taxes on fertilizer and pesticides to fund ground water quality protection programs.[115]

1. California

California adopted one of the earliest state pesticide regulation programs that has gone beyond FIFRA, and was the model for the Arizona pesticide regulation program.[116] Proposition 65 is also noteworthy as the first ground water protection citizen initiative.[117]

a. Pesticide Contamination Prevention Act

All pesticide registrants are required to submit environmental data for pesticides to the California Department of Agriculture.[118] Pesticides with high leaching potential are listed on the Groundwater Protection List.[119] The department of agriculture must monitor ground water for pollution from all pesticides on the list.[120] If a pesticide is detected in ground water or below the crop root zone as a result of agricultural use, the department must notify the registrant.[121] At that time, the registrant may request an administrative review of the pesticide's pollution potential.[122] If no such review is requested, the pesticide's registration is canceled.[123]

In the administrative review, the registrant must prove that the pesticide will not pollute ground water if used according to label directions.[124] A committee representing the department of agriculture, the department of health services, and the water resources board study the information presented by the registrant and present the director of agriculture's findings (1) that the pesticide will not pollute

115. *See infra* notes 140-42, 149-52 and accompanying text.
116. CAL. FOOD & AGRIC. CODE § 13143 *et seq.* (West 1990). *See id.* § 13121 *et seq.* (West 1990).
117. CAL. HEALTH & SAFETY CODE § 25249.1 *et seq.* (West 1990).
118. *Id.* § 13143.
119. *Id.* § 13145(d).
120. *Id.* § 13148.
121. *Id.* § 13149(a)-(b).
122. *Id.* § 13149(c).
123. *Id.*
124. *Id.* § 13150(a)(1)-(2).

ground water, (2) that agricultural use of the pesticide can be modified to prevent pollution, or (3) that either modification of agricultural practices or cancellation of the pesticide's state registration will cause severe economic hardship and that there are no alternative products or practices that can be used to prevent ground water pollution.[125] The committee must recommend a "pesticide level" that does not cause adverse health effects.[126] The director may concur with the committee recommendations, or determine that no pollution or threat of pollution exists.[127] If the director does not approve continued use of the pesticide, the pesticide's registration is canceled.[128]

b. Safe Drinking Water and Toxic Enforcement Initiative

Proposition 65 requires the governor to publish a list of chemicals, including pesticides, known to cause cancer or reproductive toxicity.[129] Businesses are prohibited from discharging listed chemicals into sources of drinking water.[130] Prohibited discharges are exempt if the business can prove that the discharge took place less than twenty months after the chemical was first listed, or that the discharge complies with other applicable laws and requirements, and does not release a significant amount of the chemical.[131] Businesses also must give a clear warning to anyone that they knowingly and intentionally exposed to a listed chemical.[132] Exempted from the warning requirement are exposures to carcinogens that the business can show do not cause a significant risk, and exposures to reproductive toxicants that do not have an observable effect at 1000 times the exposure level.[133] Proposition 65 authorized enforcement though citizen suits.[134] Businesses employing fewer than ten people are among the entities exempt from the Proposition 65 requirements.[135]

2. Wisconsin

Wisconsin enacted one of the earliest and most aggressive state ground water protection programs in the United States. Wisconsin is one of the very few states that has not waited for the EPA to establish drinking water MCLs for pesticides, thereby doubling the

125. *Id.* § 13150(b)-(c).
126. *Id.* § 13150(c).
127. *Id.* § 13149(a).
128. *Id.* § 13151.
129. CAL. HEALTH & SAFETY CODE § 25249.8 (West 1992).
130. *Id.* § 25249.5.
131. *Id.* § 25249.9.
132. *Id.* § 25249.6.
133. *Id.* § 25249.10.
134. *Id.* § 25249.7.
135. *Id.* §§ 25249.11(b).

number of enforceable MCLs.[136] Wisconsin ground water protection programs are preventive and are funded by taxes on pesticides and fertilizers.

A unique and significant ground water quality protection concept from Wisconsin law is the preventive action level ("PAL"). If a state adopts a preventive approach to ground water quality protection, it does not wait until contaminant levels reach the MCL, but rather takes regulatory action to prevent contaminant levels from reaching the MCL. The Wisconsin PALs are (1) 10% of MCLs for carcinogenic, mutagenic, or teratogenic properties or interactive effects; (2) 20% for all other public health MCLs (similar to the federal primary or health based MCLs); and (3) 50% of the public welfare MCLs (similar to the federal secondary or aesthetic MCLs).[137] When a PAL is exceeded, the department of natural resources may require that the activity causing pollution be discontinued.[138] In cases of pesticide contamination exceeding the PAL, the department of natural resources has allowed use at a reduced rate one year alternating with no use the following year.[139] The Wisconsin ground water protection program is partly funded by fees on pesticide manufacturers and dealers, and a fertilizer tax. Originally, pesticide manufacturers paid $2000 per active ingredient manufactured, while dealers paid a $300 license fee.[140] The current fee is $100 for the first pesticide registered, with $150 for each additional pesticide.[141] The fertilizer tax is ten cents per ton.[142]

3. Iowa

Iowa restrictions on atrazine use illustrate how a state's mini-FIFRA authorities may be used specifically to protect ground water quality. On December 14, 1989, the Iowa Department of Agriculture and Land Stewardship ("IDALS") established statewide restrictions on atrazine use.[143] Under Iowa pesticide statutes, IDALS is authorized to restrict agricultural chemical usage to protect the environ-

136. WIS. STAT. ANN. § 160.09 (West 1990).

137. *Id.* § 160.15. Carcinogenic substances may cause cancer or tumors, mutagenic substances may cause genetic mutations, and teratogenic substances may cause birth or developmental disabilities.

138. *Id.* §§ 160.021 to -.025.

139. WIS. ADM. CODE AGRIC. §§ 16.07 to -.09.

140. *See* WIS. STAT. ANN. § 94.681(2) (repealed 1989).

141. WIS. STAT. ANN. § 94.68(3)(a) (West 1990). Most of the fee is used for environmental purposes. *Id.* § 94.68(4)(b)(c). A separate $150 fee per pesticide funds a well contamination cleanup fund. *Id.* § 94.681. Pesticide dealers pay an annual $50 fee. *Id.* § 94.685.

142. *Id.* § 94.64(4)(an). A ten cent per ton inspection fee and a ten cent per ton research fee are also charged. *Id.* § 94.64(4)(a)(am), (ar).

143. IOWA ADMIN. CODE n.21 § 45-51(206) (1990).

ment, including ground water quality.[144] The Iowa atrazine restrictions include: (1) reducing the atrazine label application rate from four pounds per acre to three pounds per acre statewide; (2) reducing the atrazine application rate in vulnerable areas to one and one-half pounds per acre; (3) making atrazine a restricted use pesticide; (4) prohibiting atrazine application within fifty feet of a water source; and (5) prohibiting the mixing, loading, or repackaging of atrazine within 100 feet of a water source.[145]

The vulnerable area restriction will apply in twenty-three counties where atrazine has already been detected in ground water, or where ground water is most susceptible to contamination from agrichemical use.[146] Making atrazine a restricted use pesticide means that Iowa farmers wishing to apply atrazine must now be certified pesticide applicators.[147] Iowa pesticide certification will now include training on atrazine BMPs.[148] The Iowa atrazine regulations took effect with the 1990 growing season.

Iowa, similar to Wisconsin, funds ground water protection programs through taxes on agrichemicals.[149] The fertilizer excise tax is seventy-five cents per ton, based on an 82% actual nitrogen solution.[150] There are two separate pesticide taxes imposed: a tax paid by dealers and a registration fee paid by manufacturers. Pesticide dealers must pay a license fee of one-tenth of one percent of gross pesticide sales for the prior year to the IDALS, with a $25 minimum.[151] Pesticide manufacturers must pay .002% of the gross sales of their product for the prior year to the IDALS with a $250 minimum and a $3000 maximum.[152] These taxes fund a variety of research, education, and demonstration projects and programs aimed to protect ground water quality.

4. Arizona

Arizona's programs demonstrate how a state FIFRA program can be creatively expanded to control pesticide contamination of ground water. The Arizona pesticide program, patterned after California pesticide registration statutes, illustrates how states with aggressive ground water protection policies can use a state FIFRA

144. IOWA CODE ANN. § 206.19 (West Supp. 1992).
145. IOWA ADMIN. CODE n.21 § 45-51(4)(a)-(d) (1990).
146. *Id.* n.21 § 45.51(4)(e).
147. IOWA CODE ANN. § 206.5(1) (West Supp. 1992).
148. IOWA ADMIN. CODE n.21 § 45.51(5) (1990).
149. IOWA CODE ANN. § 200.8(4) (West Supp. 1992).
150. *Id.* § 200.8(4). The tax is varied according to the actual percentage of nitrogen in the fertilizer. The tax is paid to DALS by dealers. *Id.* § 206.7(2).
151. *Id.* § 200.8(4).
152. *Id.* § 206.12(3).

program as the foundation for more effective ground water protection policies than the federal FIFRA and SDWA programs have previously provided.

Arizona's ground water protection programs are divided into two major parts: (1) regulation of nitrogen fertilizers (and feedlot wastes) and (2) pesticide regulation. Nitrogen fertilizers are regulated through statewide mandatory BMPs. If farmers violate the fertilizer use BMPs, they are subject to more stringent regulation. If BMPs are followed, however, fertilizer use may continue even if the nitrate MCL is violated. In contrast, a pesticide's registration may be revoked (and further pesticide sale and use stopped) if its use results in violating ground water quality standards. The difference in treatment of nitrogen fertilizers versus pesticides reflects the higher health risks associated with pesticides and the perceived lack of substitutes for commercial fertilizers.

a. Fertilizer Regulations

Activities or facilities that may result in contaminant discharges into ground water must obtain a permit from the Arizona Department of Environmental Quality ("DEQ").[153] Considerable hydrologic testing and data collection regarding the effect of the regulated activity on ground water quality is required to obtain an individual permit.[154] General permits, however, may be issued if (1) the permitted facilities, activities, or practices are large in number and the cost of issuing individual permits cannot be justified by any environmental or public health benefit from individual permitting; (2) the facilities, activities, or practices in the class subject to the general permit are substantially similar in nature; and (3) the DEQ is satisfied that the appropriate conditions imposed in a general permit for the regulated activities will prevent ground water contamination.[155] If a person violates a general permit, the DEQ may revoke the general permit for that individual and require the violator to obtain an individual permit.[156]

All general permits, including non-agricultural general permits, include BMPs that permit holders must follow.[157] The DEQ is required to adopt BMPs for nitrogen fertilizer application and feedlots.[158] However, agricultural BMPs may be adopted that would

153. ARIZ. REV. STAT. ANN. § 49-241(A) (West Supp. 1991).
154. *Id.* § 49-243.
155. ARIZ. REV. STAT. ANN. § 49-245(A) (West 1988).
156. *Id.* § 49-245(B).
157. *Id.* § 49-246.
158. ARIZ. REV. STAT. ANN. § 49-247(A), (C) (West Supp. 1991). In adopting the agricultural BMPs, the DEQ must consider (1) the availability, effectiveness, and eco-

result in violating ground water quality standards if the DEQ determines that such BMPs constitute the application of all economically feasible management practices, and if more stringent practices would result in cessation of the regulated activity (presumably due to economic hardship).[159] If a farmer complies with the fertilizer BMPs under a general agricultural permit, the farmer is in compliance with all ground water protection requirements, even if the MCL is violated.[160] Conversely, if a farmer does not comply with the general permit BMPs, the farmer will be required to obtain an individual permit.[161] This would lead to regulation of fertilizer use and perhaps a fertilizer use ban for that farmer. To monitor the effectiveness of the agricultural BMPs, the DEQ must evaluate and report on their effectiveness every five years.[162]

b. Pesticide Regulations

Arizona's pesticide contamination program includes not only FIFRA administration, but also several SDWA elements regarding conducting risk assessment for pesticides as ground water contaminants and establishing what, in effect, are state MCLs for pesticides not yet governed by EPA MCLs. Arizona requires pesticide registrants (*i.e.*, manufacturers) to submit substantial environmental fate information regarding their products' leaching and persistence characteristics to allow the state to determine what risk the use of that product poses to ground water quality.[163] From an evaluation of the environmental fate data, the DEQ must establish a ground water protection list of all pesticides with the potential to contaminate ground water.[164] All pesticides violating any environmental fate standard (similar to a state MCL) must be included in the list. All users of listed pesticides (including individual farmers) must report usage to the DEQ.[165] In addition, all dealers must identify in a quarterly re-

nomic and institutional considerations of alternative technologies; and (2) the potential nature and severity of discharges from regulated agricultural activities, and their effect on public health and the environment. *Id.* § 49-247(D).

159. *Id.* § 49-247(E).

160. *Id.* § 49-247(F).

161. *Id.* § 49-247(G).

162. ARIZ. REV. STAT. ANN. § 49-249 (West 1988). The first report is due January 1, 1993. *Id.*

163. *Id.* § 49-302(A).

164. ARIZ. REV. STAT. ANN. § 49-305 (West Supp. 1992). In 1989, 106 pesticides were proposed to be put on the ground water protection list, over five times the number of current EPA pesticide MCLs. Arizona Dep't of Envtl. Quality, "Pesticide Contamination Prevention Program: Report to the Arizona Legislature," C-1 to -2 (Feb. 15, 1989).

165. ARIZ. REV. STAT. ANN. § 49-305(1) (West 1988).

port to the DEQ every individual sale of a listed pesticide.[166] The redundant reporting from users and dealers allows the DEQ to cross-check sales and usage reports.

The DEQ must establish a monitoring program to determine whether listed pesticides are occurring in groundwater.[167] If a pesticide is detected, the DEQ must notify the registrant.[168] Then the DEQ conducts proceedings to determine whether the detected pesticide's registration should be canceled. If the pesticide is carcinogenic, mutagenic, teratogenic, or toxic in the concentrations detected, the pesticide's registration will be immediately canceled unless changes in the pesticide's use would prevent further pollution.[169] For other pesticides, the registrant has the opportunity to show the DEQ how pesticide use may be changed to avoid ground water contamination. If this showing is made, the pesticide may continue to be used. If the required showing is not made, the use of the pesticide may be continued only if there is no substitute product and cancellation would result in severe economic hardship to one or more segments of Arizona's agricultural industry.[170] If a substitute product exists and/or cancellation would not result in economic hardship, the pesticide's registration will be canceled.[171] In any event, however, pesticide registration must be canceled if continued use would violate a MCL, notwithstanding the lack of substitutes and any resulting economic hardship.[172]

5. *Montana*

Several states have adopted legislation authorizing administrative regulation of pesticide (and often fertilizer) use in designated areas experiencing ground water contamination from agrichemical use. This legislation is typically separate from state FIFRA assumption legislation which may authorize state pesticide regulation through new state use restrictions, similar to the Iowa atrazine regulations discussed above.[173] States adopting problem area agrichemical regulation legislation include Nebraska in 1986, Iowa in 1987, Kansas in 1989, Montana in 1989, Colorado in 1990, and South Dakota in 1991.[174]

166. *Id.* § 49-305(2).
167. ARIZ. REV. STAT. ANN. § 49-307 (West Supp. 1991).
168. ARIZ. REV. STAT. ANN. § 49-308 (West 1989).
169. ARIZ. REV. STAT. ANN. § 49-309(A) (West Supp. 1991).
170. *Id.* § 49-309(C).
171. *Id.* § 49-309(E).
172. *Id.* § 49-309(D).
173. *See supra* notes 142-51 and accompanying text.
174. 1986 Neb. Laws LB894 (establishing special ground water quality protection area ("SPA") legislation and authorizing ground water quality management areas ("QMAs")). *See infra* notes 261-308 and accompanying text; IOWA CODE ANN.

Montana's legislation is discussed here as it is more comprehensive than most state agrichemical problem area legislation, incorporating elements of both mini-SDWA and mini-FIFRA programs.

Montana adopted comprehensive agrichemical regulation legislation in 1989.[175] The program is jointly administered by the Montana Department of Health and Environmental Sciences ("MDHES") and the Montana Department of Agriculture ("MDA"), with MDHES basically establishing state pesticide MCLs and MDA establishing agrichemical regulations.[176] Regulations extend to fertilizer and pesticide application, mixing, loading, storage, disposal, and transportation.[177] Ground water standards are promulgated by the MDHES.[178] Federal standards may be adopted, although state standards may be established that differ from the federal standard or where no federal standard exists.

If ground water quality monitoring demonstrates that agricultural chemicals are contaminating ground water, the MDA may establish an agricultural chemical ground water management plan.[179] Under the Montana regulation, triggers include contamination levels of 50% of the MCL, similar to the Wisconsin PAL.[180] Plans are prepared for specific chemicals and specific locations.[181] Plans may include: (1) identification of areas where the chemical may be used; (2) best management plans and BMPs; (3) applicator certification, licensing, training, and education requirements; (4) well setbacks; (5) chemical application rates, timing, and use; (6) alternative pest management techniques, including integrated pest management; and (7) alternative soil fertility requirements.[182]

D. EPA Pesticides and Ground Water Strategy

When FIFRA was adopted in 1972, the primary threat of pesticide use was considered to be applicator safety; there was little concern that pesticides would leach into ground water. In 1979, however, pesticides were first discovered in drinking water, and have since been detected in ground water in twenty-six states resulting

§ 206.21(3) (West Supp. 1992); KAN. STAT. ANN. §§ 2-2472 to -2479 (1991); COLO. REV. STAT. § 35-9-118(2)(c)(I) (Supp. 1991); S.D. CODIFIED LAWS ANN. § 38-21-39 (Supp. 1992).

175. *See* MONT. CODE ANN. § 80-15-101 to -414 (1991).
176. *Id.* § 80-15-104(1).
177. *Id.* § 80-15-102(21).
178. *Id.* § 80-15-201.
179. *Id.* § 80-15-212(1)(a).
180. *Id.*
181. *Id.* § 80-15-212(1).
182. *Id.* § 80-15-214(2).

from normal field application.[183] In 1986, the EPA began evaluating how its existing legal authorities, particularly FIFRA, could be used to protect ground water from pesticide contamination.[184]

In October, 1991, the EPA issued its Pesticides and Ground-Water Strategy, the agency's blueprint for how it will modify its pesticide regulations to take ground water quality protection into account. The EPA pesticide regulations will focus on pesticides most likely to leach into ground water supplies under normal field application conditions.[185] The EPA will determine whether the threat to ground water quality can be controlled through changes in label directions (application rate and method, etc.) and user training in proper pesticide application and use. If so, the EPA will make the pesticide a restricted use pesticide (which automatically makes users subject to user certification requirements) and modify label directions.[186] If the EPA determines that such actions alone will not protect ground water quality, the EPA will make use of the pesticide subject to EPA approval of a state pesticide management plan ("SMP") for that particular pesticide.[187] If a state does not have an EPA approved SMP for pesticides subject to the SMP requirement, such pesticides will be banned in that state.[188]

The EPA hopes states will develop two types of SMP: generic and pesticide specific.[189] The generic SMP will (1) identify areas vulnerable to contamination (high water tables), (2) identify a state's strategy for preventing ground water contamination from pesticide use, and (3) identify a state's strategy for responding to contamination once it is detected through ground water quality monitoring.[190] Prevention and response activities may include increased user training, reduced application rates, new application methods, such as

183. EPA Pesticides Strategy, *supra* note 14, at 2.

184. *Id.* at ii-iv.

185. *Id.* at ES-9. These pesticides are sometimes referred to as "leachers."

186. *Id.* at 28-32. The EPA has proposed changing the classification of several leachers from general use to restricted use. *See* 56 Fed. Reg. 22,076 (May 13, 1991).

187. EPA Pesticides Strategy, *supra* note 14, at 32-35.

188. *Id.* at 32-33.

189. *Id.* at 40-42; Pesticides State Management Plan Guidance for Ground-Water Protection: Implementation Document For The Pesticides and Ground-Water Strategy 3-5 (U.S. EPA, Office of Pesticide Programs) (Review Draft Sept. 1991) [hereinafter SMP Guidance].

190. *Id.* at 3. The guide enumerates and discusses 12 elements for a pesticide SMP: (1) a state's philosophy and goals toward protecting ground water, (2) roles and responsibilities of state agencies, (3) legal authority, (4) resources, (5) basis for assessing and planning, (6) monitoring, (7) prevention actions, (8) response to detection of pesticides, (9) enforcement mechanisms, (10) public awareness and participation, (11) information dissemination, and (12) records and reporting. *Id.* at 7. The identification and characterization of a state's ground water resources relative to contamination from pesticide use is component 5. *Id.* at 12-20.

banding versus broadcast application, and regulating or banning pesticide use within a specified distance of a well or other water source.[191] The pesticide-specific SMP will pick elements from the generic SMP to be implemented regarding the specific pesticide product.[192]

The EPA will leave significant discretion to states. An important question is what level of contamination triggers more stringent regulations, including product bans. The EPA's prevention orientation suggests that states will not be allowed to wait until contamination levels reach the drinking water MCL before switching from a prevention to a response mode.[193] However, whether the trigger is 20% or 50% of the MCL will apparently be left to states. The EPA is in the process of adopting FIFRA regulations to implement the Pesticides Strategy, as well as beginning to provide technical assistance and grants to states to prepare generic SMPs. The result of the pesticides strategy is that within the next three to five years, states will likely begin to regulate the use of leachers in areas vulnerable to contamination to prevent and control ground water contamination.[194]

II. NEBRASKA AGRICHEMICAL MANAGEMENT PROGRAMS

Nebraska agrichemical programs are a unique mixture of the progressive and the recalcitrant. Nebraska's unique "local control" philosophy in ground water management has led to innovative local regulations of fertilizer use to deal with nitrate ground water contamination. Nebraska's ground water management statutes have been extended beyond their original ground water depletion objective to include ground water quality protection. Nebraska pesticide statutes, however, are dated and have not been amended to deal with water quality protection. It is ironic that although Nebraska does not administer the basic FIFRA user certification and enforcement, regulatory portions of the Pesticides and Ground-Water Strategy have been in place in Nebraska for some time although they have yet to be implemented.[195]

---

191. EPA Pesticides Strategy, *supra* note 14, at 51-56.

192. SMP Guidance, *supra* note 189, at 3-4.

193. *Id.* at 17-18, 20.

194. *Id.* at 67. However, the EPA has not yet met its own implementation deadlines, suggesting that state implementation of pesticide specific SMPs will not begin until 1995 at the earliest and probably not until 1996 or 1997.

195. Natural Resources District ("NRD") agrichemical regulations in QMAs and SPAs have been limited to fertilizer use regulations; pesticides have not yet been regulated. *See infra* notes 261-308 and accompanying text.

A. AGENCIES

To understand Nebraska ground water management and protection programs, a brief review of the implementing agencies is required.[196] The Nebraska Department of Environmental Quality ("DEQ") (formerly the Nebraska Department of Environmental Control) administers state and federal environmental programs, including the special ground water quality protection area program.[197] The Nebraska Department of Agriculture ("NDA") administers the State's "economic poisons" (*i.e.*, pesticide) statutes, including the state pesticide user certification program.[198] One issue in state FIFRA debates is the respective role for the DEQ and the NDA. Agricultural groups hope the NDA will be the lead agency as it will be more sensitive to the needs for production agriculture. Other groups hope the DEQ will be responsible for pesticide use regulations, anticipating that DEQ regulations will be more environmentally protective. The Nebraska Department of Health ("NDH") administers the Nebraska Safe Drinking Water Act.[199]

The Nebraska Department of Water Resources ("NDWR") administers surface water rights in Nebraska and administers state-level ground water requirements, such as well registration.[200] The NDWR also is responsible for designating ground water control areas, and reviews natural resource district ground water management plans for technical accuracy.[201] The Nebraska Natural Resources Commission is Nebraska's state water planning agency and administers state soil and water conservation funds.[202] The Commission itself is composed of NRD river basin representatives, and is a state-level voice for NRDs and their programs.[203]

NRDs are local units of government established in 1972 to manage soil and water resources.[204] Replacing more than 150 single-purpose districts (such as county soil and water conservation districts), the twenty-three NRDs are generally organized along river basin lines, are financed by a local property tax, and are governed by a lo-

196. *See* J. David Aiken, *Nebraska Ground Water Law and Administration*, 59 NEB. L. REV. 917, 973 (1980).

197. NEB. REV. STAT. § 81-1504 (Cum. Supp. 1992).

198. *See infra* notes 243-57 and accompanying text. NDA also administers a variety of agricultural regulation and promotion programs. *See* NEB. REV. STAT. § 2-201 *et seq.* (Cum. Supp. 1992).

199. *See infra* notes 230-42 and accompanying text.

200. NEB. REV. STAT. §§ 46-208-214, 46-602, -604, -606 (Reissue 1988).

201. *Id.* §§ 46-658, 46-673.03.

202. *Id.* §§ 2-1507(6), 2-3273.

203. *Id.* § 2-1504(2).

204. Aiken, 59 NEB. L. REV. at 974-75.

cal board of directors.[205] NRDs have a wide range of soil and water conservation and management authorities.[206] NRDs also have significant ground water management responsibilities under Nebraska ground water law. Ground water control areas may be designated only after an NRD requests NDWR control area designation, and NRDs may regulate ground water development and use and agrichemical use in ground water management areas to control ground water depletion or contamination.[207] NRDs have been legislatively designated as the preferred regulators regarding agrichemical use regulations, and are intended to develop and implement agrichemical use regulations in special ground water quality protection areas.[208] Without the presence of NRDs to assume a significant role in local ground water management, Nebraska ground water law may have taken a more state-control orientation.

B. NEBRASKA SAFE DRINKING WATER ACT

The major issue in Nebraska drinking water administration has been resolving widespread contamination of rural ground water supplies. Nearly 20% of Nebraska's communities have violated or will soon violate the nitrate MCL.[209] The likeliest source of nitrate contamination is commercial fertilizer application.[210] An estimated 755,000 tons of nitrogen fertilizer were applied to Nebraska cropland in 1987, while another 235,000 tons of nitrogen were generated in livestock manure.[211] An estimated thirty-three million pounds of pesticides were applied.[212] The combined costs of commercial nitrogen fertilizer and pesticides for 1987 was about $700 million.[213]

Nitrates are and have been regulated under the SDWA, with a 10 ppm MCL. Atrazine and alachlor, the two most frequently used pesticides in Nebraska (constituting 65% of 1987 total Nebraska pesticide use), have just had MCLs established of 3 ppb and 2 ppb, respec-

205. NEB. REV. STAT. §§ 2-3203, 2-3225, 2-3215-22 (Reissue 1991).

206. *Id.* § 2-3229.

207. *Id.* § 46-658(3); *see infra* notes 261-83 and accompanying text.

208. NEB. REV. STAT. § 46-674.02(4) (Supp. 1992).

209. Of the 630 community water systems in Nebraska, approximately 60 have had nitrate problems in the past and have corrected them. Fifteen community water systems are currently in violation of the nitrate MCL, and 40 additional communities are likely to violate the nitrate MCL in the near future. Telephone Interview with Scott Peterson, Monitoring and Compliance Supervisor, Division of Drinking Water and Environmental Sanitation, Nebraska Department of Health (Oct. 23, 1992) [hereinafter Peterson Interview].

210. *See supra* notes 6-14 and accompanying text.

211. PESTICIDES AND NITRATES, *supra* note 6, at 3.

212. *Id.*

213. *Id.*

tively.[214] Other pesticides will receive MCLs in the future. Thus, as rural communities are required to monitor their water supplies for pesticides, some violations of the new and forthcoming pesticide MCLs may be discovered. In addition, rural community monitoring costs will increase significantly as the number of MCLs monitored increase.

Much of the concern regarding nitrates in ground water is the result of municipal water testing required under the SDWA. However, the contaminants currently being monitored are only a small part of the total potential contaminants. As MCLs are established and implemented for formerly unregulated pesticides, and as communities begin testing public water supplies for the newly regulated contaminants, a clearer picture of the quality of Nebraska's drinking water will emerge.

The Nebraska Safe Drinking Water Act ("NSDWA") is administered by the NDH.[215] The drinking water standards are implemented through a permit requirement.[216] Permits may be denied or revoked if the system does not comply with the NSDWA requirements.[217] In approving the development of a new public water system, the NDH must consider the location and effects of other water supply systems, and the location of points of discharge or disposal for solid and liquid wastes.[218] NDH regulations further specify that public water system facilities must be sited: (1) to avoid contamination of the drinking water from existing sources of pollution; and (2) to allow control, by the system owner, over the location of future sources of contamination within the proximity of the system to prevent or minimize any hazard to the safety of the drinking water.[219] This could potentially mean that the NDH could require public water suppliers to obtain a buffer zone of property around a well field to

214. Baker, *supra* note 45, at 6-10. Atrazine represented 52% of 1987 total pesticide use, and alachlor represented 13%. *Id.* The pesticide MCLs are several orders of magnitude smaller than the nitrate MCL, reflecting that many pesticides are toxic substances. The 10 ppm nitrate MCL is 10,000 ppb, compared to the 3 ppb atrazine MCL and the 2 ppb alachlor MCL. *See* 56 Fed. Reg. 3526 (Jan. 30, 1991).

215. NEB. REV. STAT. § 71-5301 *et seq.* (Reissue 1990).

216. *Id.* § 71-5303(1). A system-operating permit cannot be obtained unless the system operator is certified by the NDH. *See id.* §§ 71-5307 to -5309.

217. *Id.* § 71-5303(3). NDH must establish regulations regarding the siting, construction, alteration, and operation of public water systems to ensure compliance with drinking water standards. *Id.* § 71-5304(1). These rules may take into account differing water system sizes so long as drinking water requirements are met. *Id.* § 71-5304(2). Any major construction, extension, or alteration of a new or existing public water system must have prior NDH approval. *Id.* § 71-5305(1). Plans and specifications must be prepared by a registered professional engineer. *Id.*

218. *Id.* § 71-5305(2).

219. NEB. ADMIN. R. & REGS. tit. 179, ch. 2, §§ 007.01B, 008.02f (1992).

reduce the likelihood of water supply pollution from agricultural chemicals.

Many rural communities have violated the nitrate MCL.[220] When sampling indicates that an MCL has been exceeded, and a violation of the MCL is confirmed, NDH will put a public water supplier on a compliance schedule to deliver water meeting drinking water standards to customers. Alternatives include: (1) installing a new water well yielding low-nitrate water, if low-nitrate water can be found; (2) blending low-nitrate water from a new well with nitrate-contaminated water from existing wells to ensure that water meeting drinking water standards is delivered to customers; (3) installing advanced water treatment to remove nitrates (or pesticides) from drinking water; or (4) connecting the water system to another public water system. Each alternative is expensive, and meeting these requirements will test the financial resources of rural communities already feeling financial stress. If water supplied through a public water supply system is in violation of the nitrate-nitrogen MCL, the situation must be remedied before the nitrate level reaches 20 ppm, at which point the EPA will deny a variance or exemption.[221] The public water supplier must supply bottled water to families with infants until it can supply water meeting the 10 ppm nitrate-nitrogen drinking water standard.

The NSDWA does not venture beyond the basic state SDWA assumption, although the mini-WHP program is an innovation. NDH is not authorized to adopt state MCLs different from the EPA MCLs, although the need for such state authority to protect drinking water supplies diminishes as the EPA establishes more MCLs, including pesticide MCLs. The role of NSDWA's violation reporting requirements in raising public consciousness regarding agrichemical contamination of drinking water supplies, however, cannot be overstated. In the absence of such requirements, public awareness of agrichemical contamination of drinking water supplies would be much lower.

C. Regulation of Economic Poisons

Since 1961, the Nebraska Department of Agriculture has regulated pesticides with a consumer protection philosophy under Nebraska "economic poisons" statutes.[222] Economic poisons must be registered with the NDA.[223] The registration must include a copy of

220. Peterson Interview, *supra* note 209.

221. *See supra* note 55 and accompanying text.

222. Neb. Rev. Stat. § 2-2601 *et seq.* (Reissue 1991).

223. *Id.* § 2-2603(1). Section 2-2601(a) defines economic poison to mean what we now consider to be pesticides. *See id.* § 2-2601(a).

the economic poison's label and use directions and, if requested, the test results upon which the product claims are based.[224] This information goes only to the product effectiveness as a pesticide rather than its environmental fate. A $40 registration fee is required per product, $30 of which goes for noxious weed control, and $10 for economic poison administration.[225] The NDA may deny registration on consumer protection grounds — if the product claims seem unwarranted.[226] Although the NDA is not authorized to restrict pesticide use to protect the environment, it does have limited public safety authority: the NDA is authorized to restrict the use of selected economic poisons to pest control professionals to protect public health.[227] The economic poison statutes contain an outmoded reference to federal pesticide regulations: the NDA is authorized to comply with USDA pesticide standards, even though that authority was transferred to the EPA in 1970.[228] The NDA is authorized to stop violations of economic poison registration requirements.[229] Section 2-2612 of the Nebraska Revised Statutes makes pesticide underapplication a misdemeanor, reinforcing the overall consumer protection objectives.[230]

The economic poison statutes were amended in 1975 to authorize a state applicator training program by the University of Nebraska Cooperative Extension Service.[231] Private applicators and commercial applicators must be trained to apply restricted use pesticides.[232] This

224. *Id.* § 2-2603(1)(c), (d).
225. *Id.* § 2-2603(2)(a).
226. *Id.* § 2-2603(4).
227. *Id.* § 2-2603(5).
228. *Id.* § 2-2604(2).
229. *Id.* §§ 2-2602, to -2608.
230. *Id.* § 2-2612.
231. *Id.* §§ 2-2614.
232. *Id.* 2-2613(2). Section 2-2613(2) provides:

> Private applicator is defined as "an applicator who uses or supervises the use of any pesticide which is classified for restricted use for purposes of producing an agricultural commodity on property owned or rented by such applicator or his or her employer or if applied without compensation, other than trading of personal services between producers of agricultural commodities, on the property of another person."
>
> Commercial applicator is defined as "an applicator, whether or not such applicator is a private applicator with respect to some uses, who uses or supervises the use of any pesticide which is classified for restricted use for any purpose or on any property other than as provided in subsection (2) of this section [defining private applicator]."

Id. § 2-2613(3). Section 2-2613(1) provides:

> Restricted use pesticides are defined as "any pesticide which when applied in accordance with its directions for use, warnings, and cautions and for the uses for which it is registered, or for one or more of such uses, or in accordance with a widespread and commonly recognized practice, may generally cause, without additional regulatory restrictions, unreasonable adverse effects

allows the University to conduct the user certification program for the EPA because Nebraska has not assumed state administration of FIFRA.[233] However, there are no provisions for revoking user certification for pesticide misapplication, and no penalties for pesticide misapplication, although it is unlawful for uncertified persons to apply restricted use pesticides.[234] The lack of state statutory authority to enforce pesticide misapplication violations is the primary reason Nebraska is ineligible to assume state administration of the FIFRA user certification and enforcement program.

The economic poison statutes are Nebraska's state pesticide program. The statutes are devoid of any ground water quality consideration, reflecting the earlier view that normal field application of pesticides were not a source of ground water contamination. The statutes also do not authorize the NDA to enforce label directions for pesticide use, or to revoke pesticide user certification for pesticide misuse. These somewhat outdated statutes are what have been (unsuccessfully to date) proposed to be amended so the state of Nebraska can legally assume state FIFRA administration.

C. NEBRASKA GROUND WATER MANAGEMENT AND PROTECTION ACT

Nebraska takes a unique "local control" approach to regulation of agrichemicals to protect ground water quality. Nebraska is the only state that does not administer FIFRA (which makes it ineligible to assume administration of the EPA Pesticides and Ground-Water Strategy), and there is no state-level regulation of pesticides (or fertilizers) to protect ground water quality. Problem area regulation of agrichemicals is principally a local option with regulatory authority given to local natural resources districts ("NRDs") through the special ground water quality protection area ("SPA") and quality management area ("QMA") programs. SPA and QMA programs have focused primarily on nitrate contamination as Nebraska communities have not been required to monitor their water supplies for pesticides.

1. QMAs

Ground water quality management areas ("QMAs") and the more generic ground water management areas ("GMAs") are an interesting and confusing chapter in the history of local control of Ne-

---

on the environment, including injury to the applicator, such pesticide, or the particular use or uses applied."

Id. § 2-2613(1).

233. *Id.* § 2-2617 (regarding the use of federal funds for certification training).

234. *See id.* §§ 2-2614, 2-2616, 2-2618, 2-2620.

braska ground water resources.[235] The GMAs stem from policies that were designed to resolve ground water depletion, not ground water pollution. The Nebraska Ground Water Management Act was adopted in 1975 to give NRDs the option of regulating ground water development and use to control ground water depletion.[236] Control areas are designated by the NDWR at NRD request.[237] NRDs may regulate well spacing, well installation, and ground water withdrawals in control areas.[238]

Some observers thought that NRDs should be authorized to regulate ground water development and use to control depletion without being required to obtain NDWR control area authorization.[239] Ground water management area legislation was adopted in 1982 to provide NRDs with that option.[240] The Ground Water Management Act was retitled the Ground Water Management and Protection Act, as NRDs were given authority to consider ground water quality in developing GMA regulations.[241] NRDs must prepare a ground water management plan defining a ground water reservoir life goal, and specifying how proposed ground water controls will accomplish the reservoir life goal before designating a GMA.[242] Controls identified in the plan may be (but are not required to be) implemented to accomplish the NRD's aquifer life goal after the plan has been reviewed by the NDWR, a public hearing, and GMA designation by the NRD.[243] GMA controls include allocation "of the total permissible

235. *See* J. David Aiken & Raymond J. Supalla, *Ground Water Mining and Western Water Rights Law: The Nebraska Experience*, 24 S.D. L. REV. 607, 620 (1979) (regarding the political background of Nebraska's "local control" approach to ground water management).

236. Aiken, 59 NEB. L. REV. at 960-67.

237. NEB. REV. STAT. § 46-658 (Cum. Supp. 1992).

238. NEB. REV. STAT. § 46-666 (Reissue 1988). *See* Aiken & Supalla, 245 S.D. L. REV. at 629-40 (discussing how these controls may be implemented).

239. Three NRD ground water control area designation requests were denied by the NDWR. *See* Aiken, 59 NEB. L. REV. at 962-63, 965-67.

240. NEB. REV. STAT. § 46-673.01 *et seq.* (Reissue 1988 & Supp. 1992).

241. *Id.* § 46-673.01(8).

242. *Id.* § 46-6731.1. In 1984, NRDs were required to prepare ground water management plans by January 1, 1986. *Id.* NRDs in which ground water control or mangement areas had already been designated were exempted from preparing a management plan for the area within the NRD included in the control area or management area. *Id. See* Aiken, *New Direction in Nebraska Water Policy*, 66 NEB. L. REV. 8, 65-66, 74-75 (1987); NEB. REV. STAT. § 46-657(13) (Cum. Supp. 1992). Ground water aquifer life goal is "the finite or infinite period of time which a district establishes as its goal for maintenance of the supply and quality of water in a ground water reservoir at the time a ground water management plan is adopted." *Id.* § 46-657(13). Originally, the term was limited to the quantity of the ground water supply (*i.e.*, the number of years for which ground water would be available). Subsequently, the definition was amended to include quality as well. *See id.* § 46-657(13).

243. After the plan has been prepared, it is reviewed by the NDWR to determine (1) whether the best available studies, data, and information were utilized and consid-

withdrawal of ground water" consistent with the reservoir life goal, rotation of use, well spacing, metering requirements, mandatory best management practices, and education programs designed to protect water quality.[244] GMA regulations are enforced by the NRD.[245] The GMA program is financed by a special GMA property tax.[246]

As widespread ground water contamination became more of a public concern, some NRDs looked to ground water management areas as a method for dealing with ground water contamination as well as ground water depletion. Thus, the QMA concept was born.[247] NRDs may regulate agrichemicals causing or likely to cause pollution in QMAs after preparation of a ground water management plan. The proposed QMA regulations must be a part of the plan.[248] Two NRDs restrict fall fertilizer application in QMAs.[249] The first QMA regulations were established by the Central Platte NRD. In its QMA, the Central Platte NRD restricted commercial fertilizer use and encouraged producer adoption of fertilizer BMPs to slow nitrate pollution of ground water supplies. The Central Platte NRD regulations

---

ered; (2) whether the plan is supported by such information; and (3) whether the plan is a reasonable application of such information. *Id.* § 46-673.03. If the primary purpose of the proposed management area is ground water quality protection, the NDWR must consult with the DEQ regarding approving or denying the management plan. *Id.* If the DWR disapproves the management plan, the NRD must submit a revised plan, or resubmit the original plan. *Id.* § 46-673.04. In either case, the NRD must include with the plan a discussion of the how concerns raised by the NDWR are addressed in the original or revised management plan. After an NRD with a disapproved plan has submitted its explanation to the NDWR, it may proceed to schedule a public hearing if it wishes to designate a management area. *Id.* § 46-673.05.

244. Any well-spacing regulations must include a variance provision to ensure that landowners are not denied the opportunity for ground water use. NEB. REV. STAT. § 46-673.12 (Reissue 1988). Best management practices are defined as "schedules of activities . . . utilized to prevent or reduce present and future contamination of ground water which may include irrigation scheduling, proper timing of fertilizer and pesticide application, and other fertilizer and pesticide management programs." NEB. REV. STAT. § 46-657(18) (Cum. Supp. 1992).

245. NEB. REV. STAT. § 46-663(5) (Reissue 1988). NRDs are authorized to issue cease and desist orders for violating GMA regulations. Violation of an NRD order is a class IV misdemeanor ($100-$500 fine upon conviction). *Id.* § 46-663.02; NEB. REV. STAT. § 28-106(1) (Reissue 1989).

246. *Id.* § 46-673. NRDs are authorized to levy up to $0.018 per $100 actual value on all taxable property within a GMA for GMA administration. This may be supplemented by the general NRD mill levy of $0.045 per $100 actual value, which can be increased by popular vote. NEB. REV. STAT. § 2-3225(1) (Reissue 1991).

247. Although there is no official distinction between GMAs generally and QMAs, and no official reference to QMAs per se, the QMA concept is implicitly recognized in NEB. REV. STAT. § 46-674.07(1), referring to "management areas, the primary purpose of which is protection of ground water quality." *Id.*

248. NEB. REV. STAT. § 46-674.14 (Cum. Supp. 1992). NRDs must revise their ground water management plans to deal with ground water quality by July 1, 1993. *Id.*

249. NEB. REV. STAT. § 46-674.01 *et seq.* (1988 & Supp. 1992). *See* R. B. Ferguson & M. Moravek, *Groundwater Quality Management in Nebraska's Central Platte Valley*, 45 J. SOIL & WATER CONSERVATION 265, 265-66 (1990).

are the first in Nebraska (and perhaps nationally) to deal with ground water pollution from commercial fertilizer use, and have established a pattern for future QMA and SPA fertilizer use regulations.

The purpose of fertilizer BMPs is to (1) encourage producers to set realistic yield goals, (2) test soil and water for nitrate levels, and (3) use the nitrate test results to reduce the amount of commercial fertilizer applied by taking credit for the fertilizer already available in soil and irrigation water. Implementing these BMPs reduces fertilizer costs and also reduces nitrate pollution of ground water. These BMPs are the basis of the Central Platte NRD nitrogen use restrictions.

The Central Platte NRD is located in the intensively irrigated central reach of the Platte River Valley. Soil and water tests from test plots in the high-nitrate areas of the NRD indicate that an average of ninety-nine to one hundred sixty-six pounds of nitrate-nitrogen per acre are already available from soil and irrigation water, approximately 40% to 60% of the commercial fertilizer needed to grow corn.

The Central Platte NRD agrichemical regulations vary depending on the severity of nitrate pollution. In Phase I areas (average nitrate-nitrogen levels from 0 (zero) to 12.5 ppm), application of commercial fertilizers is prohibited on sandy soils before March 1 of each year.[250] Farmers also are encouraged to test soil and irrigation water for nitrogen levels to make better fertilizer use decisions. All of the NRD not located in a Phase II area is in a Phase I area; thus, the Phase I regulations apply within the entire Central Platte NRD.

In Phase II areas (average nitrate-nitrogen levels from 12.6 ppm to 20 ppm), application of commercial fertilizers is prohibited on sandy soils before March 1 of each year.[251] Application on heavier soils after November 1 of each year is allowed only if an approved nitrogen inhibitor also is used. In addition, farmers must attend irrigation and fertilizer management training courses, and receive nitrogen management certification. Finally, in Phase II areas, soil and irrigation water must be tested annually for nitrate-nitrogen content.[252] Presumably, if farmers are setting unrealistic yield goals and overfertilizing as a result, or do not take credit for the nitrogen already

250. *Id.* at 266.

251. *Id.*

252. The farmer must report annually on (1) the water nitrate level test results for each irrigation well, (2) the soil testing results for each 40-acre tract, (3) the crop to be grown and the farmer's yield goal, (4) the NRD's commercial fertilizer use recommendation to accomplish the farmer's yield goal, (5) the actual commercial fertilizer applied, and (6) the actual yield achieved.

available in the soil and irrigation, the reporting requirements will make this clear to the farmer and the NRD.

In Phase III areas (average nitrate-nitrogen levels exceed 20.1 ppm), commercial fertilizer application on all soils before March 1 of each year will be banned.[253] Spring applications of commercial fertilizer must be split (preplant and sidedress) application, or must be applied with an approved inhibitor if more than 50% is applied preplant. All other Phase II regulations apply.

The Central Platte NRD QMA program is an important innovation for which the Central Platte NRD deserves commendation. The Central Platte NRD is establishing an important precedent for the rest of Nebraska, and the country. More stringent regulations, however, may ultimately be required to control ground water contamination from commercial fertilizer use. These regulations could include lower nitrate levels in ground water to trigger fertilizer use restrictions and direct regulation of the amount of nitrogen applied.

2. *Special Ground Water Quality Protection Areas*

Legislation authorizing regulation of agricultural chemical use to prevent ground water pollution in problem areas (apart from GMA legislation) had been introduced since 1981, but never advanced beyond a committee hearing. In 1986, however, an initiative petition campaign was begun to establish constitutional ground water protection requirements.[254] Political concerns raised by the initiative petition, in addition to widespread public concern regarding nitrate ground water pollution, led to the enactment of SPA legislation in 1986.[255]

SPAs may be designated by the DEQ.[256] It is significant to note that the DEQ may initiate SPA proceedings unilaterally, a significant

253. *Id.*

254. The text of the "clean water amendment" is found in J. David Aiken, Nebraska Water Law Update No. 77, at 1-2 (Univ. of Neb. Dep't of Agric. Econ., Jan. 10, 1986).

255. NEB. REV. STAT. § 46-674.04 *et seq.* (Reissue 1988). *See* Richard L. Erhman et al., *Special Protection Areas: A New Nonpoint-Source Management Option in Nebraska*, 45 J. SOIL & WATER CONSERVATION 263, 263 (1990); J. David Aiken, *Implementation Issues in Special Groundwater Quality Protection Areas*, 45 J. SOIL & WATER CONSERVATION 264, 264-65 (1990).

256. NEB. REV. STAT. § 46-674.03 (Reissue 1988). The DEQ first must hold a public hearing in the area considered for SPA designation. NEB. REV. STAT. § 46-674.06 (Cum. Supp. 1992). If the DEQ determines that an SPA should not be designated, the DEQ must issue an order to that effect. *Id.* § 46-674.07(2). The DEQ must prepare a report specifying the reasons for establishing the SPA, fully disclosing all possible causes of contamination. *Id.* § 46-674.07(3). The DEQ first must conduct a study to determine whether contamination is occurring or likely. If the DEQ determines that a SPA should be designated, it may designate an SPA after a public hearing. *Id.* § 46-674.06.

break from the traditional local control philosophy of Nebraska ground water management.[257] SPAs may be designated if nonpoint ground water contamination from agrichemical use is occurring or is reasonably foreseeable.[258] The DEQ also may require a NRD to establish new regulations in a QMA, presumably if the DEQ deter-

257. *Id.* § 46-674.04. This is in sharp contrast to ground water depletion law, where the DWR must wait for an NRD request to designate a ground water control area; the DWR cannot designate control area on its own motion despite apparent depletion of ground water supplies. Indeed, several areas of Nebraska are experiencing significant ground water depletion, but local NRDs refuse to act, and the DWR is powerless to do so. *See supra* notes 209-10 and accompanying text.

There are some vestiges of an NRD request prerequisite to DEQ initiating SPA proceedings. Section 46-674.03 requires state agencies and political subdivisions (including NRDs) to report information regarding ground water contamination to the DEQ. Section 46-674.04, however, makes it clear that the DEQ can initiate SPA proceedings based on § 46-674.03 information, on the DEQ's own studies, or on other information. Thus, the DEQ clearly has a stronger hand in initiating SPA proceedings than the DWR has in initiating control area proceedings. This may be the primary reason why NRDs have been more aggressive with QMAs than they have with GMAs: the DEQ can establish SPAs if NRDs do not first establish QMAs, but DWR cannot establish a control area if NRDs do not first establish a GMA.

258. If the study indicates that one or more of the contamination sources is a point source of pollution as defined in § 46-657(20), the DEQ must pursue cleanup under chapter 81, article 15 to control ground water contamination. NEB. REV. STAT. § 46-674.05 (Reissue 1988). If the contamination source is not a point source, the DEQ may designate a SPA. NEB. REV. STAT. § 46-674.06 (Cum. Supp. 1992). Point source is defined as

> any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, vessel, other floating craft, or other conveyance, over which the Department of Environmental Control has regulatory authority and from which a substance which can cause or contribute to contamination of ground water is or may be discharged.

Id. § 46-657(20).

The term non-point source is not defined (or even used). Regarding activities causing contamination § 46-674.02(1) states that "[t]he levels of nitrate nitrogen and other contaminants in ground water in certain areas of the state are increasing." *Id.* § 46-674.02(1). Nitrate nitrogen is Nebraska's principal source of commercial agricultural fertilizer. This intent statement, in conjunction with the mention in § 46-674.02(3) of agriculture's economic importance to Nebraska, is a tacit legislative recognition that a primary source of nonpoint ground water contamination, if not the primary source, is agrichemical use in production agriculture. In addition, § 46-674.18 provides another indication of activities intended to be regulated in SPAs. NRDS must, if appropriate, provide landowners or irrigation system operators with current information regarding fertilizer and chemical use relative to local soils and cropping patterns. In evaluating SPA designation, the DEQ's considerations must include: (1) whether ground water contamination had occurred or was likely to occur in the reasonably foreseeable future; (2) whether ground water users, including but not limited to domestic, municipal, industrial, and agricultural users, are experiencing or will experience in the reasonably foreseeable future substantial economic hardships as a direct result of current or reasonably anticipated activities which cause or contribute to ground water contamination; (3) whether methods are available to stabilize or reduce the level of ground water contamination; and (4) administrative factors directly affecting the ability to implement SPA regulations. *Id.* § 46-674.07(1).

mines that existing QMA regulations are ineffective.[259]

Section 46-674.02(2) establishes the two general objectives for SPA regulation as prevention of ground water contamination and reduction of contamination levels. Thus, two different types of SPAs are possible: a "prevention" SPA, the objective of which is to protect currently high ground water quality from activities likely to result in contamination, and a "restoration" SPA, the objective of which is to improve existing ground water quality to eliminate health hazards.[260]

Upon SPA designation, the local NRD (or NRDs) must prepare for DEQ approval an "action plan" containing proposed regulations to stabilize, reduce, or prevent contamination.[261] Action plans must include the specifics of an NRD educational program to inform persons of methods available to stabilize, reduce, or prevent contamination.[262] Action plans also must include at least one of the following: (1) mandatory water user participation in educational programs, (2) mandatory BMPs, or (3) other reasonable requirements.[263] BMPs include scheduling of irrigation, timing of pesticide and fertilizer application, and other programs to manage fertilizer and pesticide.[264]

The action plan must be implemented by the NRD if approved by the DEQ.[265] The DEQ must establish and enforce SPA regulations (1) if the NRD did not develop an action plan within 180 days of SPA designation, (2) if the NRD fails to submit a revised action plan within sixty days of a DEQ order of disapproval, or (3) if the NRD submits a revised action plan which the DEQ does not approve.[266] There is no statutory provision for allowing an NRD to subsequently assume SPA regulation with DEQ approval once the DEQ assumes SPA regulatory authority. There is also no provision authorizing the

259. *Id.* § 46-674.07.

260. *Id.* § 46-674.02(2). The DEQ SPA regulations establish a priority system for determining which areas will be studied first for possible SPA designation. The priority system is based on the area's affected population, pollution potential, existing ground water quality, and availability of alternative potable ground water supplies. NEB. ADMIN. R. & REGS. ch. 196 app. A (1988). This suggests that the areas initially considered for SPA designation will be those where existing ground water quality is not good, other factors being equal. Thus, the best opportunity, at least in the short run, to protect high quality ground water will be through QMAs rather than through SPAs.

261. NEB. REV. STAT. § 46-674.08(1) (Cum. Supp. 1992). If the SPA includes areas from more than one NRD, the action plan must be prepared jointly and uniformly by agreement of the respective boards of all affected NRDs.

262. *Id.* § 46-674.09.

263. *Id.* § 46-674.09(1)-(3).

264. *Id.* § 46-657(18).

265. NEB. REV. STAT. § 46-674.13 (Reissue 1988). If the DEQ director disapproves the action plan, the order must list the reasons therefore. NEB. REV. STAT. § 46-674.10(4) (Cum. Supp. 1992). NRDs have 60 days after action plan disapproval within which to submit a revised plan. *Id.*

266. *Id.* § 46-674.12(1)(a)-(c).

DEQ to review NRD SPA administration or to assume administration of an improperly administered SPA program.[267] SPA regulations are enforced by the NRD.[268]

In addition to SPA action plan implementation, the NRD must establish in cooperation with the DEQ a SPA ground water quality monitoring program.[269] NRDs can levy a property tax of up to five cents per $100 actual value on taxable property within the entire NRD for SPA program administration.[270] The SPA statutes provide no source of program financing for DEQ administration of an SPA.

Once the DEQ has approved or disapproved an NRD action plan, the DEQ has no statutory authority to oversee NRD SPA program administration. This is a significant limitation, which should be rectified through amendments allowing the DEQ (1) to review an NRD's progress in SPA action plan implementation, (2) to require SPA action plan amendments if necessary to control contamination, and (3) to assume SPA administration if an NRD is not properly administering its action plan. Some provision also should be made to fund DEQ administration of a local SPA program if such administration becomes necessary. Such changes may be needed to develop an effective SMP.

Innovative NRD regulations with a strong contamination prevention orientation have been adopted in Nebraska's first SPA. The DEQ designated Nebraska's first SPA in southern Nuckolls County, Nebraska, in February, 1991, to deal with nitrate contamination.[271]

---

267. *See* NEB. REV. STAT. §§ 46-1144 to -1145 (Reissue 1988) (providing for DEQ review and administration of improperly administered NRD chemigation programs).

268. *Id.* § 46-674.14. Any person violating a SPA regulation is either (1) subject to a civil penalty of up to $500 per day of violation or (2) guilty upon conviction of a class III misdemeanor (up to three months of imprisonment, fine of up to $500, or both per day of violation). *Id.*

269. NEB. REV. STAT. § 46-674.18 (Cum. Supp. 1992).

270. *Id.* § 46-674.19. Formerly, § 46-674.19 authorized a two cents per $100 actual value mill levy within the SPA only. This provision was changed in 1992 because of concerns that a SPA would be designated by the DEQ to protect the Beatrice, Nebraska, wellfield, but that the city itself would not be included within the SPA, and thus would not be required to pay the SPA mill levy. Farmers (and legislators) thought that if the city would be obtaining the benefit of SPA designation, the city also should share in the cost of SPA program administration. This provision also may lead to SPAs being designated within an entire NRD rather than only where contamination is presently occurring.

271. The SPA includes land in the Lower Republican NRD (67.5%) and Little Blue, Nebraska, NRD (32.5%), including the communities of Hardy, Nebraska, and Superior, Nebraska. The nitrate readings in the Hardy area range from eight to ten parts per million (ppm), and five to six ppm in the Superior area. (The EPA drinking water limit for nitrates is 10 ppm.) The southern part of Nuckolls County, Nebraska, is irrigated, although the rest of the county consists of rangeland and dryland small grain production. Lower Republican NRD & Little Blue NRD, Superior-Hardy Special Protection Area Action Plan 6-10 (study conducted by the Lower Republican NRD and the Little Blue NRD, Nov. 9, 1991) [hereinafter Superior-Hardy SPA Plan].

The SPA action plan was approved by the DEQ February 13, 1990.[272] The action plan's primary goal was to reduce average nitrate contamination levels to 6 ppm, 60% of the EPA drinking water standard.[273] The SPA regulations have three phases. Phase I regulations are scheduled to be implemented in years 1991-95, with phase II regulations implemented in 1996-99, and phase III implemented beginning in 2000.

Phase I controls include: (1) mandatory nitrogen and irrigation BMP training certification, (2) annual soil samples for each operator's "demonstration field" (*i.e.*, the operator's largest row crop field) prior to crop fertilization, (3) limiting fertilizer application to the University of Nebraska-Lincoln recommendation for the demonstration field (taking soil nitrogen analysis into account), (4) prohibiting fall and winter commercial fertilizer applications prior to March 1 on demonstration fields, (5) irrigation scheduling on demonstration field, and (6) annual demonstration field reports.[274] Phase II regulations are scheduled to be implemented January 1, 1996, to January 1, 2000. However, if average SPA nitrate levels reach 12 ppm, phase II regulations may be implemented as early as January 1, 1994. In phase II, all phase I controls are extended to all row crop fields.[275]

If the SPA goal of 6 ppm average nitrate levels has not been reached by year 2000, phase III regulations will be implemented January 1, 2000. If average SPA nitrate levels reach 18 ppm, phase III controls could be implemented as early as January 1, 1996. Phase III controls may include all phase I and II controls, split fertilizer applications, and testing irrigation wells for nitrate content and using test results in determining fertilizer application.[276]

The SPA regulations of Hardy, Nebraska, and Superior, Nebraska, contain a significant prevention orientation. Fairly intensive BMPs (including irrigation scheduling and fertilizer application limits) are required in the initial phases of the SPA program, but are required on one field only. This makes adoption of new practices more manageable for operators. In addition, intensive BMPs are required

272. Nebraska Dep't of Envtl. Control, Superior, Nebraska, SPA Designation Order (Feb. 13, 1990).

273. Superior-Hardy SPA Plan, *supra* note 271, at 33.

274. *Id.* at 33-36. The reports must include (1) soil test results, (2) nitrogen credits, (3) crop grown, (4) yield goal, (5) UNL fertilizer recommendations, (6) fertilizer applied, (7) irrigation scheduling method used, and (8) the beginning and ending water meter reading (if using a metered irrigation well). *Id.* at 36.

275. *Id.* at 38.

276. *Id.* at 39-40. Additional phase III controls may include (1) installing irrigation well meters and surface water flow measuring devices, (2) limiting irrigation water application, and (3) land leveling or alternate irrigation management practices for surface (*i.e.*, gravity) irrigated fields. *Id.* at 40.

regardless of nitrate levels so they may help prevent contamination levels from exceeding drinking water levels. The Central Platte NRD, for example, has implemented a philosophy of adopting more stringent controls as only contamination worsens. The Hardy-Superior approach will do a better job of preventing contamination. The Lower Republican and Little Blue NRDs deserve commendations for developing the innovative Hardy-Superior SPA water quality action plan.

III. NEBRASKA FIFRA ASSUMPTION

Assumption of state FIFRA in Nebraska has been an interesting political chapter in the history of ground water protection policy development. Nebraska is the only state not administering the FIFRA user certification and enforcement program, principally because Nebraska pesticide user certification statutes do not authorize the NDA to revoke certification for pesticide misuse or to enforce pesticide label requirements. This part of the Article examines the EPA state FIFRA assumption program requirements, analyzes how close current economic poison statutes come to meeting FIFRA program requirements, briefly recounts some of the history of FIFRA nonassumption efforts, analyzes the latest unsuccessful FIFRA assumption bill — L.B. 345 — as meeting FIFRA program assumption requirements, surveys FIFRA program assumption issues, and reviews FIFRA assumption legislation in neighboring states as potential guides to Nebraska FIFRA assumption.

A. FIFRA ASSUMPTION REQUIREMENTS

The EPA requirements for states to assume administration of the pesticide user certification program are relatively modest: they only require states to implement user certification programs that meet EPA certification standards and to revoke certification for pesticide misuse as well as other FIFRA violations.[277] Significantly, the EPA FIFRA assumption requirements do not require ground water protection or drinking water protection program elements, although some states have broadened their pesticide programs to include mini-SDWA elements.[278] Nebraska economic poison statutes do not require pesticide application in accordance with label directions, nor do pesticide user certification statutes.[279] As a consequence, the EPA is required to certify Nebraska pesticide applicators.[280] To do this, the

277. 40 C.F.R. § 171.7(a), (b)(1)(iii), (e) (1992).
278. *See supra* notes 114-79 and accompanying text.
279. *See supra* notes 218-28 and accompanying text.
280. 7 U.S.C.A. § 136i(a)(1) (West Supp. 1992).

EPA has been required to contract with University of Nebraska Cooperative Extension to conduct user certification training for the EPA at EPA expense.

B. L.B. 349: STATE FIFRA ASSUMPTION LEGISLATION

Legislation to authorize state assumption of the FIFRA user certification and enforcement program has been introduced in Nebraska since 1976.[281] Legislative Bill 349 ("L.B. 349") would have given the NDA primary authority for implementing the bill. However, in enforcement of water quality requirements, the NDA would be required to cooperate with NRDs, NDH, DEQ, or DWR.[282] How this cooperation would occur was not spelled out in the bill. The NDA would be authorized to designate state restricted use pesticides (which would trigger applicator certification requirements).[283] In addition, the NDA would be authorized to suspend certification for pesticide misuse, restricted use pesticide sale violations (to uncertified applicators), pesticide recordkeeping violations, or other FIFRA violations.[284] This latter authority would authorize Nebraska to assume FIFRA administration.

L.B. 349 was a bare-bones FIFRA assumption bill, attempting to do the absolute minimum to qualify for state FIFRA administration. The bill had no direct ground water quality provisions, although the section 4 authority to designate state restricted use pesticides would authorize the NDA to designate leachers as restricted use pesticides. This would trigger the section 2-2620 pesticide use training and certification requirements.[285] If certification training included pesticide BMPs to avoid or minimize leaching, state restricted use pesticide designation would be a ground water protection tool. Beyond this, L.B. 349 had no direct references to SMP preparation, let alone SMP implementation. Similarly, L.B. 349 had no SDWA provisions regarding establishing state pesticide MCLs as is authorized in several states. L.B. 349 sponsor Senator Rod Johnson apparently intended to defer debates regarding who should develop and implement SMPs until basic FIFRA assumption authorities had been granted. Given the inability to enact FIFRA assumption legislation similar to L.B.

281. *Hearing on L.B. 349 Before the Comm. on Agric.*, Neb. Unicameral, 92nd Leg., 1st Sess. 91. (Feb. 26, 1991) [hereinafter *Hearing on L.B. 349*] (statement of Jerry Keown, Nebraska State Pest Control Ass'n); *id.* at 96 (statement of Rob Thompson, Nebraska Fertilizer and Ag-Chemical Institute). A review of prior FIFRA proposals is beyond the scope of this Article.

282. L.B. 349, Neb. Unicameral, 92d Leg., 1st Sess. § 3 (1991) [hereinafter L.B. 349].

283. *Id.* § 4.

284. *Id.* §§ 7, 13.

285. 7 U.S.C.A. § 1361(a)(1)-(2) (West Supp. 1992).

349 in the past, this political strategy seemed pragmatic, although SMP development and implementation must ultimately be dealt with.

The L.B. 349 committee hearing contained few surprises. The L.B. 349 sponsor, Senator Rod Johnson, acknowledged Nebraska's unique status as the only state not assuming FIFRA, and that L.B. 349 sought to remedy that.[286] Senator Johnson also acknowledged the two primary criticisms of state FIFRA assumption: (1) the EPA is already implementing and funding the program, so why should the state assume program costs already borne by the EPA; and (2) if the state assumes FIFRA, it would be funded by user fees rather than from the General Fund.[287] Senator Johnson stated that an important reason for state FIFRA assumption would be to prevent the EPA from banning pesticides found in Nebraska ground water.[288] Senator Johnson also referred to pesticide misuse concerns, and the EPA's lack of enforcement capacity.[289] L.B. 349 was supported by NRDs, the Nebraska Weed Control Association, the Nebraska Farm Bureau, and the Nebraska Honey Producers Association, as well as private individuals.[290] L.B. 349 was opposed by Senator Loran Schmit, who noted several reasons for opposing state FIFRA assumption, including no EPA guarantee of continued program funding, the likelihood that L.B. 349 would ultimately be funded by a pesticide user fee rather than from general tax revenues, satisfaction with current EPA enforcement efforts, and concern that state enforcement responsibilities would ultimately be transferred from NDA to DEQ or NDH.[291] L.B. 349 also was opposed by the Nebraska State Pest Control Association, the Nebraska Fertilizer and Ag-Chemical Institute, and the

286. *Hearing on L.B. 349*, *supra* note 281, at 32 (statement of Sen. Rod Johnson).

287. *Id.* at 33-34.

288. *Id.* at 36.

289. *Id.* at 39-40. In a later FIFRA assumption hearing, NDA Director Larry Sitzman acknowledged that NDA would need 11 full-time employees to administer L.B. 349. *Hearing on L.R. 108 Before the Comm. on Agric.*, Neb. Unicameral, 92d leg., 1st Sess. 25 (Sept. 13, 1991) (statement of Larry Sitzman, Director, Nebraska Dep't of Agriculture). The EPA has two full-time inspectors and two other employees who fill in as needed. Telephone Interview with Mike Walkowiak, Pesticides Program & Development Program, U.S. EPA, Lincoln, Neb., Oct. 26, 1992. One suspects that one reason state FIFRA assumption opponents prefer EPA enforcement is the reduced level of enforcement EPA can afford to provide.

290. *Hearing on L.B. 349*, *supra* note 281, at 45 (statement of Gordon Kissel, Nebraska Association of Resource Districts). Kissel's testimony referred to concerns regarding pesticide contamination of Lincoln and Omaha Platte River wellfields from upstream pesticide use. *Id.* at 47-48 (statement of Russ Shultz, Nebraska Weed Control Association); *id.* at 54 (statement of Milton Rogers, Nebraska Farm Bureau Federation); *id.* at 59 (statement of Chris Baldwin, Nebraska Honey Producers Ass'n); *id.* at 62 (statement of Len Schropfer).

291. *Id.* at 72-78, 82-83 (statement of Sen. Loran Schmit).

Nebraska Aviation Trade Association.[292]

The political prospects of L.B. 349 improved considerably when Ciba-Geigy representatives, the manufacturer of atrazine, testified in a subsequent hearing that the company would not distribute atrazine in Nebraska if atrazine were subject to a national SMP label requirement, and Nebraska did not have an approved SMP.[293] This statement did much to interest some agricultural groups to support L.B. 349. Apparently these groups were willing to call the EPA's bluff on an atrazine ban if Nebraska did not assume FIFRA and prepare a SMP but the groups were not willing to challenge Ciba-Geigy. As a result, the Agricultural Committee reported L.B. 349 to General File with committee amendments. The amendments would have increased the pesticide registration fee from $40 to $50 with the $15 increase earmarked for program administration. NDA would involve state agencies in developing and implementing a SMP.[294] Political subdivisions would be preempted from adopting pesticide ordinances.[295] The amended bill would not, however, take effect until the NDA had received FIFRA delegation from the EPA, and the EPA had approved the SMP.[296] Even with these committee amendments, L.B. 349 was never advanced from General File.

The L.B. 349 committee amendments evidenced only a conditional intent to assume FIFRA administration if the EPA approved the SMP. However, the NDA lacks statutory authority, absent an unconditional L.B. 349 or similar legislation, to prepare a SMP. The DEQ, through its broad water quality protection responsibilities,

---

292. *See id.* at 90 (statement of Jerry Keown, Nebraska State Pest Control Association). The Pest Control Association's concerns included (1) that the State will simply be administering EPA regulations, so why switch and (2) that the EPA will stop funding state FIFRA programs because of federal budget constraints. *Id.* at 91-93. The Ag-Chemical Institute's primary concern was why take over a federal program that is working well and is paid for federally (statement of Rob Thompson, Nebraska Fertilizer and Ag-Chemical Institute).

293. *Hearing on FIFRA Assumption Before the Comm. on Agric.*, Neb. Unicameral, 92nd Leg., 1st Sess. 50-54 (Dec. 16, 1992) (statement of Charles Rock, Ciba-Geigy).

294. The Committee statement interestingly adds:

> The bill designates the Department of Agriculture the lead agency, for administration of FIFRA. The bill further stipulates, however, that the department shall involve other state agencies and governmental entities in the development and implementation of a ground water quality management plan [SMP]. The intent here is to avoid duplication of costs, staffing and effort, and for [the Department of] Agriculture to defer to agencies having expertise and experience in enforcement of water quality issues.

L.B. 349 Agriculture Committee Statement 1-2. Apparently, the committee's intent was that the NDA would administer the FIFRA user certification and label enforcement program, but that the DEQ and perhaps NRDs would implement any ground water quality regulations. That intent, however, is not completely realized in the committee amendments.

295. *Id.* § 18.

296. *Id.* § 19.

probably has existing statutory authority to develop a SMP, but probably would require additional legislation to implement a SMP beyond L.B. 349, as would the NDA.[297]

There are two primary issues which have helped prevent state FIFRA assumption in Nebraska: (1) disagreement regarding whether the program would be administered by the NDA, the DEQ, or cooperatively; and (2) whether the program should be funded from general tax revenues or from a pesticide excise tax. Additional issues include how a state FIFRA program should address ground water quality protection, and how it should be meshed into the existing QMA and SPA programs. Before considering these issues, we will briefly survey how FIFRA programs are administered in the states bordering Nebraska.

C. FIFRA ASSUMPTION IN NEIGHBORING STATES

Some of Nebraska's neighbors have used their state FIFRA program to accomplish ground water quality objectives in ways that anticipate the EPA Pesticides Strategy. A common method is establishing special state restrictions on pesticide use more stringent than the EPA restrictions by designating general use pesticides as state restricted use pesticides. A similar method is authorizing state pesticide use restrictions either in designated problem areas or statewide. Some states also have increased fees on pesticide registration, user licensing, and dealer registration to fund ground water quality programs. Anticipation of similar fees under Nebraska FIFRA assumption may account for much of the pesticide dealer opposition.

1. Program Administration

In all six states bordering Nebraska, the state FIFRA programs are administered by the states' departments of agriculture.[298] Those departments also administer agrichemical regulations in states authorizing special agrichemical use regulations in designated problem areas.

2. Pesticide Registration

In all six states, pesticides must be registered with the states.[299]

297. NEB. REV. STAT. § 81-1504(2)-(3), (5)-(7)(a), (20) (Supp. 1992).

298. COLO. REV. STAT. § 35-9-105 (Supp. 1991); IOWA CODE ANN. § 206.12(1) (West 1987); KAN. STAT. ANN. §§ 2-2202(t) to -2204(a) (1991); MO. ANN. STAT. § 263.270(9), .300(1) (Vernon Supp. 1992); S.D CODIFIED LAWS ANN. § 38-20A-4 (1985); WYO. STAT. § 35-7-351 (1988).

299. COLO. REV. STAT. § 35-9-104 (Supp. 1991); IOWA CODE ANN. § 206.12 (Supp. 1992); KAN. STAT. ANN. § 2-2204(a) (1991); MO. ANN. STAT. § 263.300 (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-20A-4 (1985); WYO. STAT. ANN. § 35-7-356(a) (1988).

Only in Colorado, however, may information be requested regarding the environmental effects of the pesticide's proposed use.[300] Pesticide registration fees vary widely, from $5 to $3000 per year. In Colorado, registration fees are established administratively, but $20 goes to the ground water protection fund.[301] In Iowa, the manufacturer's registration fee is .002% of gross sales with a $250 minimum and a $3000 maximum. Fifty dollars is used for program administration, and the remainder is credited to the State's ground water protection fund.[302] In Kansas, registration fees may not exceed $130, of which $100 goes to the state water plan fund.[303] In Missouri, the annual registration fee is $15.[304] South Dakota has a $100 pesticide registration fee, of which $25 is deposited to a ground water fund.[305] An additional registration fee of up to $100 may be imposed to establish a waste pesticide collection, disposal, and container recycling program.[306] Wyoming's registration fee is $5.[307]

In all six states, pesticides may be designated as state restricted use pesticides, which triggers private applicator training requirements.[308] In Colorado, Iowa, Missouri, South Dakota, and Wyoming, state restrictions may be imposed on pesticide application and use independent of problem area control authorities.[309] Kansas, as noted below, authorizes state pesticide restrictions in designated areas. Thus, all six states are authorized to regulate pesticide use beyond label use restrictions to control ground water contamination.

3. Dealer Licensing

Dealer licensing is required in Colorado, Iowa, Kansas, Missouri, and South Dakota.[310] Annual dealer licensing fees are as follows:

---

300. COLO. REV. STAT. § 35-9-108(4)(b) (Supp. 1991).
301. *Id.* § 35-9-118(3)(a).
302. IOWA CODE ANN. § 206.12(3) (Supp. 1992).
303. KAN. STAT. ANN. § 2-2204(c) (1991).
304. MO. ANN. STAT. § 263.300(3) (Vernon Supp. 1992).
305. S.D. CODIFIED LAWS § 39-20A-9 (Supp. 1992). The $25 ground water protection is for five years. *Id.*
306. *Id.* § 38-20A-54(1). This special registration fee may be imposed until June 30, 1997. *Id.*
307. WYO. STAT. ANN. § 35-7-356(d) (1988).
308. COLO. REV. STAT. §§ 35-9-108(5), -118(2)(c) (Supp. 1991); IOWA CODE ANN. § 206.20 (Supp. 1992); KAN. STAT. ANN. § 2-2467a(a) (1991); MO. ANN. STAT. § 281.025(2) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-39 (Supp. 1992); WYO. STAT. ANN. § 35-7-355 (1988).
309. COLO. REV. STAT. §§ 35-9-108(5), -118(c)(I) (Cum. Supp. 1991); IOWA CODE ANN. § 206.19(2) (Cum. Supp. 1992); MO. ANN. STAT. § 281.025(1) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-39, -51(10) (Cum. Supp. 1992).
310. COLO. REV. STAT. § 35-9-115(2) (Cum. Supp. 1991); IOWA CODE ANN. § 206.8(1) (1987); KAN. STAT. ANN. § 2-2469(a) (1991); MO. ANN. STAT. § 281.050(1) (Vernon Cum. Supp. 1992); S.D. CODIFIED LAWS § 38-21.33.1 (Cum. Supp. 1992).

Colorado as administratively determined; South Dakota, $50; Kansas, $15; Missouri, $25; and South Dakota, $50.[311] In Iowa, the dealer license fee is .001% of gross sales with a $25 minimum. The first $25 collected is used for program administration, and the remainder is credited to the state's ground water protection fund.[312]

4. Applicator Certification

Commercial applicators must be certified in all states.[313] Private applicators must be certified in all states except Colorado.[314] In all states except Wyoming, pesticide misuse is an explicit ground for certification revocation.[315] Colorado, Iowa, Kansas, and Missouri require commercial applicators to carry liability insurance or be bonded.[316]

Certification fees vary considerably. In some states, fees are administratively determined. In Colorado, commercial applicator licensing fees may not exceed $350.[317] In Iowa, commercial applicator licensing fees may not exceed $25, plus a certification fee of $35 for one year or $75 for three years.[318] In Kansas, the commercial applicator license fee may not exceed $100, the commercial applicator application fee may not exceed $35, the commercial applicator examination fee may not exceed $25, and the private applicator certification fee may not exceed $10.[319] In Missouri, the commercial applicator license fee is $50.[320] In South Dakota, the commercial applicator license fee is $25, and the private applicator fee may not

311. COLO. REV. STAT. § 35-9-115(2) (Cum. Supp. 1991); KAN. STAT. ANN. § 2-2469(a) (1991); MO. ANN. STAT. § 281.050(2) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-33.5 (1985). In South Dakota, if the dealer is also a licensed applicator, the dealer license is $25. *Id.*

312. IOWA CODE ANN. § 206.8(2) (Supp. 1992).

313. COLO. REV. STAT. § 35-10-104(1)(a) (Supp. 1992); IOWA CODE ANN. § 206.6(1) (1987); KAN. STAT. ANN. § 2-2441a (1991); MO. ANN. STAT. § 281.035(1) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 28-21-17 (Supp. 1992); WYO. STAT. ANN. §§ 35-7-355 to -359 (1988).

314. IOWA CODE ANN. § 206.5(3) (Supp. 1992); KAN. STAT. ANN. § 2-2441a(a) (1991); MO. ANN. STAT. § 281.040 (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-23 (Supp. 1992); WYO. STAT. ANN. §§ 35-7-355, -359 (1988); COLO. REV. STAT. § 35-10-106(2)(a) (Supp. 1992). The Colorado applicator certification statute has a 1996 sunset. COLO. REV. STAT. § 35-10-125(6)(a) (Supp. 1992).

315. COLO. REV. STAT. §§ 35-10-117(2)(a), -121(1)(a) (Supp. 1992); IOWA CODE ANN. § 206.11(4)(a) (1987); KAN. STAT. ANN. §§ 2-2449(a), -2453(a), -2454(b) (1991); MO. ANN. STAT. §§ 281.060(1), 281.101(2)(1) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-44(2) (Supp. 1992).

316. COLO. REV. STAT. § 35-10-110 (Supp. 1992); IOWA CODE ANN. § 206.13 (1987); KAN. STAT. ANN. § 2-2448 (1991); MO. ANN. STAT. § 281.065 (Vernon Supp. 1992). South Dakota repealed its commercial applicator bonding requirement. S.D. CODIFIED LAWS § 38-21-19 (repealed 1976).

317. COLO. REV. STAT. §§ 35-10-107(4), -118(3) (Supp. 1992).

318. IOWA CODE ANN. § 206.6(1), (3) (1987).

319. KAN. STAT. ANN. §§ 2-2440(b), -2441a, -2443a, -2445a (1991).

320. MO. ANN. STAT. § 281.035(1) (Vernon Supp. 1992).

exceed $5.[321] Reasonable certification fees may be established in Wyoming.[322]

Several states have established applicator requirements not required by FIFRA. Colorado, Missouri, and South Dakota have provisions requiring advance notice of pesticide application in varying circumstances.[323] Colorado, Kansas, Missouri, South Dakota, and Wyoming have state pesticide storage and handling regulations.[324]

5. Pesticide Use Regulations

In all six states, the states may enforce pesticide label requirements.[325] In Colorado, Iowa, Kansas, Missouri, and South Dakota user certification may be revoked for pesticide misuse.[326] Iowa, Kansas, Missouri, and South Dakota have statutes dealing with pesticide misuse complaints or accidents.[327] Iowa farmers have an affirmative defense to agrichemical contamination of ground water if they follow soil testing results for fertilizer application and follow pesticide label application instructions.[328] In contrast, pesticide application according to all applicable regulations is no defense for alleged pesticide misapplication in South Dakota or Wyoming.[329] Pesticide use may be specially regulated in Colorado, Iowa, and Kansas to control ground water contamination in designated problem areas.[330]

6. Program Financing

While all six states charge a pesticide registration fee, only Colorado, Iowa, and South Dakota specifically earmark part of the fee to

321. S.D. CODIFIED LAWS §§ 38-21-17, -23 (Supp. 1992).

322. WYO. STAT. ANN. § 35-7-355 (1988).

323. COLO. REV. STAT. § 35-10-112 (Supp. 1992); MO. ANN. STAT. § 281.025(1) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-56 (Supp. 1992).

324. COLO. REV. STAT. § 35-9-118(f) (Supp. 1991); KAN. STAT. ANN. §§ 2-1226 to -1231, -2647a(f), -2473(a) (1991); MO. ANN. STAT. § 281.085 (Supp. 1992); S.D. CODIFIED LAWS § 38-21-15 to -15.3 (Supp. 1992); WYO. STAT. ANN. § 35-7-364 (1988).

325. COLO. REV. STAT. § 35-10-116(2)(a) (Supp. 1992); IOWA CODE ANN. §§ 206.11(4)(a), 206.22(2) (1987); KAN. STAT. ANN. §§ 2-2453(a), -2454(b) (1991); MO. ANN. STAT. § 281.101(2)(1) (Supp. 1992); S.D. CODIFIED LAWS § 38-21-44(2) (Supp. 1992); WYO. STAT. ANN. § 35-7-354(a)(iv) (1988).

326. COLO. REV. STAT. §§ 35-10-117(2)(a), -121(1)(a) (Cum. Supp. 1992); IOWA CODE ANN. § 206.11(4)(a) (1987); KAN. STAT. ANN. §§ 2-2449(a), -2453(a), -2454(b) (1991); MO. ANN. STAT. §§ 281.060(1), 281.101(2)(1) (Vernon Supp. 1992); S.D. CODIFIED LAWS § 38-21-44 (Supp. 1992).

327. IOWA CODE ANN. § 206.14 (1987); KAN. STAT. ANN. § 2-2457a (1991); MO. ANN. STAT. § 281.070 (Vernon Cum. Supp. 1992); S.D. CODIFIED LAWS §§ 38-21-16, -46 (Supp. 1992).

328. IOWA CODE ANN. § 455E.6 (1990).

329. S.D. CODIFIED LAWS § 38-21-45 (1985); WYO. STAT. ANN. § 35-7-359 (1988).

330. COLO. REV. STAT. §§ 25-8-103.5, -205, -205.5 (Supp. 1991); IOWA CODE ANN. § 455B.491(1) (1990); IOWA CODE ANN. § 206.21(3) (Supp. 1992); KAN. STAT. ANN. §§ 2-2472 to -2479 (1991).

fund ground water quality programs. Iowa allocates a portion of its pesticide dealer fee to ground water programs. In addition, several states have established fertilizer inspection fees, some of which are used for water quality protection programs.[331] In Colorado, fertilizer is subject to a twenty-five cents per ton inspection fee plus a fifty cents per ton ground water protection surcharge.[332] In Iowa, fertilizer is subject to a twenty cents per ton inspection fee.[333] In addition, a ground water protection fee of seventy-five cents per ton for eighty-two percent actual nitrogen is paid by dealers.[334] The Kansas fertilizer inspection fee is $1.40 per ton, none of which is used for ground water protection.[335] The Missouri fertilizer inspection fee is thirty cents per ton, none of which is used for ground water protection.[336] In South Dakota, fertilizer is subject to a twenty cents per ton inspection fee plus a ten cent ground water quality surcharge.[337]

These state FIFRA programs have several features for Nebraska policymakers to consider implementing. States fund their pesticide regulations through a variety of fees, including pesticide registration fees, dealer licensing fees, applicator certification fees, and fertilizer fees. In Nebraska, fertilizer is subject to a $4 per ton fee, by far the highest of all states reviewed. All of the fertilizer tax is used for general revenue purposes and none used for ground water protection.[338] Thus, fertilizer fees or taxes are not, unfortunately, a potential source of ground water quality program funding for Nebraska, at least in the short term. However, increased pesticide registration fees, as well as dealer licensing and certification fees, are potential revenue sources. The real likelihood of increased fees on pesticides and pesticide dealers is one reason agchemical dealers have opposed state FIFRA assumption in Nebraska. Given the experience in neighboring states, their concern is well founded. However, increased pesticide fees is a logical source of pesticide program funding.

The major difference between Nebraska and its neighbors is in the states' pesticide use control. In five of six neighboring states, the state departments of agriculture can regulate pesticide use beyond

331. In addition to the inspection fees discussed here, most states impose a fertilizer registration fee, which is not discussed here as registration fees do not fund ground water protection programs.

332. COLO. REV. STAT. § 35-12-106(1) (Supp. 1991).

333. IOWA CODE ANN. § 200.8(1) (Supp. 1992).

334. *Id.* § 200.8(4). The fee is prorated for different amounts of nitrogen. *Id.* The ground water protection fee funds a wide variety of ground water quality related activities. IOWA CODE ANN. § 455E.11(2)(a) (Supp. & 1990).

335. KAN. STAT. ANN. § 2-1205 (1991).

336. MO. ANN. STAT. § 266.331 (Vernon Supp. 1991).

337. S.D. CODIFIED LAWS § 38-19-10 (Supp 1992). The water quality surcharge is for five years. *Id.*

338. NEB. REV. STAT. § 77-4401 (Cum. Supp. 1992).

enforcing label directions. In three neighboring states, pesticide use may be specially regulated in problem areas. This raises two issues of regulatory philosophy which will be analyzed in the final section: who regulates agrichemical use, and how extensive should those regulations be?

IV. NEBRASKA PESTICIDE REGULATION

Aside from the very real political issue of how pesticide regulatory programs are funded, the primary regulatory issues include: (1) should pesticide regulations be state or local in origin; (2) if pesticide use is state regulated, should the regulator be the NDA or the DEQ; and (3) should pesticide regulatory authority include authority to prohibit the use of particular pesticide products?

Under current legislation, pesticide regulations may be implemented only through SPAs or QMAs. QMAs are an NRD option, while SPAs may be designated by the DEQ but implemented by the NRDs. This limits pesticide regulations to localized problem areas. In contrast, the SMP approach assumes that the use of pesticides most likely to leach into ground water ("leachers") should be restricted in areas vulnerable to contamination. Once leachers and vulnerable areas have been technically identified, there is no reason why pesticide regulations should be forced through the rather deliberate SPA designation or QMA implementation process. The more expeditious way to deal with pesticide contamination would be through statewide requirements that apply to all leachers used in vulnerable areas. Once pesticides are detected in ground water, the use of those pesticides can be prohibited or further restricted in contaminated areas.

Nebraska is unique in that pesticides are not subject to general statewide regulation as they would be under a state FIFRA program. In Nebraska, the NDA has no authority to limit pesticide use to protect ground water quality. The DEQ may do so in SPAs only if the NRDs fail to adopt and implement satisfactory SPA action plans.[339] NRDs have no explicit authority to ban pesticide use in either SPAs or QMAs.[340] Implementing a SMP would shift the locus of pesticide regulatory authority from NRDs to the state, although the state could delegate to NRDs authority to police state pesticide regulations.

339. *Id.* § 46-674.12(1).

340. NRDs can establish mandatory BMPs in SPAs and QMAs. *Id.* §§ 46-673.09(5), -674.09(2). However, BMPs do not explicitly include prohibition of agrichemical use. In SPAs, NRDs also may establish "other reasonable regulations." NEB. REV. STAT. § 46-674.09(3) (Cum. Supp. 1992). The limits of this open-ended authority have not been tested administratively nor determined judicially but might in some circumstances include pesticide bans.

There are three general approaches that the Nebraska Legislature can take in weighing state pesticide regulation authorities: (1) minimal FIFRA assumption, (2) independent state authority to establish SMP-type regulations, and (3) independent state authority to establish pesticide MCLs.

Under a minimal FIFRA assumption approach, the NDA and/or the DEQ would be authorized to enforce EPA regulations only. This was the approach taken by L.B. 349.[341] Under this approach, the NDA and/or the DEQ would be authorized only to enforce EPA pesticide-specific SMP requirements. Any further pesticide regulations could be adopted only in SPAs or QMAs. In this case, a state's ability to regulate leachers to prevent contamination would be limited to those pesticides for which the EPA had established SMP requirements. Any further regulation could occur only through SPAs and QMAs.

The limitation of this approach is that a state would not be able to proactively regulate leachers prior to the EPA pesticide-specific SMP label requirements. The DEQ (or NDA and the DEQ) could, for example, identify areas vulnerable to contamination and leachers used in Nebraska, and establish state restrictions on use of leachers in vulnerable areas to prevent contamination. If the NDA and/or the DEQ were authorized to establish such mini-SMP regulations, a state would not need to wait for the EPA to promulgate SMP requirements for particular pesticides to regulate leachers to prevent contamination.

The third and most aggressive approach, in addition to granting NDA and/or the DEQ authority to implement state SMP authorities, would be to give DEQ and/or NDH authority to establish pesticide MCLs. Although the EPA is promulgating new pesticide MCLs, hundreds of pesticides are used in Nebraska, and it may be years before MCLs are established for all of them. Although the EPA is likely to promulgate MCLs for leachers first because of their greater ground water contamination potential, MCL promulgation is a slow process. One approach is for the DEQ and/or NDH to be authorized to promulgate state MCLs. Alternatively, the NDA and/or the DEQ could be authorized to use EPA interim reference points (such as MCL goals) for contaminants in adopting state pesticide regulations.

The difficult political issue is whether state pesticide regulations should be adopted by the NDA, the DEQ, or jointly. In most states, pesticide regulations are implemented by the state agriculture department. This may reflect the political reality that farmers are

341. L.B. 349, *supra* note 282, § 2 (amending NEB. REV. STAT. § 2-2604(2)).

more comfortable being regulated by an agency responsible for promoting and protecting agriculture rather than by an agency responsible for protecting the environment. In contrast, federal pesticide regulation is an EPA responsibility with USDA relegated to an advisory role. In Nebraska, the DEQ has significant regulatory over agchemical use in SPAs: DEQ can designate SPAs, DEQ must approve NRD action plans, the DEQ can specify and implement action plans where NRD actions are inadequate, and DEQ can require QMA NRDs to prepare and implement SPA action plans where QMA actions are inadequate to protect ground water quality.[342] Thus, under existing state water quality programming, DEQ through its SPA program experience is better prepared to implement pesticide regulations to protect ground water quality than NDA.

These politically sensitive issues probably need not be resolved immediately. Given the slow pace of EPA Pesticides Strategy implementation, Nebraska is likely to have some time to politically sort through these issues after basic FIFRA assumption legislation has been adopted, particularly if the political debate over SMP implementation authorities threatens adoption of basic FIFRA assumption. One can argue, however, that because NDA will be fully occupied with simply assuming the FIFRA user certification and label enforcement program, that the SMP should be the primary responsibility to DEQ simply to share the workload. If the Nebraska Unicameral were able to immediately address SMP implementation, however, the State would be better able to develop a more thoughtful response to EPA SMP requirements.

Ground water is Nebraska's hidden treasure. For too long, state policymakers have allowed parochial concerns regarding state pesticide program funding and administration to preclude development of meaningful state programs to protect Nebraska's ground water from pesticide use and misuse. Now EPA's Pesticides Strategy is credibly threatening to prohibit the use of pesticides contaminating Nebraska's ground water. This threat provides the opportunity to overcome self-serving political arguments against state FIFRA assumption, and to allow the State of Nebraska to manage pesticide use to protect our ground water supplies for current and future generations.

342. NEB. REV. STAT. §§ 46-674.07(1), -674.07(3), -674.12 (Cum. Supp. 1992).

APPENDIX

BMP - Best Mangement Practices
DEQ - Department of Environmental Quality
EPA - Environmental Protection Agency
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
GMA - ground water management area
IDALS - Iowa Department of Agriculture and Land Stewardship
MCL - maximum contaminant level
MDA - Montana Department of Agriculture
MDHES - Montana Department of Health and Environmental Sciences
NDA - Nebraska Department of Agriculture
NDH - Nebraska Department of Health
NDWR - Nebraska Department of Water Resources
NRD - Natural Resource District
NSDWA - Nebraska Safe Drinking Water Act
PAL - preventive action level
ppb - parts per billion
ppm - parts per million
PWS - public water supplier
QMA - quality management area
SDWA - Safe Drinking Water Act
SPA - special ground water quality protection area
SMP - state pesticide management plan
USDA - United States Department of Agriculture
WHP - wellhead protection
WHPA - wellhead protection area