DRAKE
LAW REVIEW

Volume 39 1989-1990 Number 4

IOWA SURFACE DRAINAGE LAW AND GROUNDWATER QUALITY PROTECTION: IS THERE POTENTIAL LANDOWNER LIABILITY FOR PLUGGING AGRICULTURAL DRAINAGE WELLS AND SINKHOLES?

*Neil D. Hamilton**

TABLE OF CONTENTS

* Richard M. and Anita Calkins Distinguished Professor of Law and Director, Agricultural Law Center, Drake University Law School. This Article was written for and received honors in the Mason Ladd Legal Writing Competition sponsored by the Young Lawyers Division of the Iowa State Bar Association.

I. Introduction

One of the major policy developments of American agriculture in the late 1980s and 1990s is the increased awareness and concern over the role farm chemicals and fertilizers play in the contamination of groundwater supplies. Numerous studies in Iowa and surrounding states have provided strong evidence that chemicals applied on the soil surface are finding their way into water supplies. This is contrary to the accepted belief that either the products would break down or would lock with the soil structure and not percolate into groundwater supplies.[1] From a national perspective, these studies, and others now underway, have set in motion a major policy and scientific debate over how to identify and address the adverse environmental effects of traditional agricultural practices.

Another major legal development, which is the focus of this Article, concerns the effort to study and eliminate the direct contamination of groundwater supplies by agricultural practices. In 1987 the Iowa Legislature passed landmark legislation setting out a multifaceted program for dealing with threats to the state's groundwater supplies, which account for over seventy percent of the water consumed for drinking in the state.[2] The statute deals with such diverse subjects as household hazardous wastes, landfills, and plugging abandoned wells. It relies on a system of taxes and fees on products such as farm chemicals and fertilizers to fund a program of research, pilot projects, and regulation of practices. This will eventually result in a system for identification and prevention of the sources of groundwater contamination.

One of the major issues during debate of this statute was the role that

---

1. *See, e.g.*, J. Baker & T. Austin, *Impact of Agricultural Drainage Wells on Groundwater Quality*, Project 2450, ISU-ERI Ames-85183, Iowa State University (1984); Cherryholmes & Gockel, *Iowa Agricultural Drainage Well Assessment Report*, U.S. E.P.A., University of Iowa Hygienic Laboratory.

The state of Iowa, through the Iowa Geological Survey, has been conducting an extensive study for the last seven years in the Big Spring Basin in Clayton County. The study is regarded as one of the most important in the nation on the issue of agricultural contamination of groundwater because the closed geology of the 103 square mile basin allows researchers to conduct watershed-wide studies on the surface use and subsequent appearance of chemicals and fertilizers in the groundwater. Studies show a sizeable percentage of the wells in the basin contain water exceeding the health warning standards for nitrate levels. Traces of many common agricultural chemicals have also been found in water samples. *See* Fruhling, *Big Spring Farms to Try Using Fewer Chemicals*, Des Moines Register, Oct. 12, 1986, at 1F, col. 3.

2. 1987 Iowa Acts ch. 255 (codified in various chapters of the Iowa Code); *see, e.g.*, Iowa Code § 159.29 (1989).

agricultural drainage wells and sinkholes play in providing direct conduits for surface chemical contamination of groundwater supplies. Agricultural drainage wells are drilled to provide a method for draining collected surface waters directly into underground acquifers. These wells, which act much like a bathtub drain for flat fields, are believed to number around seven hundred in the state and are mainly concentrated in north central Iowa.[3] The wells were utilized around the turn of the century as an alternative to surface drainage ditches to drain marsh land, making it suitable for farming.[4] Today, agricultural drainage wells are used to drain water from approximately 70,000 acres of farmland.

Sinkholes are naturally occurring fissures in the earth's surface that occur primarily in north central and northeast Iowa in areas of limestone formation. Like drainage wells, sinkholes provide a method whereby surface water is diverted directly underground. The exact number of sinkholes is uncertain because new sinkholes develop and appear on an annual basis, primarily in existing watercourses. These sources of direct surface drainage into underground acquifers provide the possibility of contamination from chemicals and nitrates used in everyday farming. This could be a potential source for irreversible contamination if an accident should happen, such as a chemical spill near a surface intake.

Under the 1987 law, the state has initiated a program to study alternative methods for managing land drained by agricultural drainage wells and sinkholes[5] and has set a goal of ceasing the contamination of groundwater through these sources by 1995.[6] The research is just underway to determine if alternative methods of farming, such as the use of filter strips around well openings or reduction in the application of nitrogen fertilizers, will reduce levels of groundwater contamination sufficiently to meet this goal. If these methods do not work, one option that the state must contemplate is the

---

3. *Agricultural Drainage Wells in Iowa*, Iowa State University Cooperative Extension Service, Pm-1201, 2 (April 1985).

4. *See* Johnson, *Farmers Say Drainage Wells Important, but also Concerned About Polluting Groundwater*, IOWA FARM BUREAU SPOKESMAN, Oct. 1, 1988. This article discusses the role of R.C. Bair of Humboldt County, whose tombstone bears the inscription, "Founder of Drain Wells." Bair's role in this matter was uncovered by Gary Huber while working for the Iowa Natural Heritage Foundation on a project to survey landowner attitudes towards alternative means of dealing with the wells.

5. IOWA CODE § 159.29(3) (1989).

6. Iowa Code section 159.29(7), as amended by 1990 Iowa Acts ch. 1027, provides: "Beginning July 1, 1993, the department shall initiate an ongoing program to meet the goal of eliminating chemical contamination caused by the use of agricultural drainage wells by January 1, 1995, based upon the findings of the report published pursuant to subsection 6." IOWA CODE § 159.29(7)(1989)(as amended by 1990 Iowa Acts ch. 1027). Furthermore, 1990 Iowa Acts ch. 1027 amended section 159.29 to delay the date a landowner must develop a plan for alternative drainage from July 1, 1991 to July 1, 1994. The state efforts to control groundwater contamination from surface drainage sources is discussed in detail in Section III of this article. *See infra* text accompanying notes 99-114.

The court in *Obe* concluded that the landowner could cast the surface water from his land, but with some limitations. The volume of water drained could not be greatly increased nor be drained in an unnatural quantity, so as to cause substantial injury to the servient estate.[16]

As a result of these modifications, Iowa drainage law is today characterized as following the modified civil law rule which recognizes a servitude of natural drainage between adjoining land.[17] Under this rule the servient estate must accept surface waters that drain thereon from the dominant estate, but the owner of the dominant estate has no right to alter the natural system of drainage from the dominant estate in a manner so as to substantially increase the burden on the servient estate.[18] This establishes the first principle of Iowa drainage law: *The dominant estate has a servitude to drain surface water onto the servient estate in the natural course of drainage.*

In *Maisel v. Gelhaus*,[19] the Iowa Court of Appeals recently stated the principle as follows:

> It is a well settled principle in Iowa that the owner of the dominant estate has a legal or natural easement in the servient estate for the drainage of surface waters. The natural flow of water cannot be interrupted by the servient owner so as to cause injury to the state of the dominant owner. Though the landowner may divert water by surface drainage onto the servient estate even though an additional amount of water may therefore enter the servient estate, it has been duly recognized that the dominant owner may not discharge such water so as to do substantial damage to the servient estate.[20]

From this first principle comes the question of how to determine which property is the dominant estate. Iowa courts have held that the disposition of ordinary surface waters "is determined by the relative elevations of the adjacent tracts."[21] In *Moody v. Van Wechel*,[22] the Iowa Supreme Court set out the following test:

> In determining which of adjacent tracts is dominant, relative eleva-

---

(1866). These cases are of interest because of their strong statements concerning the importance of allowing landowners to drain their property so that it can be put into agricultural production.

16. Obe v. Pattat, 151 Iowa at 727-28, 130 N.W. at 905.

17. Braverman v. Eicher, 238 N.W.2d 331, 334 (Iowa 1976).

18. Witthauer v. City of Council Bluffs, 257 Iowa 493, 498, 133 N.W.2d 71, 74-75 (1965); Ditch v. Hess, 212 N.W.2d 442, 448 (Iowa 1973).

19. Maisel v. Gelhaus, 416 N.W.2d 81 (Iowa Ct. App. 1987).

20. *Id.* at 85 (citations omitted). In 1988, the plaintiffs initiated a contempt action because Gelhaus failed to remove the levy. In August 1990, the Iowa Court of Appeals affirmed the district court's decision clarifying the injunction as well as the length of the levy to be removed. Maisel v. Gelhaus, No. 89-106 (Iowa Ct. App. Aug. 30, 1990).

21. Witthauer v. City of Council Bluffs, 257 Iowa at 498, 133 N.W.2d at 74.

22. Moody v. Van Wechel, 402 N.W.2d 752, 757 (Iowa 1987).

> tion and not general movement of floodwaters is controlling. Water from a dominant estate must be allowed to flow in its natural course onto a servient estate. The flow may not be diverted by obstructions erected or caused by either estate holder. These corresponding rights and obligations do not mean that low parts on land must retain water in ponds until it percolates into the soil. A landowner may divert water by surface drainage constructed upon his or her own land even though some different or additional water may thereby enter the servient estate.[23]

This establishes the second basic principle of Iowa drainage law: *The dominant landowner, as determined by relative elevation, has the right to collect and remove surface water in the course of natural drainage onto the servient estate.*

The second principle of drainage law can also be stated as a corollary if the focus is on the actions of the servient estate. The Iowa Supreme Court in *Fennema v. Menninga*[24] did so when it observed:

> The owner of a servient estate has no right to either dam the surface water and cast it back upon his neighbor, or to collect the same in a body and precipitate the same in increased or unnatural quantities, or in a different manner from the natural flow thereof, to the damage of his neighbor.[25]

Once it is determined who owns the dominant estate, the next issue that arises concerns whether the rights of the dominant owner are limited as to the manner or amount in which surface water can be moved onto the adjacent servient estate. As the general statements of the rule indicate, although the dominant estate has a drainage servitude, it is not unlimited. Again, the recent opinion in *Moody v. Van Wechel* provides guidance on this issue:

> This right to employ modern drainage practices, sometimes called lip surface drainage, is not without limits. Plainly, the holder of the dominant estate clearly may not go so far as to collect and discharge water upon the servient estate in such a manner as to cut a stream bed. The servient estate is obligated to receive water from higher land, but not in such a way as to cut channels which did not previously exist.[26]

The Iowa Supreme Court recently had an opportunity to clarify this rule, which it refers to as the "natural flow" doctrine, in a case involving liability for damages caused by a terrace break in Mills County.[27] The Iowa Supreme Court affirmed the ruling of the Iowa District Court for Mills County that the defendant farmers were liable for the damages caused to

---

23. *Id.*
24. Fennema v. Menninga, 236 Iowa 543, 19 N.W.2d 689 (1945).
25. *Id.* at 546-47, 19 N.W.2d at 691.
26. Moody v. Van Wechel, 402 N.W.2d at 757.
27. O'Tool v. Hathaway, 461 N.W.2d 161 (Iowa 1990).

the plaintiffs' home.[28] A recently constructed terrace on the farmers' land broke during a heavy rain, causing flood damage to the plaintiffs' basement on the neighboring land.[29]

The court rejected the arguments of both the Soil Conservation Division of the Iowa Department of Agriculture and Land Stewardship ("DALS") and the defendants that an adverse ruling would have a negative effect on the promotion of soil conservation in Iowa.[30] The court stated that "were the appellants' characterization of the trial court's ruling accurate, we would concur in its concern. We are convinced, however, that the court's decision is grounded on well-established rules concerning drainage of surface water and neighboring landowner's mutual duties of care."[31]

In reaching its decision, the court reviewed Iowa rules of surface drainage, which include the "natural flow" doctrine. The *O'Tool* court noted that in *Rosendahl Levy v. Iowa State Highway Comm'n*,[32] it had stated what is known as Iowa's "natural flow" doctrine:

> The general rule is that the dominant owner is entitled to drain surface water in a natural watercourse from his land over the servient owner's land and if any damage results the servient owner is without remedy. This rule, however, is subject to qualification. We have many times held that if the volume of water is substantially increased or if the manner or method of drainage is substantially changed and actual damage results, the servient owner is entitled to relief.[33]

The *O'Tool* court also looked to its decision in *Oak Leaf Country Club, Inc., v. Wilson* and observed that "a corollary to the foregoing rule is 'an overriding requirement that one must exercise ordinary care in the use of his property so as not to injure the rights of neighboring landowners.' "[34] The *Oak Leaf Country Club* case involved a claim that the straightening of a stream accelerated the flow of the watercourse causing injury to a neighbor's estate.[35] The court, in *Oak Leaf Country Club* applied the *Rosendahl* "natural flow" doctrine, noting that drainage damage cases are very fact specific, and the determination of liability depends upon the reasonableness of the change under all of the circumstances.[36]

---

28. *Id.* at 165.
29. *Id.* at 162.
30. *Id.* at 163.
31. *Id.*
32. Rosendahl Levy v. Iowa State Highway Comm'n, 171 N.W.2d 530 (Iowa 1969).
33. O'Tool v. Hathaway, 461 N.W.2d at 163 (citing Rosendahl Levy v. Iowa State Highway Comm'n, 171 N.W.2d at 536); IOWA CODE § 468.622 (Supp. 1989) (immunizing landowner from liability for altering watercourse unless the drainage system "increases the quantity of water or changes the manner of discharge on the land of another").
34. O'Tool v. Hathaway, 461 N.W.2d at 163 (quoting Oak Leaf Country Club, Inc. v. Wilson, 257 N.W.2d 739, 745 (Iowa 1977)).
35. *Id.*
36. *Id.* (citing Oak Leaf Country Club, Inc. v. Wilson, 257 N.W.2d at 745-46).

Applying its past standards, the court in *O'Tool* rejected the defendants' claim that the terraces were not designed to divert or increase the flow of water, and that therefore the "natural flow" doctrine could not be imposed.[37] The court held liability could also be imposed if "(1) the method or manner of drainage is substantially changed and (2) actual damage results. Both criteria [were] met in this case."[38]

The district court found: (a) the defendants knowingly constructed a terrace that was not designed to hold a rainfall amount as large as the one experienced; (b) breaks in the terrace were forseeable, placing the servient estate at risk for flood damage; and (c) the terrace was constructed solely for the benefit of the defendants.[39] Although the plaintiffs presented no evidence of negligence in the construction or design of the terrace, the supreme court held that liability can attach because of the "overriding requirement" of ordinary care imposed on dominant estate owners.[40] The court upheld the district court's conclusion that constructing a terrace of this kind on a dominant estate, when the harm to the servient estate was forseeable, was a negligent act.[41]

The court did not adopt a theory of strict liability, stating that "we do not view conservation terraces as an inherently dangerous activity that in all circumstances would subject the user to liability without fault."[42] In doing so, the court rejected the argument of the DALS that farmers should be immunized from liability, under all circumstances, for beneficial soil conservation practices.[43]

This establishes a third principle of Iowa drainage law: *While the servient estate must accept natural surface drainage, the dominant estate cannot increase the amount or alter the manner of natural drainage if the servient estate will be substantially damaged. The "natural flow" doctrine is subject to an overriding requirement to use ordinary care.*

An issue that can arise is whether the servient estate has at some earlier time agreed to allow the dominant estate to materially increase the amount of drainage across the property or to alter the place or manner of the natural drainage, thereby giving the dominant estate an easement to continue the enhanced drainage. The Iowa courts in numerous cases have held that the servient estate can grant such an easement, either by express agree-

---

37. *Id.*
38. *Id.*
39. *Id.* at 164.
40. *Id.*
41. *Id.*
42. *Id.* Liability was imposed in the case partially because the terrace had been built directly above the plaintiffs' home. *Id.* The court indicated that had the terrace been constructed so as to discharge pooled water over the defendants' farmland, or even over a neighbor's field, the "reasonableness of the terracing would probably not be an issue." *Id.*
43. *Id.*

ment,[44] prescription,[45] or implication.[46] Prescription can also run against a dominant estate that has allowed some obstruction to alter the normal course of drainage. In the case of *Franklin v. Sedore*,[47] the Iowa Supreme Court held a defendant owner of the dominant estate had waived his rights in an original watercourse by prescription because an embankment of a now abandoned railbed had for decades altered the surface drainage between the plaintiff's and defendant's land.[48]

These cases establish the fourth principle of Iowa drainage law: *The dominant estate may obtain expanded drainage rights in the form of an easement by express agreement, prescription if for the required period, or implication.*

Another issue that arises within the context of dominant and servient estates can be seen as the reverse side of the issue just discussed. What if there is an obstruction on a servient estate and waters from other dominant properties drain to it but are blocked? May a dominant estate draining towards a servient estate be estopped from objecting to the obstruction? In other words, can the actions of the parties modify the corollary of drainage principle number two, which is servient estates cannot block natural drainage from dominant estates? In *Thiessen v. Claussen*,[49] the Iowa Supreme Court held that:

> It is equally well settled that if a landowner, claiming the right to repel the surface water coming from an adjacent tract, erects a barrier or constructs a ditch upon the partition line to produce that result, and maintains the same with the knowledge or express or implied consent of the owner of said adjacent premises for ten years or more, the right of the latter to demand an injunction against the maintenance of such alleged obstruction will be barred.[50]

This case illustrates what can be called the fifth principle of Iowa drainage law: *Dominant estate owners may, through express or implied agreement or by estoppel or abandonment, lose their drainage servitude such that the servient estate may acquire a counter easement to turn water back onto the dominant estate.*

Another question that flows from the relation of dominant and servient estates concerns whether a dominant estate owner may act in any way that affects the natural flow of surface waters across his property. For example,

---

44. *See, e.g.*, Halsrud v. Brodale, 247 Iowa 273, 278, 72 N.W.2d 94, 100 (1955); McKeon v. Brammer, 238 Iowa 1113, 29 N.W.2d 518 (1947).

45. *See, e.g.*, Loughman v. Couchman, 242 Iowa 885, 889, 47 N.W.2d 152, 154 (1951).

46. Anderson v. Yearous, 249 N.W.2d 855, 860 (Iowa 1977).

47. Franklin v. Sedore, 450 N.W.2d 849 (Iowa 1990).

48. *Id.* at 852.

49. Theissen v. Claussen, 135 Iowa 187, 112 N.W. 545 (1907).

50. *Id.* at 189, 112 N.W. at 545-46 (cited in Fennema v. Menninga, 263 Iowa 543, 547, 19 N.W.2d 689, 691 (1945)).

may a dominant estate owner collect or divert surface waters around the edge of the property, such as in a ditch, rather than allowing the surface water to spread out on the land or percolate into the ground? In 1951, the Iowa Supreme Court in *Stouder v. Dashner*[51] held:

> [B]y the weight of authority a dominant proprietor may cause surface water to flow in its natural direction through a ditch on his own land, instead of over the surface or by percolation as formerly, where no new watershed is tapped, and where no addition to the former volume is caused thereby, except the mere carrying in a ditch of what formerly reached the same point on the servient tract over a wider surface by percolation through the soil or by flowing over such wider surface.[52]

In *Mickelwait v. Wright*,[53] the issue was not the water going on to the servient estate, but onto property that normally would not have received any drainage from the adjacent land except for an artificially constructed ditch. The court ruled that a dominant estate could not create new drainage on a different estate by artificial means.[54] Similarly in *Logsdon v. Anderson*,[55] the court considered the drainage rights of a landowner who had turned a stream of water flowing onto his property from a culvert, into a ditch he had constructed, rather than letting it spread across the surface.[56] The court ruled that the landowner had a "perfect right to construct a ditch upon his own land and carry the water upon his own premises in such a manner as he shall see fit to do, *provided he does not cause it to flow upon* [another's] *land when it would not have done so, but for such artificial construction.*"[57] One other aspect of this issue is whether in collecting this water the dominant estate owner may add new areas of land that would not otherwise drain to the servient estate, such as by tiling into other watersheds to drain them. In *Cundiff v. Kopseiker*,[58] the court noted that "[w]here the owner of higher land, by means of tile drains, discharges upon the lower land water from an area which would otherwise not have been drained across the lower land to the material injury of the latter, then the owner of the higher ground is liable for the resulting damage to the lower land owner".[59]

---

51. Stouder v. Dashner, 242 Iowa 1340, 49 N.W.2d 859 (1951).

52. *Id.* at 1348, 49 N.W.2d at 864 (citing 56 Am. Jur. *Waters* § 73); *see also* Logsdon v. Anderson, 239 Iowa 585, 591, 30 N.W.2d 787, 790 (1948) (person occupying the land was merely exercising good husbandry and had a right given by law to divert water around rather than across the land where it would normally go).

53. Mickelwait v. Wright, 194 Iowa 1265, 191 N.W. 291 (1922).

54. *Id.* at 1269, 191 N.W. at 294.

55. Logsdon v. Anderson, 239 Iowa 585, 30 N.W.2d 187 (1948).

56. *Id.*

57. *Id.* at 590, 30 N.W.2d at 790 (citing Mickelwait v. Wright, 194 Iowa at 1269, 191 N.W. at 294).

58. Cundiff v. Kopseiker, 245 Iowa 179, 61 N.W.2d 443 (1953).

59. *Id.* at 184-85, 61 N.W.2d at 446.

These cases help establish the sixth principle of Iowa drainage law: *A landowner may collect and divert the flow of surface water around rather than across the land where it would naturally flow, as long as the amount sent onto the servient estate is not increased, the water is not from property that would not normally drain to it, and the water is not drained onto adjacent land that would not normally receive the drainage.*

The next issue for consideration is whether the treatment of water in a watercourse that comes onto a dominant estate is different from the treatment of waters that are diffused as surface waters. To answer this question one must first determine if there is a difference between the two for drainage purposes. The short answer to this question is no, but the distinction the courts make between the two is interesting and worthy of consideration.[60] The term "surface waters" has been described as:

> [W]ater on the surface of the ground of a casual or vagrant character following no definite course, of a more or less temporary existence, which spread at random over the ground and are lost by percolation into the soil and by evaporation. They are to be distinguished from the water of creeks, streams, rivers, ponds and lakes, having a substantial existence and a substantially definite location.[61]

Early in the state's development, Iowa courts held it is this type of surface water that the owner of higher ground has an unqualified right to drain for agricultural purposes in the course of natural drainage.[62]

Courts have defined a water course as a "natural stream of water flowing in a definite channel, having a bed and sides, or banks, and discharging itself into some other stream or body of water."[63] But Iowa does not require that a watercourse be a definite channel with well-marked sides or banks. A swale or natural depression can be a watercourse if the surface water uniformly and habitually flows through the given course. For example in *Hinkle v. Avery*,[64] the water sometimes ran in a defined channel and at other places spread out irregularly in a meadow without banks or channel, but at all times had a visible and distinctly traceable current.[65] The court held it was a watercourse and enjoined its obstruction.[66]

In other words, surface water can flow in watercourses and eventually does. The result of this fact was noted by the Iowa Supreme Court in *Hunt v. Smith*:[67]

> Terminology is not material in describing water which flows over these

60. Hunt v. Smith, 238 Iowa 543, 560, 28 N.W.2d 213, 221 (1947).
61. *Id.* at 555, 28 N.W.2d at 218-19.
62. Livingston v. McDonald, 21 Iowa 160, 167 (1866).
63. Falcon v. Boyer, 157 Iowa 745, 750, 142 N.W. 427, 429 (1907).
64. Hinkle v. Avery, 88 Iowa 47, 55 N.W. 77 (1893).
65. *Id.* at 48, 55 N.W. at 77.
66. *Id.* at 54, 55 N.W. at 79.
67. Hunt v. Smith, 238 Iowa 543, 28 N.W.2d 213 (1947).

> lands in the course provided by nature. The fact that it is floodwater, creek water, or rain, is of no consequence. It all causes injury when the flow is obstructed.[68]

The court went on to quote from its holding in *Fennema v. Menninga*:[69]

> While surface water has been spoken of in the books as a common enemy, it is well established in this State that when water, *no matter what its character, flows in a well-defined course, be it only in a swale,* and seeks discharge in a neighboring stream, its flow cannot be arrested or interfered with by one landowner to the injury of another.[70]

In a similar vein, the court in *Cundiff v. Kopseiker*,[71] noted that "a dominant estate has the right to discharge water upon the servient estate whether such water is surface water or from a natural watercourse, either open or tiled."[72]

These cases establish what can be called the seventh principle of Iowa drainage law: *For drainage purposes, no distinction is made between surface waters or natural watercourses; the focus is the natural flow of the water.*[73]

A question that follows from this principle is whether there is a distinction between natural and artificial watercourses for purposes of drainage issues. An artificial watercourse can best be exemplified by a ditch that a landowner constructs to collect surface water or a tile line that drains the soil below the surface. From a physical standpoint there is obviously a distinction between such man-made or artificial watercourses and natural surface drainage. However, as drainage principle number two establishes, courts have recognized the right of dominant estates to construct such artificial watercourses to collect surface water and cast it onto servient estates, as long as the drainage does not cause material injury. While it is true that an issue in such disputes will often be whether the source of drainage was artificial, the central issue the courts tend to focus on is not the extra surface water that reaches the property, but rather the injury or damage that it

---

68. *Id.* at 560, 28 N.W.2d at 221.

69. Fennema v. Menninga, 236 Iowa 543, 19 N.W.2d 689 (1945).

70. Hunt v. Smith, 238 Iowa at 560, 28 N.W.2d at 221 (emphasis in original).

71. Cundiff v. Kopseiker, 245 Iowa 179, 61 N.W.2d 443 (1953).

72. *Id.* at 185, 61 N.W.2d at 446; *see also* Dodd v. Blezek, 245 Iowa 1112, 1120, 66 N.W.2d 104, 109 (1954).

73. One must recognize substantial limitations may exist on the ability of a landowner to take actions to alter or divert naturally occurring watercourses or streams on their property. IOWA CODE § 455B (1989); *see, e.g.*, O'Tool v. Hathaway, 461 N.W.2d 161 (Iowa 1990); Polk County Drainage Dist. Four v. Iowa Natural Resources Council, 377 N.W.2d 236, 239 (Iowa 1985); Rosendahl Levy v. Iowa State Highway Comm'n, 171 N.W.2d 530 (Iowa 1969); Iowa Natural Resources Council v. Van Zee, 261 Iowa 1287, 158 N.W.2d 111 (1968); Board of Trustees v. Iowa Natural Resources Council, 247 Iowa 1244, 78 N.W.2d 798 (1956). Liability may also arise for flood and erosion damage caused by such channelization. *See, e.g.*, Oak Leaf Country Club, Inc. v. Wilson, 257 N.W.2d 739 (Iowa 1977); Myers v. Caple, 258 N.W.2d 301 (Iowa 1977).

causes.[74] Therefore, the practical distinction between artificial and natural watercourses is limited. It is perhaps more important to recognize that the Iowa courts have held that an artificial watercourse can become a natural watercourse when it serves in lieu of the natural channel for the prescriptive period.[75]

These cases establish the eighth principle of Iowa drainage law: *Classification of a watercourse as natural or artificial is not a primary consideration as long as the drainage flows in the natural direction and amounts; but an artificial watercourse, if used for the prescriptive period in lieu of the natural channel, may become a natural watercourse.*

While an artificial watercourse may become a natural watercourse through prescriptive use, it only becomes such for the parties through whose land it runs.[76] If the artificial, turned natural, watercourse begins to silt up so that it will not carry the natural flow, the landowner cannot claim that he is excused from the full duty of maintenance to keep it clean, or that he is immune from damages for such failure just because the watercourse is now "natural."[77]

One very important consideration in drainage disputes is what factors the court will focus on to determine whether there has been conduct resulting in liability. Most drainage disputes are premised as either a private nuisance[78] or as an equitable action seeking injunction and damages for interference with surface water flowage.[79] The burden of proof is on the party bringing such action. For example, if a landowner is arguing that a servient estate has blocked the natural drainage, the plaintiff must show he or she owns the dominant estate and therefore has a right to unimpeded natural drainage.[80] If the plaintiff is the servient estate owner who is claiming material injury by an increase in the natural drainage, the landowner must show that the defendant caused the additional flow of water and the resulting damage.[81] Meeting this burden is essential, because under the modified civil rule a servient estate must accept additional water if in the course of natural drainage.[82] The issue then becomes what it takes to show that the servient estate has been injured. The court in *Schmitt v. Kirkpatrick*,[83] after review-

---

74. *See, e.g.*, Schmitt v. Kirkpatrick, 245 Iowa 971, 981, 63 N.W.2d 228, 231 (1954).

75. Logsdon v. Anderson, 239 Iowa 585, 593, 30 N.W.2d 787, 791 (1948); Nixon v. Welch, 238 Iowa 34, 39, 24 N.W.2d 476, 479 (1947).

76. Logsdon v. Anderson, 239 Iowa at 593, 30 N.W.2d at 791.

77. *Id.*

78. *See, e.g.*, Braverman v. Eicher, 238 N.W.2d 331, 335 (Iowa 1976).

79. *See, e.g.*, Witthauer v. City of Council Bluffs, 257 Iowa 493, 133 N.W.2d 71 (1965).

80. *See, e.g.*, Maisel v. Gelhaus, 416 N.W.2d 81, 84 (Iowa Ct. App. 1987).

81. *See, e.g.*, Cundiff v. Kopseiker, 245 Iowa 179, 185, 61 N.W.2d 443, 446 (1953). For a case in which the servient estate owner was able to carry the burden of proof, see Levy v. Iowa State Highway Comm'n, 171 N.W.2d 530 (Iowa 1969).

82. *See supra* text accompanying notes 10-11.

83. Schmitt v. Kirkpatrick, 245 Iowa 971, 63 N.W.2d 228 (1954).

ing the courts' modification of the civil rule noted, "[T]he emphasis is now placed on the injury or potential injury rather than upon additional water cast upon the servient lands."[84]

These cases help establish the ninth principle of Iowa drainage law: *The plaintiff in a surface drainage dispute carries the burden of proof: the owner of a dominant estate must establish a right to unimpeded natural drainage; or the owner of a servient estate must establish the property has or will experience substantial injury, the mere increase in the amount of water received will not satisfy this burden.*

Iowa law provides extensive procedures for the formation and operation of drainage districts[85] and provides a mechanism whereby a landowner can obtain the right to construct drains across the lands of another.[86] An issue that can arise for landowners whose property is located within the boundaries of a drainage district, is what impact does this have on the application of the principles of natural surface drainage rights. Does the formation of the drainage district eliminate any natural drainage rights a dominant estate may have? In *Nixon v. Welch*[87] the Iowa Supreme Court considered this issue directly and ruled:

> We hold that the mere fact that the land is within an established drainage district is not enough to preclude the owner of the land from asserting rights with respect to surface water that he would have if the land was not included in the district. If he can show that part of his land was not in fact drained by the established ditch but was in fact a dominant tract and drained by another natural or long-established artificial watercourse across the servient land, he is entitled to all the rights of the dominant holder as against the servient holder, the same as if the land was not within the drainage district.[88]

This case establishes the tenth principle of Iowa drainage law: *The formation of a drainage district does not preclude the owner of a dominant estate located within the district from exercising natural drainage rights to drain land, through natural or long-established artificial watercourses, across servient land.*

Under the previous analysis, drainage principle number four indicates that a dominant estate holder can obtain expanded surface drainage rights through an easement. Drainage principle number eight indicates that the

---

84. *Id.* at 981, 63 N.W.2d at 231.

85. IOWA CODE §§ 468.1-.240 (Supp. 1989). For a general discussion of the operation of these districts, see Smith, *Districts Affecting Water Use and Control*, 41 IOWA L. REV. 181 (1956).

86. IOWA CODE §§ 468.600-.634 (Supp. 1989); *see also infra* notes 88-90.

87. Nixon v. Welch, 238 Iowa 34, 24 N.W.2d 476 (1947).

88. *Id.* at 39, 24 N.W.2d at 478. However, in Franklin v. Sedore, 450 N.W.2d 849, 852 (Iowa 1990), the court held a specific drainage pattern established within a drainage district formed under section 455.5 can change the course of natural drainage.

easement could be used for drainage purposes when a formerly artificial watercourse has ripened into a natural watercourse.

Another issue concerns the right of the dominant estate to require the servient estate to maintain the watercourse. The Iowa Supreme Court in *Nixon v. Welch* reviewed in some detail the cases concerning the rights of parties to keep watercourses clean, and concluded, "[I]t is the law that the owner of the servient estate, over whose land an easement exists in a watercourse in favor of the owner of the dominant estate, must permit the cleaning out of the watercourse across his land."[89] The court went on to consider the issue of who bears the costs of such maintenance, ruling that because there was no showing the servient estate benefited from the action, the dominant estate would be required to bear the full expense.[90] This case establishes the eleventh principle of Iowa drainage law: *A servient estate must maintain a watercourse in which a dominant estate has a drainage easement, but the cost of such maintenance is shared in proportion to the benefit received.*

There are other cases that the Iowa courts have resolved concerning drainage disputes that help flesh out the main principles identified so far, but these eleven are the most significant. For that reason, the focus of this Article will now shift to the limited Iowa statutory authority and the principles it provides.

Early in Iowa's development, the legislature enacted what is now subchapter V of chapter 468, "Individual Drainage Rights." This subchapter sets out the procedure whereby landowners can enter into agreements to drain land across that of another or obtain official sanction to do so. One provision that would appear significant in resolving the issues central to this study is section 468.621, which is titled "Drainage in the course of natural drainage—reconstruction—damages." The section provides:

> Owners of land may drain the land in the general course of natural drainage by constructing or reconstructing open or covered drains, discharging the drains in any natural watercourse or depression so the water will be carried into some other natural watercourse, and if the drainage is wholly upon the owner's land the owner is not liable in damages *for the drainage unless it increases the quantity of water or changes the manner of discharge on the land of another.* An owner in constructing a replacement drain, wholly on the owner's land, and in the exercise of due care, is not liable in damages to another if a previously constructed drain on the owners own land is rendered inoperative or less efficient by the new drain, unless in violation of the terms of a written contract. This section does not affect the rights or liabilities of proprietors to running streams.[91]

---

89. Nixon v. Welch, 238 Iowa at 40, 24 N.W.2d at 479.
90. *Id.* at 44, 24 N.W.2d at 481.
91. IOWA CODE § 468.621 (Supp. 1989) (emphasis added) (formerly IOWA CODE § 465.22

When first read, this section would appear to be an important consideration in most drainage disputes. In fact this section, as amended in 1987, appears to codify a limitation of the rules of natural surface drainage developed by the courts, perhaps even returning Iowa drainage law to the civil law rule under which dominant estates were not allowed to make any increase in the drainage onto servient estates. The courts have not reviewed the statute since the 1987 amendment, but even before the amendment, the section had not been given much importance, and apparently for good reason. Section 468.621 has been cited relatively few times in the hundreds of drainage related cases decided by the Iowa courts.[92] In many of these cases, the court, after citing substantial case authority, has merely listed the section as a possible source of law.[93] This somewhat surprising treatment by the courts would indicate that while of some value, the section is not considered to be a complete codification, or even amendment to the Iowa common law rules of natural surface drainage.

The reason for the courts' apparent disregard for the section is that it may have been originally designed to have limited effect. The language of the provision indicates it applies in situations of constructing drains, such as drainage ditches and tile lines. Subchapter V of chapter 468 was enacted for the creation of such drains across the land of another who may not desire them. When viewed in this manner, the conclusion may be the section does not apply in situations in which the issue is the natural drainage of surface waters, rather, it applies to the opening or closing of constructed drains.

In *DeWitt v. DeWitt*,[94] the Iowa Supreme Court was faced with a typical agricultural drainage dispute between neighbors concerning the natural flow of surface waters that were being impeded by a built-up fenceline.[95] The defendant tried to resist an injunction by arguing that an adequate remedy at law existed under chapter 465, which is now codified at sections 468.600 to 468.634.[96] The court responded by saying:

> As found by the trial court, plaintiff is seeking only to have the natural flow of surface water from his farm over defendant's land. The provisions of chapter 465 [sections 468.600 to 468.634] which provide a drainage ditch may be established when two or more landowners so desire have no application here. Plaintiff seeks only to enforce drainage rights which nature built. His proper action for such relief is an

---

(1989)).

92. Thome v. Retterath, 433 N.W.2d 51, 53 (Iowa Ct. App. 1988); Anderson v. Yearous, 249 N.W.2d 855, 860 (Iowa 1977); Braverman v. Eicher, 238 N.W.2d 331, 335 (Iowa 1976); Witthauer v. City of Council Bluffs, 257 Iowa 493, 498, 133 N.W.2d 71, 74 (1965).

93. Of the four cases listed in the preceding footnote, only *Thome* discussed the language of the section.

94. DeWitt v. DeWitt, 259 Iowa 1037, 147 N.W.2d 32 (1966).

95. *Id.* at 1044, 147 N.W.2d at 35.

96. *Id.*

injunction.[97]

Other cases in which courts have reviewed the language and effect of section 468.621 are in accord with this narrow view of its application.[98] The cases resolve disputes between the parties to an agreement to establish and maintain an underground tile line and one landowner's addition of other land to the drain, which the others argue was not contemplated in the agreement. In light of these cases it is possible to establish the twelfth principle of Iowa drainage law: *Section 468.621, while of some value in cases involving constructed drains, does not limit the application of the judicially developed principles determining the rights of dominant and servient estates as to issues involving natural surface drainage.*

III. State Efforts to Control Groundwater Contamination from Surface Water Drainage

The central issue behind the enactment of the Groundwater Protection Act was how to deal with the increasing volume of agricultural chemicals entering the groundwater through surface drainage of agricultural lands.[99] As enacted, the law sets out a control strategy that combines deadlines for ending the contamination of groundwater from surface drainage sources, educational efforts to encourage landowners to control such sources of con-

---

97. *Id.* at 1044, 147 N.W.2d at 36.

98. *See* Thome v. Retterath, 433 N.W.2d 51 (Iowa Ct. App. 1988); Halsrud v. Brodale, 247 Iowa 272, 72 N.W.2d 94 (1955).

99. As early as the fall of 1986, the issues in the debate had been formed. *See, e.g.*, Pins, Iowa Poll: *Iowans Want Limits on Ag Chemicals*, Des Moines Register, Nov. 16, 1986, at 1A, col. 6; Williams, *Legislators to Face Groundwater Issues Next Session*, Iowa Farmer Today, Dec. 27, 1986; Fruhling, *Big Spring Farms to Try Using Fewer Chemicals*, Des Moines Register, Oct. 12, 1986, at 1F, col. 3. Once the legislature was in session, the development of the legislation, which was initiated and carried in the House, was a central issue of debate throughout 1987. *See, e.g.*, Bullard, *Environmental Panel Takes Aim at Ending Groundwater Pollution*, Des Moines Register, Jan. 7, 1987, at 1M, col. 5; Fogarty, *$10.9 Million Groundwater Tax Proposed*, Des Moines Register, Feb. 6, 1987, at 1A, col. 1; Fogarty, *Nation Eyes Groundwater Fight in Iowa*, Des Moines Register, Feb. 22, 1987, at 1B, col. 1; Editorial, *Battle Over Clean Water*, Des Moines Register, Feb. 27, 1987, at 18A, col. 1; Fogarty, *Paul Johnson: Not Your Typical Iowa Politician; Johnson Leads House Groundwater Debate*, Des Moines Register, Mar. 22, 1987, at 1B, col. 5. Once the debate was joined, there was considerable controversy over proposed funding measures, water quality standards, and the state's water clean up efforts. *See, e.g.*, Fogarty, *Groundwater Protection Act Gains Support*, Des Moines Register, Mar. 25, 1987, at 2A, col. 6; Norman, *Contaminant Limits Trip Groundwater Bill*, Des Moines Register, Apr. 15, 1987, at 2A, col. 2; Norman, *Senate Begins Scrutiny of Groundwater Bill*, Des Moines Register, Apr. 9, 1987, at 2A, col. 1; Norman, *Iowa Senate Approves Clean Water Measure*, Des Moines Register, Apr. 25, 1987, at 1A, col. 4; Editorial, *Phony Groundwater Bill*, Des Moines Register, Apr. 28, 1987, at 1A, col. 4; *Key Water Bill Backer Assails Senate Version*, Des Moines Register, May 1, 1987, at 1A, col. 1; Fogarty, *Water Bill Nears Passage as 600,000 Fish Poisoned*, Des Moines Register, May 8, 1987, at 1A, col. 2; Fogarty, *Strong Groundwater Bill Endorsed by Iowa House*, Des Moines Register, May 9, 1987, at 1A, col. 2; Fogarty, *Water Bill Labeled Good, Not Great*, Des Moines Register, May 10, 1987, at 3B, col. 1.

tamination, an extensive study and pilot program to identify alternative methods of farming and drainage that will assist these efforts, and a priority system to identify which agricultural drainage wells will be closed first.[100] The program is to be administered by the Department of Natural Resources ("DNR") with the assistance and cooperation of the DALS.

The law establishes the following deadlines for ending such contamination: "Beginning July 1, 1993, the department shall initiate an ongoing program to meet the goal of eliminating chemical contamination caused by the use of agricultural drainage wells by January 1, 1995, based upon the findings of the report published pursuant to subsection 6."[101] The report referred to is based on a provision that required the department to:

> [O]n July 1, 1987, initiate a pilot demonstration and research project concerning the elimination of groundwater contamination attributed to the use of agricultural chemicals and agricultural drainage wells. The project shall be established in a location in North Central Iowa determined by the department to be the most appropriate. A demonstration project shall also be established in Northeast Iowa to study the techniques for the cleanup of sinkholes.[102]

Under this pilot study, the state is required to identify the environmental, economic, and social problems presented by the continued use or closure of agricultural drainage wells and to also monitor possible contamination caused by farming and agricultural chemical uses.[103] The study is then to develop alternative management practices based on these findings that will reduce the "infiltration of synthetic organic compounds into the groundwater through agricultural drainage wells and sinkholes."[104] The study is also to "[e]xamine alternatives and the cost of implementing alternatives to agricultural drainage wells, and examine the legal, technical, and hydrological constraints for integrating alternative drainage systems into existing drainage districts."[105]

The DNR and DALS are to publish a report of the status and findings of the pilot project on or before July 1, 1989, and annually thereafter. Based on this report, the DALS "shall develop a priority system for the elimination of chemical contamination from agricultural drainage wells and sinkholes."[106] The priority system is to be based on information concerning the significance of contamination and the relative number of wells in an area and is to give the highest priority to those agricultural drainage wells that are highly probable sources of contamination for which the costs of neces-

---

100. Iowa Code § 159.29 (1989) (as amended by 1990 Iowa Acts ch. 1027).
101. Iowa Code § 159.29(7) (1989) (as amended by 1990 Iowa Acts ch. 1027).
102. *Id.* § 159.29(3)(a).
103. *Id.*
104. *Id.* § 159.29(3)(b).
105. *Id.* § 159.29(3)(c).
106. *Id.* § 159.29(6).

sary action are at a minimum.[107] The act also authorizes the DALS to engage in other activities to stop such sources of contamination. For example, the law provides that:

> The department shall develop and implement a program for the prevention of groundwater contamination through sinkholes. The program shall provide for the education of landowners and encourage responsible chemical and land management practices . . . .
>
> The program may provide financial incentives for land management practices and the acquisition of conservation easements around sinkholes. The program may also provide financial assistance for the cleanup of wastes dumped into sinkholes.
>
> The program shall be coordinated with the groundwater protection programs of the department of natural resources and other local, state, or federal government agencies which could compensate landowners for resource protection measures. The department shall use moneys appropriated for this purpose from the agriculture management account of the groundwater protection fund.[108]

The act contains a similarly worded section that authorizes the DNR to:

> [D]evelop and implement a program for the acquisition of wetlands and conservation easements on and around wetlands that result from the closure or change in use of agricultural drainage wells upon the implementation of the programs specified in section 159.29 to eliminate groundwater contamination caused by the use of agricultural drainage wells.[109]

A final thrust of the law that is worthy of attention concerns the obligations that were placed on landowners who owned land drained by a drainage well. First, the law requires that "[a]n owner of an agricultural drainage well shall register the well with the department of natural resources by January 1, 1988."[110] Because of delays in the implementation of the registration program, the legislature amended the law to extend the registration deadline until September 30, 1988.[111] The second requirement for landowners is:

> An owner of an agricultural drainage well and a landholder whose land is drained by the well or wells of another person shall develop, in consultation with the department of agriculture and land stewardship and the department of natural resources, a plan which proposes alternatives to

---

107. *Id.*

108. *Id.* § 159.28.

109. *Id.* § 108.11.

110. *Id.* § 159.29(1).

111. The amendment also specifically authorized the DALS in cooperation with the DNR to adopt rules pursuant to chapter 17A to provide for an appellate process for violations of this requirement. IOWA CODE § 159.29(1) (1989). Owners of agricultural drainage wells are subject to similar reporting requirements to the Environmental Protection Agency, which considers the wells to be "injection wells" under federal law. 40 C.F.R. § 146.52 (1989). The wells are regulated under the Surface Water Drinking Act, 42 U.S.C. § 6912 (1982 & Supp. V 1987), and the Clean Water Act, 42 U.S.C. § 6905 (1982 & Supp. V 1987).

the use of agricultural drainage wells by July 1, 1991.[112]

There are no comparable provisions in the law concerning the owners of sinkholes or lands drained by sinkholes, perhaps in recognition of the difficulty of developing alternatives to naturally occurring physical land features.

The requirements to register agricultural drainage wells and develop plans for ending their use are supported by a third provision of the law. This provides that landowners who do not register agricultural drainage wells or develop the required plans are not eligible to receive any financial incentive money the state makes available from the agricultural management account of the groundwater protection fund.[113] In other words, while the state has not yet said that it will require the closure of agricultural drainage wells,[114] it has set goals for eliminating contamination, developing plans for alternatives to their use, and requiring landowners to disclose the presence of wells or lose any opportunity for state financial assistance.

IV. Application of Drainage Principles to Groundwater Protection Efforts

Although many issues may arise in integrating laws to protect groundwater and drainage law, the central issue in this analysis is the potential liability of a landowner who plugs a sinkhole or an agricultural drainage well and thus alters the existing surface drainage. The issue cannot be avoided, because if the direct drainage to the acquifer is cut off, the surface water will invariably find an alternative natural flow. In some situations the resulting surface water may stay on the land of the drain owner and percolate through the soil. In other instances it will find other natural drainage and move onto adjacent land. The nature, volume, and direction of the new flow raise a variety of issues for consideration in resolving the drainage rights between the landowner who has closed the drain and neighboring landowners. The satisfactory resolution of these issues may be a precondition to any effort to encourage landowners to voluntarily close such possible sources of

---

112. Iowa Code § 159.29(2) (1989). It is unclear whether just the plan is due by 1991 or the alternative drainage is to begin by that time.

113. Iowa Code § 159.29(2)(b) (1989).

114. The issue of simply legislating the closure of such wells was considered during the debate over the act but proved too politically controversial and perhaps somewhat premature, thus leading the state to adopt the chosen approach of studying the problem and the alternatives. This possibly leaves the issue to another day. During the time that closure by fiat was being considered, Representative Sue Mullins asked the Attorney General for an opinion on the constitutionality of the proposal. In a letter from Assistant Attorney General Timothy Benton dated March 16, 1987, titled, "Re: Constitutionality of those provisions within HSB 118 concerning agricultural drainage wells," Mr. Benton opined the state had the authority under the police power to legislate the closure of the wells as a threat to public health and welfare and such action would not be considered a taking within the meaning of the fifth amendment. Letter from Assistant Attorney General Timothy Benton to Sue Mullins (Mar. 16 1987).

groundwater contamination, and may be a necessary part of any public regulatory effort to mandate or encourage their closure.

The effect of drainage law on efforts to reduce groundwater contamination from agricultural drainage practices has several variables that may affect the analysis. These variables can be used to identify significant questions that further the development of the issues. Questions that must be considered include:

(1) Is the land where the drain, i.e., sinkhole or agricultural drainage well, is located a "dominant" or "servient" estate for purposes of drainage questions? The issue of relative elevation and thus dominance for purposes of natural drainage is the most significant determinant in resolving potential drainage disputes. While it might seem evident that the estate maintaining the drain will be the servient estate, this assumption may be premature. First, consider what would happen to the water if the drain was not there. Would it naturally drain over some other land or would it pool up on the surface until it naturally percolates through the soil? Given the flat nature of the lands in question, which is the original justification for the artificial drain, the latter may well be the case. Then the issue would become the ability of the landowner to seek other "natural" courses of drainage for the water.

(2) Is the drain in question a sinkhole or an agricultural drainage well? In the first instance the drain is naturally occurring, which may affect its status as part of the natural drainage system, thus making any effort to alter it subject to greater scrutiny.[115] Agricultural drainage wells on the other hand are man-made or "artificial" drainage. Because most have been in place for generations, another issue for consideration is whether they have become "natural" drainage by prescription or by some other equitable doctrine.

(3) Is the impact of plugging the drain self-contained or will it result in an increase in surface drainage onto an adjacent landowner? If the impact is self-contained, such as creating a marsh, there may not even be a drainage question. However, in light of the economic consequences of such land use impacts, it is predictable that landowners plugging surface drains will attempt and expect to drain the land by some other method, relying on their natural surface drainage rights. If the water is of such an amount that it is collected or channelled to other existing constructed drainage, or diverted onto an adjacent servient estate through existing natural drainage, an issue might arise. Another aspect of this question is the size of the area drained and whether it crosses property boundaries, as many sinkhole and drainage well sites do. The issue then involves the legal right of the adjacent land-

115. It must be recognized that some sinkholes are referred to as "improved," which generally means that some action such as cleaning or dynamiting to increase the size or improve the flow, has been made. An issue that might arise involving such an "improved" sinkhole is whether it is still natural.

owner, who has been relying on the drain, to ensure that the drain is being maintained.

(4) If the closure does increase the drainage off the property, is it in the form of surface waters, such as the creation of a wetland on neighboring land, or is it an increase in the flow of a natural or artificial watercourse through the property? As noted in drainage principle number seven, the Iowa courts have not focused on terminology when considering drainage disputes but rather on the injury that is caused. If the property closing the drain is dominant and the water flows as surface water, either spread out or in a watercourse, and if the amount or manner of its removal doesn't cause substantial injury to the servient estate, then there should not be any liability.

(5) If the public is involved in encouraging mandatory closure of the drains as sources of groundwater contamination, what defenses does this provide individual landowners in private drainage disputes? In the absence of a statute, are there other common law defenses, such as "good husbandry," that might provide some protection to landowners who are closing such drains? The answer to these questions rests in reconciling drainage law with laws relating to the prevention of groundwater contamination. This analysis must also take into consideration common law rules concerning the power and duty of landowners to protect natural resources, such as soil and water, which have an important public value.

(6) Is the 1987 amendment to section 468.621 an attempt to substantially alter Iowa drainage law so that if the closure of a drainage well increases natural drainage onto adjacent lands there is strict liability? This question is perhaps one of the most difficult to answer. As noted above, the language of the section would appear to make it a primary force in resolving drainage disputes, however, the courts' limited application of the provision to situations involving constructed drains makes this broad interpretation questionable. This may mean the section has no application to cases in which the issue is the closure of a sinkhole with reliance on existing natural watercourses for drainage. However, in situations dealing with the closure of constructed drains such as agricultural drainage wells, it may apply. But even in the situations in which it may apply, the second sentence of the provision, which protects from liability a landowner who is reconstructing a replacement drain wholly on his or her own land, would appear to limit the effect of the section.[116]

---

116. The sentence reads, "An owner in constructing a replacement drain, wholly on the owner's land, and in the exercise of due care, is not liable in damages to another if a previously constructed drain on the owner's own land is rendered inoperative or less efficient by the new drain, unless in violation of the terms of a written contract." IOWA CODE § 468.621 (Supp. 1989). In light of the Iowa courts' early efforts to modify the civil rule to allow the improvement and development of agricultural land by protecting reasonable efforts toward surface drainage, it is doubtful if the courts will broadly interpret the 1987 amendment. The amendment states that a

V. Case Studies Involving Agricultural Drainage Wells and Sinkholes

In considering how the Iowa courts would resolve specific drainage disputes arising in the context of closing surface drainage sources, it is important to note that the Iowa Supreme Court has never considered a case involving the direct underground drainage of surface waters, such as through drainage wells and sinkholes. Reported cases have always involved situations in which the surface water, even if at some point collected with subsurface tile lines,[117] would ultimately find surface drainage in natural watercourses or would eventually pool and percolate into the soil. As a result, it is unclear how the courts would decide issues such as whether the drains may become "natural" through prescription, supporting estoppel arguments against their closure, or whether sinkholes, although not surface drainage, are "natural" drainage and must be treated similarly to natural surface watercourses. In light of both the lack of case authority and the argument that such direct sources of surface drainage to underground acquifers pose a significant threat to public health and safety, it may be predictable that the courts will not treat sinkholes as "natural" drainage even though they may be "naturally occurring" or have become "natural" through prescriptive use. Certitude on how the court will handle such issues must wait until such a case is decided. However, it is still possible to consider how the drainage principles already identified would apply to cases in which landowners desired to end usage of such surface drainage methods.

A. *Landowner Closure of, or Diversion Around, a Sinkhole*

Facts: In this case the landowner uses surface drainage to drain across a servient estate by way of a natural watercourse. In the last five years a sinkhole has appeared in the watercourse and much of the drainage is disappearing into the sinkhole. The landowner desires to eliminate the potential contamination the sinkhole presents to the acquifer and wants to: (a) plug the sinkhole (assuming that such technology is available and workable); or (b) construct an artificial collection and drainage ditch that would divert surface water around the sinkhole, returning it to the natural watercourse at a point still on his property.

Discussion: The first issue is whether the land is the dominant estate. If

---

landowner can use natural surface drainage, "unless it increases the quantity or changes the manner of discharge on the land of another," to limit the application of natural surface drainage rights as developed by the courts over the last 120 years. Iowa Code § 465.22 (1989).

117. In one of the Iowa Supreme Court's earliest and most significant drainage cases, Livingston v. McDonald, 21 Iowa 160 (1866), which involved a tile line in a watercourse, the court said that "though the ditch in question is *underground*, we do not deem the water, which it drains or carries, as hidden or subterraneous." Livingston v. McDonald, 21 Iowa 160, 165 (1866) (emphasis in original). The court treated the underground drainage as surface water. *Id.*

it is, then under drainage principle number one, the property maintains a drainage servitude over the servient estate that can be exercised by using the natural surface drainage system. There should be no liability to the landowner as long as the corrective measure of plugging the sinkhole or diverting surface water around it does not materially change the amount or location of the drainage onto the servient estate, so as to cause substantial injury, and the corrective measure does not tap into new watersheds that would not normally drain this direction. The fact that a sinkhole has formed would not appear to give the servient estate an argument that it must be used as a form of surface drainage. The landowner, in closing the sinkhole or diverting around it, is doing nothing more than asserting the natural drainage rights of a dominant estate, as exemplified in drainage principles number one and number two, which were in use prior to its appearance.

There are two possible variations of this case that may affect the analysis. First, what if the land with the sinkhole is the servient estate accepting drainage from adjacent land? In this case the question to be asked is where did the water go before the sinkhole developed, and would it follow this course again if the sinkhole was filled? In all likelihood the water would drain naturally, perhaps with the help of collection ditches constructed by the landowner as allowed under drainage principle number six. In its natural course, the surface waters would move onto a servient estate if one existed, and if one did not, then the water would pool up and percolate into the soil, perhaps causing a wet spot or marsh. If the water had drained elsewhere before the sinkhole was formed, then closing it and reverting the water flow to its original drainage would be protected. If the water had not drained prior to the formation of the sinkhole but rather pooled, then any effort to seek alternative surface drainage would be subject to the limitations of drainage principles number one and two, which protect dominant owners from having water backed onto their property. The physical experience with sinkholes would indicate that the scenario of no prior existing natural drainage is much less likely to occur than the situation in which the land is a dominant estate and natural surface drainage does exist.

Second, what if the sinkhole has been in existence for longer than the prescriptive period of ten years and the landowner has now decided to close it, assuming that this is possible?[118] The answer to this question is uncertain due to the lack of case law on the legal status of sinkholes as forms of "natural" drainage. The court rulings on the availability of prescriptive theories to alter natural drainage patterns between parties, as discussed in conjunction with drainage principle number eight, and the ability of servient estates to obtain counter-easements, as discused under drainage principle number five, add to the uncertainty. If the property is in fact the dominant estate

118. Practical experience indicates that the longer a sinkhole is in existence, the more difficult it is to plug. The action of water draining down it acts to bore or clean out the opening, making closure a difficult proposition.

and there is natural surface drainage to which the water can be diverted if the sinkhole is closed or bypassed, the landowner could argue that this case is no different than if the land was being drained for the first time, without the sinkhole. Of course the servient estate now receiving the increase in surface water could argue the sinkhole owner was altering the "natural" drainage, and therefore increasing surface drainage. The resolution of this dispute would depend on several factors: the status the court accords the sinkhole as "natural" drainage; how equitable theories of prescription apply to the case; the weight the court may give to any defense, such as good husbandry, to protect the underground water; and the extent of the injury caused by the increase in the surface drainage as established under drainage principle number nine.

B. *Landowner Closure of an Agricultural Drainage Well*

Facts: The landowner's property is being drained by an agricultural drainage well constructed over eighty years ago by a former owner. The landowner wants to plug the drainage well by closing it and breaking the subsurface tileline intakes that feed it. This action will result in a substantial amount of water pooling at the former well head. The landowner then wants to construct a ditch on the property that would lead the water into an existing natural surface watercourse that leads off the property onto an adjacent farm.

Discussion: Agricultural drainage well situations present somewhat different cases than those involving sinkholes. Although the wells are "artificial," they have been in existence for generations. More importantly, they were constructed in areas where the existing surface drainage patterns did not adequately remove surface waters. As a result, any effort to close such a well will probably result in large quantities of surface water to be disposed of elsewhere. There are several options for such disposal: (1) The landowner may drain the water in the course of natural surface drainage onto a servient estate, if one exists. In some cases, the site of the drainage well may be the servient estate of other properties, which may raise issues concerning the well owner's ability to end its usage. (2) The landowner may allow the water to pool in the area of the former wellhead and farm around the resulting wetland. If this option is chosen, even though the landowner has decided to absorb the economic cost of the closure, issues may still arise when the wetland extends across property boundaries. Issues also arise when the wetland created by the closure will eventually result in the reestablishment of some natural surface drainage pattern. (3) The landowner may collect the water and divert it by a ditch to an existing drainage district in the general vicinity, as is often the case.

Of course the starting point for the discussion has to be a determination of whether the land that contains the former agricultural drainage well is a dominant estate. Drainage principle number two establishes that the deter-

mination of which estate is dominant depends on the relative elevations of the tracts. If the well is closed, it will only take until the first significant rain to determine whether the tract is dominant or servient, by observing the direction the water drains. As the court noted in *DeWitt v. DeWitt*,[119] a party has the right to seek enforcement of "rights which nature built."[120] If the land does drain and the servient estate objects, then the issue will be to determine the application of the prescriptive doctrine. Drainage principles number four, five, and seven show that a court must determine whether the new "servient estate" had obtained the right to rely on the drainage well for surface drainage. Further, as indicated in drainage principle number ten, if the property is within a drainage district but was not drained by the district, and if the estate is dominant, it may make use of existing natural surface drainage and legally drain across servient estates.

If the property is a dominant estate that has alternative natural drainage available, then the case may be one of applying prescriptive rules and determining the courts' treatment of agricultural drainage wells as "natural" drainage. If the elevations of the properties are similar, and the water, due to limited natural drainage, pools up on adjacent property, the issues may be different. It must be remembered, however, that if the property is a dominant estate, it has the right to make use of this dominance. As recently as 1987 the Iowa Supreme Court, when reviewing the rights of servient and dominant estates, noted:

> [T]hese corresponding rights and obligations do not mean that low parts on land must retain water in ponds until it percolates into the soil. A landowner may divert water by surface drainage constructed upon his or her own land even though different or additional water may enter the servient estate.[121]

While dominant estates have a right to move water onto servient estates, if the water does not have any place to flow once on the serviant property, and it backs up onto the dominant estate, it is not clear that there is any recourse. As long as the servient estate is not blocking a natural watercourse or an artificial watercourse to which the dominant estate has an easement, as reflected in drainage principle number eleven, then it is not clear whether any liability would exist. The fact may be that the parties just own property subject to flooding from poor drainage. It is these situations that moved the legislature to enact subchapters V and I of chapter 468, which respectively authorize landowners to establish drainage ditches and obtain drainage rights over others, and to authorize the formation of drainage districts.[122]

---

119. DeWitt v. DeWitt, 259 Iowa 1037, 147 N.W.2d 32 (1966).
120. *Id.* at 1044, 147 N.W.2d at 36.
121. Moody v. Van Wechel, 402 N.W.2d 752, 757 (Iowa 1987).
122. Iowa Code §§ 468.1-.240, 468.600-.634 (Supp. 1989).

This discussion indicates the significance of the courts' determination of whether agricultural drainage wells are "natural" drainage that cannot be altered in light of prescriptive doctrine, or that they cannot be relied on by adjacent owners for drainage because of the public policy to close them as a possible threat to public health. Iowa case law provides some guidance on this issue but in only limited situations. In *Stouder v. Dashner*,[123] the court considered a drainage dispute over reestablishing natural drainage after a railroad right-of-way, which for many years had artificially blocked the natural flow, was rebuilt.[124] The court held that there was a distinction between the prescriptive rule as to individual landowners and that involving drainage through and across railway grades, which meant that in this case the natural drainage could be reestablished.[125] More significantly, the Iowa courts apply a similar rule when dealing with the public. In *Droegmiller v. Olson*,[126] the court considered whether the county could remove a dike the plaintiff had established on his land that was flooding a roadway.[127] The court held:

> While an artificial ditch may under some circumstances become a natural watercourse as between private individuals, such rule does not apply where the rights of the public are involved. Neither the statute of limitations nor prescriptive right can be argued against the public. Cases involving drainage controversies between private individuals are not applicable to a controversy such as this between a private owner and the county, representing the public.[128]

If it becomes public policy to close agricultural drainage wells, the above interpretation might prevent a private landowner, who is impacted by the new surface drainage pattern, from arguing that they had obtained prescriptive rights in the artificial drainage. While the cases do not state whether there is an unlimited right to reestablish natural drainage rights due to dominant estate status, they do support the argument that if the action is based on a concern for public health or public policy, prescriptive doctrine may give way.

VI. Defenses Available to Landowners Closing Surface Drainage Sites

In any litigation involving liability for drainage damage resulting from closure of a surface drainage source, consideration of defenses available to the defendant will be important. The lack of litigation involving direct sur-

123. Stouder v. Dasher, 242 Iowa 1340, 49 N.W.2d 859 (1951).
124. *Id.* at 1342, 49 N.W.2d at 860.
125. *Id.* at 1350, 49 N.W.2d at 864.
126. Droegmiller v. Olson, 241 Iowa 456, 40 N.W.2d 292 (1949).
127. *Id.* at 462, 40 N.W.2d at 295.
128. *Id.* at 463, 40 N.W.2d at 297. It is interesting to note that at least a few agricultural drainage wells are maintained in county secondary road right of ways and closure of these may directly involve the public, rather than just raise the issue of public policy in favor of closure.

face drainage into underground aquifers limits the case authority available to develop such defenses, but there are important analogies that can be drawn to similar issues of property rights and environmental protection. Possible defenses include good husbandry and public policy to protect the quality of underground water and elimination of potential nuisance liability.

A. *Good Husbandry and Public Policy*

The Iowa courts have recognized that a landowner has a duty and a right to exercise good husbandry in the operation and use of agricultural land. The court relies on the good husbandry doctrine to modify the civil law rule of drainage so as to allow owners of dominant estates to increase the flow onto servient estates in order to improve their property.[129] For example, in *Logsdon v. Anderson*,[130] the court noted that the party diverting water "was merely exercising good husbandry and the right given by law to divert the flow of water around rather than across the land where it would normally go."[131] The Iowa courts have also held that a landowner has a common law duty to exercise good husbandry in the care of the soil to see that it does not erode at more than natural levels.[132] Under section 467A.43, a similar duty is imposed on all agricultural landowners.[133] The legality of this statute and the enforcement of an order requiring a landowner to expend funds to establish soil conservation practices were upheld during a taking challenge in the Iowa Supreme Court's landmark ruling in *Woodbury County Soil Conservation District v. Ortner*.[134] In *Woodbury*, the court reaffirmed the fundamental importance of soil to the health and prosperity of the state and held that the "state has a vital interest in protecting the soil

---

129. Obe v. Pattat, 151 Iowa 723, 727, 130 N.W. 903, 905 (1911).

130. Logsdon v. Anderson, 239 Iowa 585, 30 N.W.2d 787 (1948).

131. *Id.* at 591, 30 N.W.2d at 791.

132. *See, e.g.*, Quade v. Heidersheit, 391 N.W.2d 261 (Iowa Ct. App. 1986); McElwee v. De Vault, 255 Iowa 30, 120 N.W.2d. 451 (1963). These cases hold a tenant can breach a covenant of good husbandry, either implied or expressed, in the lease. In Moser v. Thorp Sales Corp., 312 N.W.2d 881, 906-07 (Iowa 1981), Justice Reynoldson noted in his dissent that "according to our common law, a tenant is required to cultivate the farm according to the course of good husbandry and must return the premises in the same general condition in which they were at the time of letting, subject to such general deterioration as is caused by reasonable use and lapse of time." In this case the defendants had violated the covenant of good husbandry by plowing up and down steep hills and removing grass waterways. *Id.* at 903.

133. The section provides:

> To conserve the fertility, general usefulness, and value of the soil and soil resources of this state, and to prevent the injurious effects of soil erosion, it is hereby made the duty of owners of real property in this state to establish and maintain soil and water conservation practices or erosion control practices, as required by the regulations of the commissioners of the respective soil conservation districts.

IOWA CODE § 467A.43 (1989).

134. Woodbury County Soil Conservation Dist. v. Ortner, 279 N.W.2d 276 (Iowa 1979).

as the greatest of its natural resources."[135]

However, while there is a duty to protect the soil, the court's recent holding in *O'Tool v. Hathaway*[136] demonstrates that soil conservation efforts cannot ignore basic rules of surface drainage.[137] The court in that case specifically rejected a request to adopt a rule immunizing farmers engaged in soil conservation efforts from possible drainage liability.[138]

These cases may provide an important basis for arguing that the protection of the state's groundwater supply is of the same magnitude as the protection of soil resources. Therefore, the actions of a landowner in closing a surface drainage source to prevent possible groundwater contamination are protected as an act of good husbandry both to protect the landowner's interest in clean water, and more importantly to protect the public's interest in clean drinking water. Another way to state the defense would be that any damages caused by the closure are authorized or justified by public policy. The language of the Groundwater Quality Protection Act, setting the goal for elimination of contamination from such surface drainage sources, provides strong support for this argument.

B. *Nuisance*

Another legal theory involves the question of nuisance. Section 657.2(4) of the Iowa Code defines a nuisance to include "the corrupting or rendering unwholesome or impure the water of any river, stream, or pond."[139] The Iowa courts have held this includes pollution of surface waters such as streams and creeks[140] and underground water sources such as wells.[141] It is possible that a landowner who maintains an agricultural drainage well, or perhaps even one whose land is drained by sinkholes, may be sued for nuisance by a nearby property owner on the basis that the surface drainage was contaminating the underground water supply. Such a suit could also be

---

135. *Id.* at 280.

136. O'Tool v. Hathaway, 461 N.W.2d 161 (Iowa 1990).

137. *Id.*

138. *Id.*; *see supra* text accompanying notes 27-43.

139. IOWA CODE § 657.2(4) (1989).

140. *See, e.g.*, Newton v. City of Grundy Center, 246 Iowa 916, 70 N.W.2d 162 (1955); Stovern v. Town of Calmar, 204 Iowa 983, 216 N.W. 112 (1927); Boyd v. City of Oskaloosa, 179 Iowa 387, 161 N.W. 491 (1917); Vogt v. City of Grinnell, 133 Iowa 363, 110 N.W. 603 (1907); Bowman v. Humphrey, 132 Iowa 234, 109 N.W. 714 (1906); Perry v. Howe Co-op Creamery Co., 125 Iowa 415, 101 N.W. 150 (1904); Bowman v. Humphrey, 124 Iowa 744, 100 N.W. 854 (1904); Hollenbeck v. City of Marion, 116 Iowa 69, 89 N.W. 210 (1902); Ferguseon v. Firmenich Mfg. Co., 77 Iowa 576, 42 N.W. 448 (1889). These case are discussed in Davis, *Water Rights In Iowa*, 41 IOWA L. REV. 216, 228-29 (1956).

141. Mann v. Des Moines Water Co., 202 F.2d 862 (8th Cir. 1913); Iverson v. Vint, 243 Iowa 949, 54 N.W. 494 (1952); Payne v. Town of Wayland, 131 Iowa 659, 109 N.W. 203 (1906). Two recent cases involve concerns over underground pollution: Kasparek v. Johnson County Bd. of Health, 288 N.W.2d 511 (Iowa 1980) (septic tanks) and Mel Foster Co. v. American Oil Co., 427 N.W.2d 171 (Iowa 1988) (gas seepage).

brought as a public nuisance if the drainage was contaminating the underground water supply of a city. The possibility of creating a nuisance and facing potential liability would be another justification the landowner could use to support the closure of the surface drainage and to defend against claims of liability arising from the alteration of surface drainage patterns.

While the Iowa courts have not considered a nuisance action involving the pollution of underground water supplies from agricultural sources, there have been related cases in other states in which agricultural landowners argued that underground water pollution damaged their property and crops. In *Miller v. Cudahy Co.*,[142] the Tenth Circuit affirmed an award of over $3 million in actual damages and $10 million in punitive damages to a group of landowners who proved that the activities of the defendant salt manufacturer contaminated their underground water supply with salt pollution and injured their crops and land.[143] In *Frank v. Environmental Sanitation Management, Inc.*,[144] several farmers received nuisance damages in an action against a landfill operator on the theory that chemicals leaked from the landfill and polluted a stream running across their property.[145]

One limitation on the use of this argument as support for landowner closure of surface drains, is Iowa Code section 455E.6, which attempts to limit the liability of agricultural producers for damages caused by the presence of pesticides or nitrates in groundwater when the use of the chemicals did not exceed recommended levels.[146] The applicable section provides:

> Liability shall not be imposed on an agricultural producer for the costs of active cleanup, or for any damages associated with or resulting from the detection in the groundwater of any quantity of nitrates provided that the application has been in compliance with soil tests results and that the applicator has properly complied with label instructions for the application of the fertilizer. Compliance with the above provisions may be raised as an affirmative defense by an agricultural producer.
>
> Liability shall not be imposed upon an agricultural producer for costs of active cleanup, or for any damages associated with or resulting from the detection in the groundwater of pesticide provided that the applicator has properly complied with label instructions for the application of the pesticide and that the applicator has a valid appropriate applicator's license. Compliance with the above provisions may be raised as an affirmative defense by an agricultural producer.[147]

This section was added as a concession to agricultural groups that were con-

---

142. Miller v. Cudahy Co., 858 F.2d 1449 (10th Cir. 1988).

143. Miller v. Cudahy Co., 592 F. Supp. 976 (D. Kan. 1984), *aff'd*, 858 F.2d 1449 (10th Cir. 1988). The latest decision is discussed in Centner, *Liability for Groundwater Contamination*, 6 AGRIC. L. UPDATE 1 (Feb. 1989).

144. Frank v. Environmental Sanitation Management, Inc., 687 S.W.2d 876 (Mo. 1985).

145. *Id.* at 882.

146. IOWA CODE § 455E.6 (1989).

147. *Id.*

cerned the proposed law would subject farmers to potential liability for commonly accepted farming practices.[148] The exact effect of the limitation is not clear because it is preceded by a provision that states, "[T]his chapter supplements other legal authority and shall not enlarge, restrict, or abrogate any remedy which any person or class of persons may have under other statutory or common law and which serves the purpose of groundwater protection."[149] Under this language it would appear that if a landowner's conduct, such as draining surface water into an agricultural drainage well, would support a theory of nuisance, then the value of the affirmative defense is of some question. To use the affirmative defense, a landowner must prove the pesticide and fertilizer use was pursuant to professional recommendations and done by authorized personnel, which present additional cost and record keeping requirements.[150]

A landowner onto whose property water contaminated with agricultural chemicals drains also has the option of bringing a nuisance suit to stop such drainage. One possible limitation on the application of nuisance between individuals is that both the common law, as seen in drainage principles number four and five, and section 468.621 concerning constructed drains, allow parties to enter into agreements for drainage. The party whose drainage is being challenged could argue that an agreement existed giving the right to drain the water, as polluted by agricultural chemicals, and thus private nuisance is not available. While such an argument might prevent the owner of the land, onto which the water is draining, from arguing a private nuisance, it is clear that a private agreement, or argument by prescription, would not be effective against the public in a public nuisance action brought to stop the pollution. In *Ruthven v. Farmers Co-Operative Creamery Co.*,[151] the Iowa Supreme Court, in a private nuisance action concerning an agreement to dump wastes in a stream, stated, "[I]f the discharge of the sewage constitutes a public nuisance, and this were an action to abate it as such, no agreement between the adjacent owners would be a defense to the action."[152]

---

148. *See Groundwater Bill Provides Liability Protection to Farmers, Restates Goal*, IOWA FARM BUREAU SPOKESMAN, Apr. 11, 1987. The wisdom of liability exemptions, which assume that the professional recommendations protect the public interest in clean water, may be questionable, especially if they prevent the public from being able to induce landowners to adopt practices that limit or reduce the likelihood of any contamination. An example is the closing of surface drains. For a discussion of how practices, once treated as commonly accepted, can come to be seen as environmentally unsound, see Moser v. Thorp Sales Corp., 312 N.W.2d 881, 906-07 (Iowa 1981)(Reynoldson, J., dissenting).

149. IOWA CODE § 445E.6 (1989).

150. The issue of state efforts to protect groundwater quality and the impact on agriculture is discussed in Centner, *Groundwater Quality Regulation: Implications for Agricultural Operations*, Univ. of Georgia Agric. Experiment Station, 1989. *See also*, Sivas, *Groundwater Pollution from Agricultural Activities: Policies for Protection*, 7 STAN. ENV. LAW J. 117 (1987).

151. Ruthven v. Farmers Coop. Creamery Co., 140 Iowa 570, 118 N.W. 915 (1908).

152. *Id.* at 574, 118 N.W. at 916.

VII. Conclusion

While the case law will not predict with complete accuracy the effect of drainage law on the closure of surface drains, the basic principles of Iowa drainage law are clear enough that guidelines and expected results can be drawn. First, if a property owner owns the dominant estate then he has a common law and statutory right to drain onto servient estates, provided the amount and method of any increased flow does not cause substantial harm. Second, landowners who are closing agricultural drainage wells rather than sinkholes may face the question: Through prescription does an artificial drain become a natural method of drainage? It is doubtful whether the courts will apply the prescriptive doctrine to protect drainage rights in surface drains that are a threat to the public health.

Another conclusion that can be drawn concerns the available defenses, such as the good husbandry rule and the legal sanction doctrine, that might protect landowners from liability actions by neighboring landowners when they decide to close drains pursuant to public policy to prevent groundwater contamination. Also, the application and effect of section 468.621, and in particular the 1987 amendment, in disputes over natural surface drainage is very uncertain. Finally, if the courts are unable to adequately resolve drainage disputes arising from state efforts to stop surface drainage contamination of groundwater, legislation may be needed to clarify the rights of landowners and the public to take efforts to protect groundwater without incurring possible drainage liability.[153]

153. If the courts determine that section 468.621 is indeed intended to codify state law on natural surface drainage, then an amendment to the section stating that landowners who plug sinkholes or agricultural drainage wells, or who divert surface water around such sites, shall not be liable for any damages caused by the increase in the amount of water drained in natural watercourses, would be helpful to clarify the legislature's position.