Drinking Poison: How Iowa Code 455E.6 Takes Away Iowans' Right to Protect Their Water

Noah Dwyer

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I. INTRODUCTION

Years ago, while I worked at a summer camp in Iowa, I met a man who had recently become a father. He lived near Strawberry Point in Clayton County, a rural county in Northeastern Iowa, and I found many in this county lacked access to basic resources. The nearest emergency room was over thirty minutes away. The town had a small grocery store, but it had restricted hours and limited options. Additionally, a small walk-in clinic sat just outside of the town, but it was often closed. The man I met was not poor, *per se*. His child would not need to be on food stamps or reduced lunch programs once old enough to be in school, but one day he approached me with a particular problem: he could not use his well water to make food for his child because of dangerously high nitrate levels. His wife worked close to an hour away in Cedar Rapids, so this man was the caretaker for the child during the days. He would have to drive over thirty minutes away to the nearest open grocery store to get bottled water for his child. It was a significant and costly burden to him. If this was the case for a family with a livable income, it shocked me to think of the problems this was causing among the poor in the county. My research would lead me to find that this issue is not isolated to the health of children alone, but rather, nitrates in Iowans' drinking water is a widespread health concern across the state and across age groups.

There is a crisis in rural Iowa's waters, and its root is in the soil. Nitrate levels in Iowa waters have exceeded dangerous levels.[1] This has led to serious health and economic concerns for many Iowans.[2] If someone lives on a farm and uses well water, there is a larger chance that they are at heightened risk to experience nitrate exposure, and nitrate-polluted water is particularly dangerous for infants.[3] In addition, high nitrate levels lead to cancer and other serious side effects, particularly in women and those who bear children.[4]

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[1] Bernard T. Nolan et al., *Nutrients National Synthesis Project: A National Look at Nitrate Contamination of Ground Water*, USGS (Sept. 15, 2015, 9:41 PM), https://water.usgs.gov/nawqa/nutrients/pubs/wcp_v39_no12 [https://perma.cc/TRJ3-96B8].

[2] *Id.*

[3] *Nitrate/ Nitrate Toxicity: What Are the Health Effects from Exposure to Nitrates and Nitrites?*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY (Dec. 5, 2013), https://www.atsdr.cdc.gov/csem/nitrate-nitrite/health_effects.html [https://perma.cc/XY8C-HNJZ]; Anna Jones, '*What They Put on Fields Contaminates Our Water': Iowa's Pollution Problem*, THE GUARDIAN (Sept. 26, 2019, 2:00 PM), https://www.theguardian.com/environment/2019/sep/26/nitrate-problem-iowa-dont-use-the-tap-water-for-babies [https://perma.cc/3UCD-9BUL].

[4] Interview with Michael Luebbers, Soil Scientist, USDA Iowa (Oct. 22, 2020).

This Note will briefly discuss Clayton County, Iowa as an example of a rural county that is already under stress from nitrate exposure. The Census Bureau estimates that 10.4 percent of Clayton County lives in poverty and that 9.2 percent of the population has a disability.[5] Child poverty is also relatively high at 14 percent.[6] While the state of Iowa has a low percentage of uninsured children generally, a higher percentage—over ten percent—of children in Clayton County lack health insurance.[7] These facts indicate that ten percent of Clayton County's children—the uninsured and poor—are at significant risk to water-based diseases that a more affluent child's family might avoid. Additionally, because the poor in cities rely on water from city-systems which can afford nitrate filtration, this issue has a disproportionate impact on the rural poor.[8] The factors above demonstrate that the rural poor in a place such as Clayton County are in a position where the costs and health impacts of nitrate pollution are especially onerous. When one is already struggling financially, the added burden of unsafe water only compounds life's struggles.

The natural next question is to ask from where this problem arose. The problem of excess nitrates in Iowa drinking water is rooted in the essential mismanagement of a crucial resource in the state: the soil.[9] As farming practices remove living matter from the soil, the natural process of fertilization all but ends in large farming operations.[10] Thus, added nutrients are the only way to bring about profitable yields.[11] However, some of the same chemicals that allow crops to flourish prove devastating to human health. [12] This has led to catastrophic results for communities down river, such as the growing "dead zone" in the gulf coast region, to which Iowa is a

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[5] *Quick Facts: Clayton County, Iowa*, U.S. CENSUS BUREAU, https://www.census.gov/quickfacts/claytoncountyiowa [https://perma.cc/A5R2-YJEG].

[6] *Selected KIDS COUNT Indicators for County in Iowa*, THE ANNIE E. CASEY FOUND. KIDS COUNT DATA CTR., https://datacenter.kidscount.org/data/customreports/2736/1237-1240,1242-1243,1246,1258,9287 [https://perma.cc/5DNJ-DGX5].

[7] *Id.*

[8] *See* Donnelle Eller, *Nitrates in Iowa Drinking Water: What Does It Mean for You*, DES MOINES REG. (Jun. 24, 2019, 2:30 PM), https://www.desmoinesregister.com/story/money/agriculture/2019/06/24/nitrates-iowa-drinking-water-what-you-should-know-health-effects-cancer-well-water-farm-pollution1547189001 [https://perma.cc/FY98-XDB8].

[9] DAVID R. MONTGOMERY, GROWING A REVOLUTION: BRINGING OUR SOIL BACK TO LIFE 44 (2017) [hereinafter MONTGOMERY, REVOLUTION].

[10] *Id.*

[11] *Id.* at 60.

[12] Eric M. Dirth, *Successful Agriculture and Clean Water?: A Workable Path Forward for Regulating Drainage Districts as Point Sources Under the Clean Water Act*, 103 IOWA L. REV. 1213, 1228 (2018).

responsible party.[13] Many factors lead to this excess in nitrates; for example, large animal feeding operations have been exacerbating the nitrate problem in Iowa for some time.[14] However, this Note focuses on the issue as it is related to field farming.

This Note focuses on the cause and possible litigation solutions to the problem of excess nitrates in Iowa drinking water, specifically the issue regarding constitutional Takings Clause litigation. To address this issue, one must understand the (A) science behind the problem, (B) the link to agriculture, (C) the medical risks to the rural poor in Iowa, and (E) to (H) the background of the legal approach to the problems of nitrates in Iowa waters.

II. BACKGROUND

Iowa's soil and water crisis is characterized by a fundamental misunderstanding of how soil ecosystems work, and this causes the excess in nitrates in drinking water. [15] Natural processes are able to provide the nutrients necessary to maintain robust crop yields and healthy incomes for farmers.[16] Soil Scientists now know that soil is far more than dirt; rather, it is a vibrant ecosystem of living carbon dense matter that can have multiple positive benefits for world ecology.[17] The Earth contains many complex ecological functions, and to change one is to inherently impact many others.[18] In order to fully understand how modern farming practices are harming rural Iowans' health, one must understand the science behind the use and distribution of nitrates for farming. Instead of more ecological practices, farming has taken on a character of adding nutrients and plowing.[19] One must understand the basics of this process to understand the root of the medical risks. Once one understands the medical risks, one can then understand how the rural poor are at increased danger from this problem, and once that is established, one can search for a solution.

A. Nitrates and Plowing

Scientists first started researching chemical additives for farming yields in the 1800s.[20] During this time, soil scientist Justus Von Liebig discovered that fertilizer gained from bird droppings increased crop yields and

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[13] Jones, *supra* note 3.

[14] Dirth, *supra* note 12, at 1227.

[15] MONTGOMERY, REVOLUTION, *supra* note 9, at 41–42.

[16] *Id.*

[17] *Id.* at 44–50.

[18] *See* DAVID MONTGOMERY, THE HIDDEN HALF OF NATURE: THE MICROBIAL ROOTS OF LIFE AND HEALTH 82–83 (2016) [hereinafter MONTGOMERY, HIDDEN].

[19] Jones, *supra* note 3.

[20] MONTGOMERY, REVOLUTION, *supra* note 9, at 41–42.

comprised three elements: nitrogen, phosphorus, and potassium (popularly known in agrisciences as NPK, the chemical periodic letters assigned to each element).[21] He found that adding these chemicals independently boosted yields.[22] The practice of harvesting and adding the droppings to the fields became common.[23] However, since droppings are a finite resource, industry can only extract so much of these resources before they run out.

Gaining these added chemicals, especially nitrogen, became difficult with the depletion of traditional sources.[24] In the late nineteenth century, the process of gaining usable nitrates from natural sources became almost impossible because of overextraction.[25] So, scientists began the process of searching for new sources of nitrates or else risk the massive decline of crop yields.[26] Two German chemists, Fritz Haber and Carl Bosch found a way to take nitrogen out of the atmosphere—with an almost limitless supply of nitrogen since almost eighty percent of the Earth's atmosphere is nitrogen—and then convert it into usable nitrates.[27] Using very high temperatures, high pressure, and other chemical processes, Haber and Bosch were able to synthesize the nitrogen out of the atmosphere into the usable form of nitrates.[28] After the Second World War, the Allied Nations accessed the information behind the Haber-Bosch process, which before had been only known in Germany, and the rest of the industrial world widely applied the process via agrichemical companies.[29] Thus, wide-spread access to as much nitrogen as farmers or chemical companies wanted became accessible to most of the industrialized world, revolutionizing global farming practices.[30] The chemical revolution in agriculture brought about higher yields in otherwise hollow fields. Adding nitrogen and other elements to soil as additives brought about higher yields; however, it has come at a significant cost.[31]

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[21] *Id.* at 40–41.

[22] *Id.*

[23] *Id.* 41–42.

[24] *Id.* at 42.

[25] *Id.*

[26] MONTGOMERY, REVOLUTION, *supra* note 9, at 41–42.

[27] *Id.*; *see also*, *Earth's Atmosphere Composition: Nitrogen, Oxygen, Argon and CO2*, EARTHHOW (Jan. 7, 2022), https://earthhow.com/earth-atmosphere-composition [https://perma.cc/U3GL-CL4P].

[28] Luebbers, *supra* note 4; *see also* MONTGOMERY, REVOLUTION, *supra* note 9, at 42.

[29] *Id.*

[30] *Id.*

[31] Jones, *supra* note 3.

While considered essential to some, adding excess nitrates is detrimental to soil health, does not help organic matter in the ground, and exacerbates the runoff problems which have caused the drinking water crisis in Iowa's water and the dead zones in the Gulf of Mexico.[32] Problematic as these excess nitrates may be, plowing compounds the problem. Plowing especially causes damage to soil ecosystems and exacerbates nitrate runoff and the need for more added nitrates.[33] Combine the excess added nitrogen and plowing practices, and farm runoff is more likely to leak into drinking water.

1. Plowing and Runoff

The newest developments of the agricultural revolutions, chemical additives, have significant downsides that plowing exacerbates.[34] Soil health is made up of existing biostructures that thrive on complicated microscopic biodiversity.[35] These processes are what made the soil fertile before it was farmed.[36] This is why former plains states, such as Iowa, originally had such fertile soil; the prairies had complex soil structures that allowed for much biological concentration in the soil, and therefore, more nutrients.[37] Originally, agricultural scientists thought that plowing was the best way to cycle these nutrients to the topsoil to make growth possible, but this is no longer an accepted consensus.[38] Soil scientists have demonstrated that plowing decimates these soil micro-ecosystems and thus robs the soil of its natural nutrients. [39] When a plow runs through the soil, it rips the life existing in it up to the surface, destroying much of the life in the soil in the process.[40] As the processing loosens the soil, it makes runoff of the soil and the chemicals they use to fertilize it far more likely, as plowing destroys the needed soil structure to retain runoff and the extra nitrates simply slide off with the dust.[41]

Plowing is the contemporary norm. "The now-conventional view considers plowing essential to control weeds, that erosion is an unavoidable

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[32] Amanda L. Crawford, *Nutrient Pollution and the Gulf of Mexico Dead Zone: Will Des Moines Water Works Be a Turning Point?*, 91 TUL. L. REV. 157, 158–59, 184–85 (2016); Luebbers, *supra* note 4.

[33] MONTGOMERY, REVOLUTION, *supra* note 9, at 41–42.

[34] *Id.*

[35] MONTGOMERY, HIDDEN, *supra* note 18, at 25.

[36] *Id.* at 63.

[37] MONTGOMERY, REVOLUTION, *supra* note 9, at 41–42.

[38] *Id.* at 57.

[39] *Id.* at 41–42.

[40] *Id.* at 68.

[41] *Id.*

result of rainfall."[42] However, that does not mean that it is the healthiest method of farming for the soil or the ecosystems at large which rely on soil health. Soil scientists David Montgomery and Masanobu Fukouka argue that, if properly adopted, avoiding these dangerous processes of chemical additives and tilling "can improve soil quality and boost soil health . . . and crop yields."[43] Be that as it may, farming practices as they are now add excess nitrates to the soil then make it all but guaranteed that those added nitrates will run off the fields. This is how Iowans end up with high levels of nitrates in their water; farming practices that are ubiquitous have brought about serious chemical run-off complications in the search for higher yields.

B. Medical Risks of Nitrates in Drinking Water

Widespread health concerns arise from excess nitrates in drinking water.[44] Significant risks are associated with nitrates in drinking water and impact much of the population.[45] This includes infants, women, those who bear children, and especially the elderly.[46]

This Note focuses on the disproportionate impact to the rural poor in Iowa. The problem of excess nitrates in drinking water is endemic to the entire region of the Midwest.[47] According to the USGS, the entire State of Iowa is at a high risk of groundwater contamination and over half of the state is in the highest possible risk categories.[48] Iowa has a predicted four percent of the population, which is exposed to levels above safety standards (5 mg/l) and eighteen percent of the state, which uses self-supplied (i.e. well) water.[49]

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[42] *Id.* at 69.

[43] MONTGOMERY, REVOLUTION, *supra* note 9, at 70.

[44] IOWA ENV'T COUNCIL, NITRATES IN DRINKING WATER: A PUBLIC HEALTH CONCERN FOR ALL IOWANS 1 (2016), https://www.iaenvironment.org/webres/File/Nitrate_in_Drinking_Water_Report_ES_Web.pdf [https://perma.cc/2WMC-Q5C2].

[45] MARGARET MCCASLAND ET AL., PESTICIDE SAFETY EDUC. PROGRAM, NITRATE: HEALTH EFFECTS IN DRINKING WATER 1 (1985), https://ecommons.cornell.edu/bitstream/handle/1813/3912/Groundwater%20%20Nitrate%20%28Fact%20Sheet%29.pdf?sequence=2&isAllowed=y [https://perma.cc/9TU5-GA35].

[46] *Id.*

[47] Nolan, *supra* note 1.

[48] *Id.*

[49] *Estimated Nitrate Concentrations in Groundwater Used for Drinking,* U.S. ENV'T. PROT. AGENCY, https://www.epa.gov/nutrient-policy-data/estimated-nitrate-concentrations-groundwater-used-drinking [https://perma.cc/8AZQ-XE6M] [hereinafter *Estimated Nitrate Concentrations*].

These self-supplied water sources are most at risk.[50] It is not the highest percentage of any state—some states with larger population concentrations have larger risks—but the nitrate problem crucially impacts Iowa because of its place as an agricultural state. Additionally, nitrates are particularly difficult to remove from water. Normal filtration systems do not work; one can only remove nitrates through reverse osmosis or use of an anion resin tank, which can be prohibitively expensive. [51] Iowans are in significant risk of exposure from nitrates in the drinking water; understanding the severity of those health impacts puts this crisis into further perspective.

1. Risks to Infants, Women, and Those Who Bear Children

Nitrates in drinking water cause a significant risk to infants, women, and those who bear children.[52] Nitrates cause a serious risk to infants called Methemoglobinemia.[53] Methemoglobinemia is a disease that causes the blood to stop being able to carry oxygen.[54] At low levels infants can have serious digestion tract issues and other side effects such as skin discoloration, cyanosis, headaches, dyspnea, lightheadedness and others.[55] At higher rates, it can lead to abnormal cardiac rhythms, altered mental status, delirium, brain

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[50] *Drinking Water: Nitrate and Drinking Water from Private Wells,* CTRS. FOR DISEASE CONTROL (July 1, 2015), https://www.cdc.gov/healthywater/drinking/private/wells/disease/nitrate.html [https://perma.cc/2L5D-CF2L].

[51] *See e.g.*, John Woodard, *How to Remove Nitrates from Water,* FRESH WATER SYS. (Jan. 7, 2020), https://www.freshwatersystems.com/blogs/blog/how-to-remove-nitrates-from-water [https://perma.cc/U2J4-EWP2] (showing that anion tanks can cost over $400 for a home, not counting installation and maintenance); *see also Nitrate Resin*, BIG BRAND WATER FILTERS, INC https://www.bigbrandwater.com/nitrateresin.html [https://perma.cc/N8U4-ZEUB]; *Drinking Water Treatment – Anion Exchange Units*, DRINKING WATER AND HUM. HEALTH (Aug. 23, 2019), https://drinking-water.extension.org/drinking-water-treatment-anion-exchange-units [https://perma.cc/LMP3-SPQ8]. Ion exchange replaces (or exchanges) unwanted minerals in water with less objectionable ones. Chloride and hydroxide ions are the most commonly used materials on the resin beads. As water passes through the device, the resin adsorbs anions such as sulfate, nitrate, arsenic and bicarbonates and releases chloride into the water. The exchange occurs in a fiberglass tank or plastic-lined steel tank filled with either the resin or a synthetic zeolite.

[52] The research this author has found on this issue tends to refer to "women" meaning "females," or "those capable of giving birth." However, in an attempt to broaden the usage of gender-neutral language, this Note includes "those who bear children" in hopes that medical research would focus on the many aspects of life that are impacted by nitrate pollution and gestational issues.

[53] IOWA DEP'T OF PUB. HEALTH, METHEMOGLOBINEMIA 1 (2018), https://wiki.idph.iowa.gov/Portals/3/userfiles/79/Environmental%20Diseases/Methemoglobinemia.pdf [https://perma.cc/A4QV-ZJ6B] [hereinafter METHEMOGLOBINEMIA].

[54] *Id.*

[55] Rachel Ash-Bernal et al., *Acquired Methemoglobinemia: A Retrospective Series of 138 Cases at 2 Teaching Hospitals*, 83 MED. 265, 266 (2004) (explaining the results of a retrospective cases series that describes the cases of acquired methemoglobinemia).

damage or death.[56] One fatality and three near-fatalities were reported in a study of 138 patients.[57] Nitrates can also have long term effects depending on the severity of the original infection such as coma, seizures, acidosis and skeletal abnormalities.[58] "Infants under six months of age are the primary population at risk, although preventive measures are also encouraged for pregnant women, women who are breast feeding, and other high-risk people."[59]

Nitrate exposure in drinking water is a significant risk for neonatal disease and birth complications.[60] "A number of studies suggest links between elevated [nitrate exposure and] and other health issues, including birth defects" due to exposure of pregnant women to elevated nitrate [levels] in drinking water, which may exacerbate the potentially harmful effects of other pollutants, such as the pesticides atrazine and aldicarb, and naturally occurring arsenic.[61] Studies also show that these risks are associated with various defects or harms.[62] "A . . . study . . . in Iowa and Texas from 1997-2005 found that prenatal nitrate intake in the mother's drinking water was significantly positively associated with offspring diagnosed with neural tube defects of the brain and spinal cord, including spina bifida, some oral cleft defects and limb deficiencies."[63] While excess nitrates are not healthy for any portion of the population, infants, women, and those who bear children are especially susceptible to these risks.

2. Cancer and other Risks to The General Population

In high concentrations, nitrates are linked to cancer.[64] This is particularly concerning because other nations set the safe level of nitrates far lower than the amounts regularly exceeded in Iowa—the United States sets safe levels at 10mg/L.23 while Europe sets the level at half of that, 5mg/L.23.[65] Cancer is

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[56] *Id.*

[57] *Id.*

[58] IOWA DEP'T OF PUB. HEALTH, *supra* note 53.

[59] *Id.* at 2.

[60] IOWA ENV'T COUNCIL, *supra* note 44, at 4.

[61] *Id.* at 1.

[62] *Id.*

[63] *Id.*

[64] McCasland, *supra* note 45, at 2.

[65] Luebbers, *supra* note 4.

already occurring in Iowa due to the exposure.[66] Research now points to the high levels of nitrate pollution in Iowa as a significant cancer risk, increasing the amount of diagnosed cancers in the state as much as 300 persons a year.[67] This is a particularly pointed risk for older women.[68] "A 2016 study followed the health of about 35,000 postmenopausal [Iowan] women . . . found a higher prevalence of bladder cancer among those exposed to water with greater than 5 mg/L of nitrate-N for four or more years, compared to women with no comparable exposure."[69] Other studies have found similar results.[70] "A 2001 study looked at municipal drinking water nitrate concentrations and cancer risk among about 22,000 older [Iowan] women . . . who had used the same water supply over 10 years. The research found an increased risk for bladder cancer as nitrate concentration in water supplies increased." [71] The population of areas with high nitrate levels in drinking water are normally prone to more cancer, but a lack of funding and lack of access or ability to filter water appropriately exacerbate that risk for the rural poor.

3. Increased Risk to The Rural Poor

Nitrate pollution disproportionately impacts the rural poor because they are in high-risk zones and lack the resources to filter their water. Rural and agricultural states are at increased risk of nitrate pollution in their waters.[72] Nearly 300,000 Iowans rely on well water for their family.[73] Few have their well checked for nitrate pollution and no state or federal law requires them to do so.[74] "A State-Wide Rural Well-Water Survey (Phase 2) conducted from May 2006 to December 2008 found that 12 percent of the private well water samples had [nitrate levels] at or above the drinking water standard of 10 mg/L."[75] Rural Iowans do not have the protections of larger metropolitan facilities which can filter nitrates.[76]

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[66] McCasland, *supra* note 45, at 2.

[67] Eller, *supra* note 8.

[68] IOWA ENV'T COUNCIL, *supra* note 44, at 5.

[69] *Id.*

[70] *Id.*

[71] *Id.*

[72] *Id.*

[73] Eller, *supra* note 8.

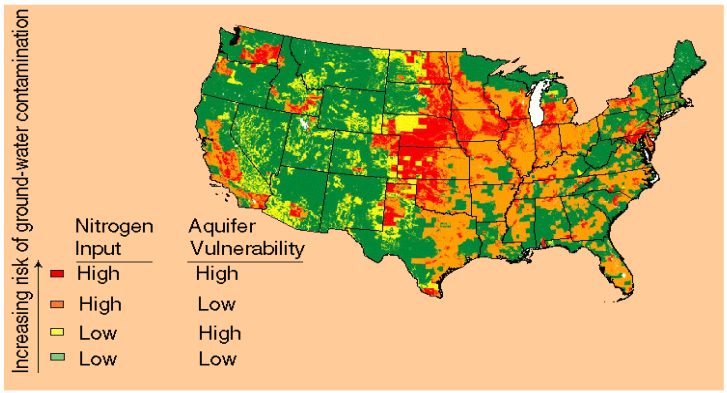
[74] *Id.*

[75] IOWA ENV'T COUNCIL, *supra* note 44, at 3.

[76] *See, e.g.*, Bd. of Water Works Trs. v. Sac Cnty. Bd. of Supervisors, 890 N.W.2d 50, 53 (Iowa 2017) (describing the extra expense and effort necessary to bring nitrate levels below the EPA's standard in Des Moines' water facilities for Iowans who have access to the municipal water utility distribution channels).

Iowa is at particular risk along with other agricultural states. Note that Iowa is in the center of the high-risk area, so it not only has high risk across the entirety of the state, but also collects run off from states upriver.[77]

Figure 1. Areas in the United States with the highest risk of nitrate contamination of shallow ground water (shown in red on the map) generally have high nitrogen input, well-drained soils, and less extensive woodland relative to cropland.



The map shows four levels of contamination risk of shallow ground water (less than 100 feet deep):

(1) low nitrogen input and low aquifer vulnerability (green area on the map);
(2) low nitrogen input and high aquifer vulnerability (yellow area);
(3) high nitrogen input and low aquifer vulnerability (orange area); and
(4) high nitrogen input and high aquifer vulnerability (red area).

[78]

Almost one in five Iowans uses water that is self-supplied.[79] So, depending on aquifer depth, a significant area of the state is at risk because these methods of water extraction do not filter out nitrates.[80] Cities are able to filter nitrates, but it is very expensive; it will cost the City of Des Moines tens of millions of dollars to create facilities able to handle the increasing nitrate levels.[81] Individual homes can filter nitrates to some extent, though it is difficult and prohibitively expensive for poor families.[82] It can cost hundreds

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[77] Nolan, *supra* note 1.

[78] *Id.* at fig. 1.

[79] *Estimated Nitrate Concentrations*, *supra* note 49.

[80] Nolan, *supra* note 1.

[81] *Bd. of Water Works Trs.*, 890 N.W.2d at 54.

[82] John Woodard, *How to Remove Nitrates from Water,* FRESH WATER SYS. (Jan. 7, 2020), https://www.freshwatersystems.com/blogs/blog/how-to-remove-nitrates-from-water [https://perma.cc/D28G-XRPM].

or thousands of dollars to buy, install, and maintain the necessary filtration systems.[83]

These statistics demonstrate that self-solutions for this problem are prohibitively expensive for the rural poor. A home nitrate filtration system can cost close to $3000, and a small disposable filtration system—only allowing a pitcher of water at a time—still can cost hundreds of dollars.[84] These prices are clearly unattainably expensive for a poor family. Thus, the risk that the water coming out of the tap has dangerous levels of nitrates is disproportionately high in rural communities which rely mainly on well water and are unable to filter the water they drink.

C. The National Legal Approach to Water Quality

This Note searches for an approach for potential litigation to address the issue of excess nitrates in the water of the rural poor in Iowa. It is necessary to address multiple potential causes of action through which Iowans may search for relief. The first potential avenue is through the federal legislation the Clean Water Act (CWA). However, little room for litigation success lies in the federal legislation.[85] The second is through an examination of Iowa laws on the matter. None on their face seem helpful.[86] However, Iowa Supreme Court decisions to date might leave room for a potential opening in the way of a constitutional challenge.[87]

Congress passed The CWA in 1948.[88] Congress reorganized and significantly updated the act in 1972 which is where it gained its current name, the Clean Water Act.[89] There are two possible approaches to water pollution under the Clean Water Act: point and nonpoint water pollution regulations. Point source pollution is pollution which one might trace to a point, such as dumping a barrel of waste in a river. [90] Nonpoint source pollution is more general runoff, pollutants with more discrete sources that may be more difficult to trace. [91]

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[83] *Id.*

[84] *Nitrates in Well Water,* FILTERWATER (Dec. 12, 2016), https://www.filterwater.com/t-nitrates.aspx [https://perma.cc/F9MZ-H8ZP].

[85] *Infra* Part (II)(C)(1).

[86] *Infra* Part (II)(D).

[87] *Infra* Part (II)(E).

[88] *Summary of the Clean Water Act*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/laws-regulations/summary-clean-water-act [https://perma.cc/3XNK-F76Z].

[89] *Id.*

[90] Crawford, *supra* note 32, at 161–62.

[91] *Id.*

1. Point Source Control

Under the CWA, the Environmental Protection Agency monitors pollution via "point sources."[92] This is mainly direct dischargers, factories, direct dumping cites, etc.[93] However, farm runoff does not meet this criterium. As recent as 2020 the United States Supreme Court ruled that the CWA should apply "when there is a direct discharge from a point source into navigable waters or when there is the functional equivalent of a direct discharge."[94] In the same opinion, they specifically cited more broad readings of the CWA point source definition as too broad, such as that under the 9th Circuit. [95] Under current precedent, normal farm runoff is not a point source pollutant.[96]

The CWA primarily regulates point source pollution. [97] The legislature has ensured that courts would not interpret any provision in the CWA as prohibiting farm runoff through the slew of agricultural exemptions they built into the process. [98] "[The CWA] was first amended in 1977 to exclude agricultural irrigation return flows and later in 1987 'to exclude agricultural stormwater discharges.' Additionally, the CWA also excludes 'normal farming . . . activities such as plowing, seeding, cultivating, minor drainage, [and] harvesting for the production of food.'"[99]

In general, farm runoff is not point source pollution, is not normally regulated under the CWA, and does not require special permits such as other industries might need to output some polluting agents.[100] Even in the light of these very favorable legislative rules for agricultural industry, some agribusiness advocates still consider the few possible attempts to regulate

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[92] *Id.*

[93] *Id.*

[94] Gary Baise, *Supreme Court: Groundwater a Point Source under the Clean Water Act?,* FARM FUTURES (Apr. 28, 2020), https://www.farmprogress.com/commentary/supreme-court-groundwater-point-source-under-clean-water-act [https://perma.cc/P6TP-FUHM].

[95] *Id.*

[96] *See e.g.*, Jan G. Laitos & Heidi Ruckriegle, *The Clean Water Act and the Challenge of Agricultural Pollution*, 37 VT. L. REV. 1033, 1034 (2013); Dirth, *supra* note 12, at 1225.

[97] Crawford, *supra* note 32, at 160–62.

[98] Jason Foscolo & Michael Zimmerman, *Alternative Growth: Forsaking the False Economies of Industrial Agriculture*, 25 FORDHAM ENV'T L. REV. 316, 317 (2014).

[99] Crawford, *supra* note 32, at 166 (internal citations omitted).

[100] *Clean Water Act Section 404 and Agriculture*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/cwa-404/clean-water-act-section-404-and-agriculture [https://perma.cc/MUS2-BZUJ].

farm pollution to be too onerous.[101] However, normal farm operations are mainly uninhibited.[102] In fact, little in the way of federal regulation can impact nutrient pollution from runoff, as one author summarized well.

> Such exemptions are not unique to the CWA. In fact, some have even argued that when it comes to agriculture, environmental law is generally "characterized more by exemption than inclusion." There are similar exemptions or general lack of regulation under the Clean Air Act, agrochemical regulation laws, and hazardous waste management laws to name a few. Due to the point and nonpoint source distinction, reliance on elusive narrative criteria, and broad agricultural exemptions, it is not surprising that nutrient pollution remains a problem.[103]

Nitrate runoff from fields is not a point source, and the CWA has drastically different regulations for nonpoint source pollution.

2. Nonpoint Source Control

Runoff pollution is not point source pollution under the Clean Water Act.[104] Therefore, one must look to nonpoint source control in the CWA. To manage issues associated with nonpoint source pollution, Federal statute requires states to set water quality standards for water they control.[105] States control that part of the process.

States can choose how they set those standards, and therein lies a significant problem for one searching for water pollution relief. States like Iowa tend to choose the most lax standard.[106] There are a few types of standards States can choose: narrative or numeric.[107] The numeric approach calls for setting measurable limits of nitrates and other pollutants in water.[108]

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[101] Reagan Waskom & David J. Cooper, *Why Farmers and Ranchers Think the EPA Clean Water Rule Goes Too Far,* PBS (Mar. 4, 2017), https://www.pbs.org/newshour/nation/farmers-ranchers-think-epa-clean-water-rule-goes-far [https://perma.cc/S57V-SS8H]; Dan Charles, *Farmers Fight Environmental Regulations,* NAT'L PUB. RADIO (Mar. 7, 2017), https://www.npr.org/sections/thesalt/2017/03/07/518841084/farmers-fight-environmental-regulations [https://perma.cc/8LYZ-X6UB].

[102] Charles, *supra* note 101.

[103] Crawford, *supra* note 32, at 166–67 (citations omitted).

[104] *Id.*

[105] 33 U.S.C. § 1313(a) (2012); *see generally* Laura Kerr, *Compelling A Nutrient Pollution Solution: How Nutrient Pollution Litigation Is Redefining Cooperative Federalism Under the Clean Water Act*, 44 ENV'T L. 1219, 1241 (2014) (arguing the importance of states using their authority under the Clean Water Act and detailing litigation to compel the EPA to act instead).

[106] IOWA ADMIN CODE r. 567-61.3(2) (2014); Kerr, *supra* note 105, at 1241.

[107] Crawford, *supra* note 32, at 163.

[108] Kerr, *supra* note 105, at 1222.

The narrative approach is far more vague; "A typical narrative standard for nutrients reads, '[n]utrients shall not result in excess algal growth or other undesirable impacts (e.g., odor, scum).'"[109] Instead of setting a number to measure, the limit is whenever the legislature might deem the pollution to be excessive. This gives States far more room to argue their nitrate levels are defensible. Most states choose the far more flexible "narrative" standard.[110] This includes Iowa.[111] The EPA has recognized this failure and noted "narrative criteria are inadequate to address nutrient pollution and encouraged states to adopt numeric criteria instead. Despite this encouragement, many states have made little, if any, headway in this area."[112]

Nutrient total maximum daily loads (TMDL) are another system which the federal government can use to monitor any pollutants in water supplies, including nonpoint source pollution. [113] States must monitor and enforce allowable amounts of pollutant discharges into the watershed.[114] If they fail to do so, the EPA may institute its own TMDL standards.[115] Thus, if a watershed has levels of nutrients—including nitrates—that are too high, the EPA may institute stricter standards. Nonpoint source pollution also impacts these levels, so this is a possible angle for federal protection against nitrate pollution.[116] "Nevertheless, the TMDL program can only be effective if TMDLs are actually created and enforced."[117] This approach to reducing nonpoint nitrate pollution is sensitive to the EPA administration in office.

Lastly, the Clean Water Act also has a National Monitoring Program.[118] This program "is meant to address nonpoint source pollution."[119] States are eligible for grants if they adopt monitoring programs which are decided to

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[109] *Id.*

[110] *Id.*

[111] IOWA ADMIN CODE r. 567-61.3(2) (2014); Kerr, *supra* note 105, at 1241.

[112] Crawford, *supra* note 32, at 163.

[113] Amended Complaint for Declaratory & Injunctive Relief, Gulf Restoration Network v. Jackson, No. 12-CV-00677, 2012 WL 1343169, at *1–2, 6 (E.D. La. Apr. 3, 2012); Kerr, *supra* note 105, at 1219.

[114] Crawford, *supra* note 32, at 164.

[115] *Id.*

[116] *Id.*

[117] *Id.*

[118] *Id.*

[119] *Id.* at 165.

manage nonpoint pollution.[120] States, however, are not required to do so.[121] If a state adopts a monitoring program, it could be enforced, but there is no way to force a state to do so.[122] In short, the Clean Water Act does not give litigants many tools to fight nonpoint water pollution in states that otherwise comply with CWA statutes.

3. Iowa Application of Nonpoint Source Control Law

Looking away from the Federal level to the State, one finds equally dim prospects for legal solutions to the nitrate pollution problem. Iowa's economy is built on agriculture and its laws largely support the industry.[123] This results in an almost unbreakable barrier of protection around farmers for runoff or other pollutants on the state level.

Iowa manages its own water nutrient pollution levels.[124] Since 1978, Iowa has shaped its own regulations in this manner.[125] Although Iowa could include nonpoint sources in this protection regimen, it chooses not to.[126] Rather, Iowa attempts to meet the myriad problems caused by nitrate water pollution through "encourag[ing] citizens to actively support water quality goals."[127] In short, Iowa does little to address this problem from a legislative approach and asks volunteer citizens to take the helm.

D. "Right to Farm" Laws: The Approach in Iowa

Standing in the way of litigation for excess nitrates is a wall of legislation that Iowa has enacted to to protect farming operations from nuisance suits called "Right to Farm" (RTF) laws. All fifty states have some version of a "Right to Farm" law.[128] Some States have gone as far as to add RTF measures to their state constitutions.[129] According to the National Agricultural Law Center, these laws "seek to protect qualifying farmers and ranchers from

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120 Crawford, *supra* note 32, at 165; 33 U.S.C. § 1329(h)(1) (2022).

121 WILLIAM L. ANDREEN & SHANA CAMPBELL JONES, CTR. FOR PROGRESSIVE REFORM, THE CLEAN WATER ACT: A BLUEPRINT FOR REFORM 3, 6 (2008), http://www.progressivereform.org/articles/CWBlueprint802ES.pdf [https://perma.cc/YHU5-AP8V]; Crawford, *supra* note 32, at 165.

122 Crawford, *supra* note 32, at 165.

123 *U.S. Food and Ag Industries,* FEEDING THE ECON., https://goodstone.guerrillaeconomics.net/reports/d52cc71c-f291-44f9-bcde-c200a0d2ce24 [https://perma.cc/DKQ9-GATE].

124 *See* Dirth*, supra* note 12, at 1224–26.

125 *Id.*

126 *Id.*

127 *Id.*

128 DANIEL R. MANDELKER ET AL., PLANNING AND CONTROL OF LAND DEVELOPMENT: CASES AND MATERIALS 77 (9th ed. 2016).

129 Joseph Malanson, *Returning Right-to-Farm Laws to Their Roots*, 97 WASH. U. L. REV. 1577, 1581 (2020).

nuisance lawsuits filed by individuals who move into a rural area where normal farming operations exist, and who later use nuisance actions to attempt to stop those ongoing operations." [130] Iowa has many of these RTF laws.[131] Local municipalities can do little to push back against them.

The Iowa Constitution in Article III, Section 39A, gives "home rule" to counties to "determine their local affairs and government."[132] However, these policies must not be inconsistent with the policies of the statewide legislature.[133] Therefore, the State legislature has the ultimate authority in Iowa to stop local governments from doing things it would rather it not do. Iowa Code Section 331.301(6)(a)(7) also bars localities from taxing without state statutory authority.[134] The State legislature is prone to favoring RTF laws. One example of these laws in Iowa is Iowa Code Chapter 172D. This Chapter protects feedlots from those who move into an area with subsequent ownership.[135] Another example of these types of regulations is Iowa Code Chapter 455E, the particular legislation this Note addresses as a potential opening for a constitutional challenge. Little exists that might give litigants potential tools to act on nitrate pollution in local ordinances because the State legislature has this control and has built robust RTF laws to this date.

E. Takings Clause Litigation in Iowa

Constitutional challenge is a potential way that Iowans might succeed in litigating the problem of excess nitrates in Iowa waters. The Takings Clause of the Fifth Amendment provides that private property shall not "be taken for public use, without just compensation."[136] The Clause applies to the States through the Fourteenth Amendment.[137] The Iowa Constitution has two pertinent provisions. First, Article 1, section 1 maintains "All men and women are, by nature, free and equal, and have certain inalienable rights — among which are those of enjoying and defending life and liberty, acquiring,

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[130] National Agricultural Law Center Staff, *States' Right-To-Farm Statutes*, NAT'L AGRIC. L. CTR. (Nov. 13, 2020), https://nationalaglawcenter.org/state-compilations/right-to-farm [https://perma.cc/GB8N-U2XD].

[131] IOWA CODE ANN. § 172D.2 (West 2019).

[132] IOWA CONST. art. III, § 39A.

[133] *Id.*

[134] IOWA CODE § 331.301(7) (2021).

[135] IOWA CODE ANN. § 172D.2 (West 2019).

[136] U.S. CONST. amend. V.

[137] Murr v. Wisconsin, 137 S. Ct. 1933, 1942 (2017); *see* Chicago, Burlington & Quincy R.R. Co. v. Chicago, 166 U.S. 226, 234 (1897).

possessing and protecting property, and pursuing and obtaining safety and happiness."[138] Second, Article 1, section 18 states "Private property shall not be taken for public use without just compensation first being made . . . as soon as the damages shall be assessed by a jury, who shall not take into consideration any advantages that may result to said owner on account of the improvement . . ."[139]

The Iowa Judiciary has claimed a unique place in the nation as a judiciary willing to see agricultural laws as unconstitutional takings or as running afoul of its own state constitutional provisions. [140] Iowa is unique in that it is one of the only states that has called some RTF laws unconstitutional takings both under the Iowa Constitution and the United States Constitution.[141] Four cases are particularly helpful in understanding Iowa Supreme Court jurisprudence on the issue: *Bormann v. Boad of Supervisors*; *Gacke v. Pork Xtra, L.L.C.*; *Board of Water Works Trustees of City of Des Moines v. Sac County Board of Supervisors*; and *Honomichl v. Valley View Swine, LLC.*

1. *Bormann v. Board of Supervisors In and For Kossuth County*

Bormann demonstrates the baseline analysis the Iowa Supreme Court uses to determine when an agricultural law is an unconstitutional taking. In *Bormann v. Board of Supervisors*, the plaintiffs argued that when the board had designated land near them to be "agricultural area" under Iowa Code Section 352.6 this constituted an unlawful infringement on their rights.[142] The Board had designated the land as agricultural and therefore claimed that the plaintiffs could not sue for nuisance under Iowa Code Section 352.11(1)(a), which granted, "[a] farm or farm operation located in an agricultural area shall not be found to be a nuisance regardless of the established date of operation or expansion of the agricultural activities of the farm or farm operation."[143] The Neighbors contented that Section 352.11(1)(a) resulted in "a taking of private property without the payment of just compensation in violation of federal and state constitutional provisions."[144] The analysis of the Court intermingles Takings Clause and Iowa Constitutional issues as both are concerned with a taking of property rights away from a citizen.[145]

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[138] IOWA CONST. art. I, § 1.

[139] IOWA CONST. art. I, § 18.

[140] Beau R. Morgan, *Iowa and Right to Farm: An Analysis of the Constitutionality of Right to Farm Statutes Across the United States*, 53 CREIGHTON L. REV. 623, 624 (2020).

[141] *Id.*

[142] Bormann v. Bd. of Supervisors, 584 N.W.2d 309, 316–17 (Iowa 1998).

[143] IOWA CODE ANN. § 352.11 (West 2022).

[144] *Bormann*, 584 N.W.2d at 313.

[145] *See id.* at 321.

The *Bormann* court laid out their analysis as follows: "(1) Is there a constitutionally protected private property interest at stake? (2) Has this private property interest been "taken" by the government for public use? and (3) If the protected property interest has been taken, has just compensation been paid to the owner?"[146] Starting with the first prong, the Court outlines their approach to what property rights the law protects. Property is not just the land or physical objects one has in their possession, but a collection of rights which are there to secure "use and enjoyment."[147] Additionally, state law defines property rights.[148] Using these principles, the court continued that the issue in that case was an issue of easements; in Iowa, "the right to maintain a [nuisance complaint] is an easement."[149] Thus, the statute at issue created an easement because it allowed the neighbors to lose some enjoyment of their property with no compensation or ability to challenge that taking.[150]

The court then addresses the issue of a taking.

> The two categories include regulations that (1) involve a permanent physical invasion of the property or (2) deny the owner all economically beneficial or productive use of the land. . . These two categories are what the neighbors term "*per se*" takings. The United States Supreme Court firmly established the rule regarding the first category of physical invasion in Loretto v. Teleprompter Manhattan CATV Corp.[151]

From these, the Iowa Supreme Court goes on to discuss the way to determine if productive value has been taken from the land.[152] This ad hoc approach calls for a balancing test that is essentially one of reasonableness.[153]

> The test focuses on three factors: (1) the economic impact of the regulation on the claimant's property; (2) the

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[146] *Id.* at 315.

[147] *Id.* at 315, (citing *United States v. General Motors Corp.,* 323 U.S. 373, 378 (1945); Liddick v. Council Bluffs*,* 5 N.W.2d 361, 221–22 (Iowa 1942)).

[148] Webb's Fabulous Pharmacies v. Beckwith, 449 U.S. 155, 161 (1980).

[149] Churchill v. Burlington Water Co., 62 N.W. 646, 647 (Iowa 1895) ("a privilege without profit, which the owner of one neighboring tenement [has] of another, existing in respect of their several tenements, by which the servient owner is obliged to suffer, or not do something on his own land, for the advantage of the dominant owner").

[150] *Bormann*, 584 N.W.2d at 316.

[151] *Id.*

[152] *Id.* at 316–17.

[153] *Id.*

> regulation's interference with investment-backed expectations; and (3) the character of the governmental action . . . . According to some commentators, a court must first find that the regulation substantially advances legitimate state interests before the court may test the regulation against the three factors.[154]

These factors led the court to decide that there had been a taking because one ought to be able to use the land free of government invasion which transcends physical takings. Rather, it can simply be an effect on free use and enjoyment.[155] The court goes on to say "our own definition of a taking is in accord with this concept: [a] taking does not necessarily mean the appropriation of the fee. It may be anything which substantially deprives one of the use and enjoyment of his property or a portion thereof."[156] The issue of compensation was easier; the State did not offer compensation for the taking.[157]

At the end, the *Bormann* court decided that Iowa Code Section 352.11(1) was unconstitutional because:

> the legislature has exceeded its authority . . . by authorizing the use of property in such a way as to infringe on the rights of others by allowing the creation of a nuisance without the payment of just compensation. The authorization is in violation of the Fifth Amendment to the Federal Constitution and article I, section 18 of the Iowa Constitution.[158]

By taking the right to sue for nuisance without just compensation, the legislature had run afoul of both the Takings Clause of the United States Constitution and the Iowa Constitutional right to file a nuisance claim for infringements upon one's own property.

2. *Gacke v. Pork Xtra, L.L.C.*

The Court in Gacke affirms its rationale in Bormann and outlines the fact-based analysis necessary in these cases. In *Gacke v. Pork Xtra L.L.C.*, the plaintiffs sued claiming that a hog confinement facility which Pork Xtra operated was a nuisance.[159] At issue in the case was if Iowa Code Section

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[154] *Id.; see also* Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978); Craig A. Peterson, *Land Use Regulatory "Takings" Revisited: The New Supreme Court Approaches*, 39 HASTINGS L. J. 335, 351 (1988).

[155] *Bormann*, 584 N.W.2d at 319.

[156] *Id.* at 320–21 (quoting Phelps v. Bd. Of Supervisors, 211 N.W.2d 274, 276 (Iowa 1973)).

[157] *Bormann*, 584 N.W.2d at 320–21.

[158] *Id.* at 321.

[159] Gacke v. Pork Xtra, L.L.C., 684 N.W.2d 168, 170 (Iowa 2004).

657.11(2) was an unconstitutional taking.[160] The statute grants nuisance immunity to animal feeding operations.[161] This provision states in pertinent part:

> An animal feeding operation, as defined in section 459.102, shall not be found to be a public or private nuisance under this chapter or under principles of common law, and the animal feeding operation shall not be found to interfere with another person's comfortable use and enjoyment of the person's life or property under any other cause of action.[162]

The court did find that Section 657.11(2) violated both the Iowa—article 1 sections 1 and 18—and Federal Constitutions.[163] In addition to the Takings Clause issues, the Court held, "we conclude section 657.11(2), as applied under the circumstances of this case, constitutes an unreasonable exercise of the state's police power and therefore violates article I, section 1 of the Iowa Constitution."[164] The Court continued to agree with the *Bormann* decision that "the granting of an easement in private property without compensation was a violation of the state and federal constitutions regardless of the legitimate state interests advanced by the grant of nuisance immunity."[165] The Court then refused to overrule *Bormann* explicitly, rather claiming,

> [O]ur ultimate conclusion [in Bormann] was simply that the immunity statute created an easement and the appropriation of this property right was a taking. Whether the nuisance easement created by section 657.11(2) is based on a physical invasion of particulates from the confinement facilities or is viewed as a nontrespassory invasion akin to the flying of aircraft over the land, it is a taking under Iowa's constitution. We decline to retreat from this view.[166]

After this, the *Gacke* court laid out a test to decide when a statute had gone afoul of constitutional principles or if the court could retain the statute in any state. "(1) whether there is any immunity bestowed by [the section in question] that does not violate the Takings Clause; and if so, (2) whether this

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[160] *Id.*

[161] *Id.*

[162] IOWA CODE § 657.11(2) (2014).

[163] *Gacke*, 684 N.W.2d at 170.

[164] *Id.* at 171.

[165] *Id.* at 173.

[166] *Id.* at 173–74.

immunity is a viable expression of legislative intent such that it may be given effect in the absence of the unconstitutional application of the statutory immunity."[167] The court decided that "state takings jurisprudence requires us to invalidate the statutory immunity only insofar as it prevents property owners subjected to a nuisance from recovering damages for the diminution in value of their property."[168] In short, if a statute takes away a property owner's right to recover damages in diminution of property, it would be a violation of the Takings Clause. Laws which do this are also likely to violate Iowa Constitution article 1, section 1 as excessive uses of the State's police power.

The *Gacke* Court laid out a test for the article 1, section 1 claim of abuse of police power of the state. The Court in *Honomichl* sums its previous precedent into a concise statement well, writing,

> For courts to determine whether [the relevant statute] is unconstitutional as applied to plaintiffs, plaintiffs must show they (1) receive[d] no particular benefit from the nuisance immunity granted to their neighbors other than that inuring to the public in general[,] (2) sustain[ed] significant hardship[,] and (3) resided on their property long before any animal operation was commenced on neighboring land and had spent considerable sums of money in improvements to their property prior to construction of the defendant's facilities.[169]

This test has been the watermark test for issues of constitutionality relating to article 1, section 1 since *Gacke*.[170]

3. *Board of Water Works*

Board of Water Works shows a window into the evolution of Iowa Takings Clause litigation and Justice Waterman's approach to this issue, which will likely be important in the continuing evolution of the court's jurisprudence for this area of the law. While previous Iowa caselaw had shown an affinity in the Iowa Supreme Court to find RTF legislation unconstitutional violations of the Takings Clause and the Iowa Constitution,[171] *Board of Water Works* explains the limits to the precedent.[172]

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[167] *Id.* at 174.

[168] *Id.* at 175.

[169] Honomichl v. Valley View Swine, L.L.C., 914 N.W.2d 223, 235 (Iowa 2018) (citing *Gacke*, 684 N.W.2d at 178) (internal citations omitted).

[170] *Honomichl*, 914 N.W.2d at 236.

[171] *See supra* Part (E)(1)–(2).

[172] *See* Bd. of Water Works Trs. v. Sac Cnty. Bd. of Supervisors, 890 N.W.2d 50, 52 (Iowa 2017).

Board of Water Works was a case about drainage districts,[173] and so it has some particularities associated with those entities. Additionally, it is a case dealing with two public entities—a water works board and drainage districts—[174]which further make this case distinct from the others listed above.[175] In *Board of Water Works*, the Board, as trustees for Des Moines, Iowa, were suing a number of drainage districts to make up for the cost to the city of filtering nitrates that had run off from farms that were a part of those drainage districts.[176] That case was originally taken up in federal court, but the district court deferred to the Iowa Supreme Court to answer a set of questions of state law which were pertinent to the case.[177]

Most applicable to the issue at hand is Question 3 and the court's answer.

> **Question 3:** As a matter of Iowa law, can the plaintiff assert protections afforded by the Iowa Constitution's inalienable rights, due process, equal protection, and takings clauses against drainage districts as alleged in the complaint?
>
> **Answer:** No. Although these constitutional clauses are fundamental to our freedom in Iowa, they exist to protect citizens against overreaching government. Generally, one subdivision of state government cannot sue another subdivision of state government under these clauses. And even if they could, an increased need to treat nitrates drawn from river water to meet standards for kitchen tap water would not amount to a constitutional violation.[178]

The court bases this conclusion on a few points: first, constitutional protections exist to protect individuals, not state entities. Therefore, the constitutional arguments of the plaintiffs did not stand.[179] Second, even if this were not the case, the court insists that a number of cases set a precedent that "[a] drainage district is not subject to suit in tort for money damages."[180] Third, the drainage districts "did not deprive the DMWW of any property [because] The Racoon River is owned by the State of Iowa in trust for the

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[173] *Id.*

[174] *Id.*

[175] *See supra* Part (E)(2).

[176] *Bd. of Water Works Trs.*, 890 N.W.2d at 52.

[177] *Id.*

[178] *Id.*

[179] *Id.* at 60.

[180] *Id.* at 59 (citing Fisher v. Dallas Cnty., 369 N.W.2d 426, 430 (Iowa 1985)).

public."[181] Fourth, normally downstream defendants are not able to recover damages for "harm to their private property caused by the water flow."[182] Last, and most distinct, Justice Waterman uses the last paragraph of the analysis to add a caveat. He writes,

> Even if we regarded the DMWW as a private entity and accepted its factual allegations as true, no compensable takings claim is alleged under the Iowa Constitution. The DMWW was not denied access to the Raccoon River; rather, it simply must expend additional funds for nitrate removal. The DMWW cites no case supporting the proposition that the presence of nitrates in raw river water above the level allowed for drinking water in homes results in a compensable taking of a riparian landowner's property right.[183]

Points 1 through 3 are all related specifically to the issue of drainage districts and public ownership. Therefore, this Note does not address them at length. More pertinent, however, are the last two points.

To the fourth point, the court cites *Maben v. Olson*, a 1919 Iowa Supreme Court case in which the Court held,

> In every natural water course there is an easement for the benefit of all land which naturally drains into the same. . . . This right of drainage is a natural easement appurtenant to the land through which it runs, and every owner along such course must take notice of the rights that others have in such easement.[184]

While *Maben* does grant that there might be common easements for the good of society associated with public waters, that does not mean one can ignore their fellow citizens. Rather, one "must take notice of the rights that others have in such easement."[185] Thus, Justice Waterman's fourth point must be set in the context of mutual rights balancing as the Court has historically done.

The fifth point, the caveat at the end, displays an interesting aside in Iowa Supreme Court jurisprudence. The opinion holds,

> The DMWW was not denied access to the Raccoon River; rather, it simply must expend additional funds for nitrate

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[181] *Bd. of Water Works Trs.*, 890 N.W.2d at 69.

[182] *Id.* at 70.

[183] *Id.* at 72.

[184] Maben v. Olson, 175 N.W. 512, 513 (Iowa 1919).

[185] *Id.*

> removal. The DMWW cites no case supporting the proposition that the presence of nitrates in raw river water above the level allowed for drinking water in homes results in a compensable taking of a riparian landowner's property right.[186]

Here, it seems as if the Court is reversing its jurisprudence to some extent. In prior cases, the court held that statutes are unconstitutional when they "prevent[] property owners subjected to a nuisance from recovering damages for the diminution in value of their property." [187] However, here, it seems the Court is turning to an approach that this level may not measure up to a taking in Iowa jurisprudence any longer if the taking only represents an economic burden, merely "expending[ing] additional funds" for access. [188] In addition to being somewhat less representative of the Iowa Supreme Court's jurisprudence on this issue, this segment shows the signs of being dicta. Dicta is "a statement in a judicial opinion that could have been deleted without seriously impairing the analytical foundations of the holding—that, being peripheral, may not have received the full and careful consideration of the court that uttered it."[189] Here, the Court specifically says that this point exists only under hypothetical facts, and therefore was not part of the overall analysis of the opinion.[190] The Court in *Board of Water Works* lays out the limits of Takings Clause litigation for pollution. Namely, state entities cannot claim a constitutional right which the Constitution guaranteed to private citizens only.

4. *Honomichl v. Valley View Swine*

Honomichl v. Valley View Swine is one of the most recent Iowa Supreme Court cases which addressed RTF laws and constitutional challenges to them. In *Honomichl*, the plaintiffs, real estate owners, sued the defendants for the pollutants which were running off their animal feeding operation. [191] The lower court had found that Iowa Code Section 657.11(2) was unconstitutional based on article 1, section 1 of the Iowa Constitution.[192] However, the Iowa Supreme Court remanded the case, holding that in order

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[186] *Bd. Of Water Works Trs.*, 890 N.W.2d at 72.

[187] *Gacke*, 684 N.W.2d at 175.

[188] *Bd. of Water Works Trs.*, 890 N.W.2d at 72.

[189] *In re* McDonald, 205 F.3d 606, 612 (3d Cir. 2000).

[190] *Bd. of Water Works Trs.*, 890 N.W.2d at 72.

[191] *Honomichl*, 914 N.W.2d at 226.

[192] *Id.* at 227.

to find on the constitutionality issue, the lower court needed to do a more factual analysis guided by Gacke. Note this analysis is particularly referring to the State's abuse of police power under article 1, section 1, and does not explicitly deal with the Takings Clause issue, though the two are interrelated. [193] *Gacke* was an opportunity for the Court to lean more towards Justice Waterman's jurisprudential approach on the issue, but it did not do so.

a. Justice Waterman's Concurrence

Lastly, one ought to analyze this line of cases in light of Justice Waterman's concurrence in *Honomichl*. Both the *Board of Water Works* decision and Justice Waterman's concurrence in *Honomichl* show a possible shift away from more constitutional-challenge-friendly thinking towards a more closed perspective, but Justice Waterman clearly explains this perspective in his concurrence. Justice Waterman specially concurred in *Honomichl*, arguing that "I join most of the court's opinion reversing the district court ruling that erroneously concluded Iowa Code section 657.11(2) (2016) is unconstitutional as applied to these plaintiffs."[194] However, he did not hold this because of the factual issues that the majority pointed out; he held this because he believed it was time to overturn *Gacke* and the precedent that called right to farm laws unconstitutional under Iowa Constitution art. 1 sec. 1.[195] Seeing as this Note is addressing litigation strategies, it is important to comment that with the changing dynamics of the Iowa Supreme Court, Justice Waterman may find fertile ground to persuade the court that it is time to overturn *Gacke*, *Bormann*, or others. Though the Court has not officially changed course yet. Litigants entering this vein of cases should be wary of the potential that the previous interpretations of the Iowa Constitution as well as applications of the Federal Constitution may change in favor of preferring legislative policy decisions in the future.

F. Iowa Code Section 455E.6

Iowa Code Section 455E.6 is a potential opening for Takings Clause litigation. The legislature has written that,

> "[l]iability shall not be imposed upon an agricultural producer for . . . any damages associated with or resulting from the detection in the groundwater of any quantity of nitrates provided that application has been in compliance with soil test results and that the applicator has properly complied with label instructions for application of the fertilizer . . . Compliance with the above provisions may be

193 *See id.*

194 *Id.* at 239.

195 *Id.*

> raised as an affirmative defense by an agricultural producer."[196]

As a result, agricultural producers have a statutorily granted defense against liability for any damages from nitrate runoff if they can show basic compliance with a label.

1. Iowa Discussion of Section 455E.6

Iowa courts have only mentioned Iowa Code Section 455E.6 one time in *Board of Water Works Trustees of City of Des Moines v. Sac County Board of Supervisors*. There, the Iowa Supreme Court noted that,

> Iowa Code section 455E.6 expressly immunizes farmers who comply with fertilizer label instructions from liability for nitrate contamination, including money damage claims or cleanup costs. We defer to the legislature whether to reassess that policy choice. See Galloway v. State, 790 N.W.2d 252, 259 (Iowa 2010) (Cady, J., dissenting) ("[P]ublic policy is best left to our legislative branch of government to decide as representatives of the people."). With that statutory immunity for nitrate costs on the books, it is difficult to argue our precedents immunizing drainage districts should be overruled. Indeed, because farmers are assessed for the costs of drainage districts, one might characterize state-law nitrate-based claims against drainage districts as a way to get backdoor relief against farmers that the legislature has specifically barred through the front door.[197]

The Court used Iowa Code Section 455E.6 to demonstrate their argument that the legislative branch of Iowa should address these issues and that constitutional litigation on the issue against drainage districts seemed to be a way to circumvent this statute. [198] The court used the statute here to demonstrate that there seemed to be a cognizable and reasonable legislative reason to have these statutes.[199] However, it is important to note that 455E.6 was not the statute in question in that case, and so the Court was not giving the statute the full analysis under the approach normally applied to constitutional challenges. Rather, Justice Waterman referred to the

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[196] Legal Effects—Liability, IOWA CODE ANN. § 455E.6.2–3 (2018).

[197] *Bd. of Water Works Trs.*, 890 N.W.2d at 64.

[198] *Id.*

[199] *Id.*

legislatures perceived intent to protect right to farm laws, arguing that the court ought to respect that intent.[200] However, good intentions on the legislature's part does not make a law constitutional on its own.[201] As commentators have noted, "a court must first find that the regulation substantially advances legitimate state interests before the court may test the regulation against the three factors. . ."[202] The valid intent or legitimacy of the state interest is not the end of the analysis. However, the segment of the decision here aligns with the aforementioned jurisprudential approach of Justice Waterman that prefers to adhere to the policy discretion of the legislature.[203] Justice Waterman would see *Gacke* overturned, while *Gacke* argues that "the granting of an easement in private property without compensation was a violation of the state and federal constitutions regardless of the legitimate state interests advanced by the grant of nuisance immunity."[204] Even with the Court's brief address of this statute in this context, Iowa Code Section 455E.6 still aligns well with other statutes that the Iowa Supreme Court has been willing to find are unconstitutional takings.

III. ANALYSIS

Iowa Code Section 455E.6 is a potential open door for Takings Clause litigation based on Iowa Supreme Court precedent. A litigator who might attempt to find a way to start bringing attention to the issue of nitrate pollution in Iowa waters might first find some ground for which to do so here. Through application of the four cases above, one can see that Iowa Code Section 455E.6 fits into the binding analysis of the Court on this issue.

The Iowa Supreme Court has been establishing its precedent on the issue of Takings Clause constitutional challenges to right to farm laws for decades.[205] From *Bormann*, the Court laid out the necessary base analysis: 1. Is there a constitutionally protected private property interest? 2. Was there a taking? If so, was it a physical taking or economic? 3. Has there been compensation?[206] In *Gacke*, the court continued to evolve on the issue. One must do the above-mentioned analysis, but also must ask whether the immunity granted via the statute is an expression of legislative intent such

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[200] *Id.*

[201] *Bormann*, 584 N.W.2d at 321–22.

[202] *Id.* at 317; *see also* Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978) (discussing the state interests in the issue of regulatory taking with the three factors (1) the economic impact of the regulation on the claimant's property; (2) the regulation's interference with investment-backed expectations; and (3) the character of the governmental action); *see, e.g.*, Peterson, *supra* note 154, at 351.

[203] *Honomichl*, 914 N.W.2d at 239–40 (Waterman, J., concurring).

[204] *Gacke*, 684 N.W.2d at 173.

[205] *Bormann*, 584 N.W.2d at 315.

[206] *Id.*

that it may have any use that is not an unconstitutional taking. Additionally, one must show that they received no particular benefit from the immunity in question, sustained significant hardship, and resided on their property before the operation was contaminating the land.[207] *Board of Water Works* established that this right only applies to private entities. [208] The statement at the end reflects dicta from Justice Waterman that is counter to the general trend of the court. [209] *Honomichl* lays out that the analysis of any of these claims must be factually based, as it was in *Gacke*. [210]

A. Iowa Code Section 455E.6 Fits the Precedent as An Unconstitutional Taking

Iowa Code Section 455E.6 is an unconstitutional taking in accordance with the rules from *Bormann*.[211] The State has taken a constitutionally protected right to nuisance claims for negative impacts on property and not offered compensation. [212] Water pollution nuisance issues such as this are easements.[213] Easements are constitutionally protected property interests.[214] Iowa Code Section 455E.6 takes away the litigants right to file a nuisance suit due to water pollution derived from farm runoff, similar to the law at question in *Bormann*.[215] Additionally, the taking in this case fits well with the test outlined on how to define a taking in *Bormann*.[216] The taking likely has a substantial economic impact on the land owners, could potentially impact investment backed expectations, and the governmental action here is clear,

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[207] *Honomichl*, 914 N.W.2d at 235 (citing *Gacke*, 684 N.W.2d at 178).

[208] *Honomichl*, 914 N.W.2d at 239.

[209] *Id.* (Waterman, J., concurring).

[210] *Id.* at 235 (citing *Gacke*, 684 N.W.2d at 178).

[211] There is a question of whether Riparian rights apply to groundwater. The Iowa Supreme Court has declined an opportunity to address this. "We have no occasion to opine now whether the test for a taking of a riparian interest in the use of water is the same as a nuisance claim or, as suggested by one commentator, somewhat more demanding. *See* Carlos A. Ball, *The Curious Intersection of Nuisance and Takings Law*, 86 B.U. L. REV. 819, 878–79 (2006). Ball reads our *Bormann* case as indicating that the proof required for nuisance and taking is the same under Iowa law. *Id.* at 854–56." I have found no Iowa case law addressing ground water pollution as a riparian rights issue, so it seemed outside of the scope of this piece to address it at length. *See* Bd. of Water Works Trs. v. Sac Cnty. Bd. of Supervisors, 890 N.W.2d 50, 102 (Iowa 2017).

[212] *Id.*

[213] Churchill v. Burlington Water Co., 62 N.W. 646, 647 (Iowa 1895).

[214] *See Bormann*, 584 N.W.2d 309, 316 (Iowa 1998).

[215] *Id.* at 316–17.

[216] *Id.*

thus likely satisfying the test for a taking set out in *Bormann*.[217] The legislation has no mention of a compensation to those whose nuisance rights are taken. [218] Lastly, Iowa Code Section 455E.6 goes against the spirit of the constitutional protections laid out in *Bormann*. The Court ruled that the legislature had "exceeded its authority" in Bormann by taking away a nuisance right without compensation.[219] A similar excess of authority seems clear in Iowa Code Section 455E.6. The state has taken away a nuisance claim right that potentially seriously impacts one's ability to use and enjoy their home, to use their own water to care for their children or family.

Iowa Code Section 455E.6 is an unconstitutional taking in accordance with the rules from *Gacke* under the right fact patterns. The immunity bestowed upon farming operations likely violates the constitution in most situations because the legislature wrote it in a way that one could reasonably read that it "prevent[s] property owners . . . from recovering damages for the diminution in the value of their property."[220] The potential litigant should note that this is a fact intensive investigation, however. One needs to show that they did not benefit from the immunity, sustained significant hardship, and that the problem began after they had resided on the land. [221] This is where one would need to carefully investigate the fact patterns in their present case before pushing forward with this analysis. The Iowa Supreme Court remanded a similar challenge for lack of factual examination in a lower court ruling in *Honomichl*.[222] However, prospective litigants may be more likely than not to meet these categories. Returning to the man this author met in Clayton County, his land likely met these factual prongs. His house was built over 100 years ago, before mass nitrate farming initiated, as part of a farm. Now it is only a home, not farmland. Therefore, the residency would predate the nuisance and he currently gains no benefit from the immunity seeing as he is not a farmer. Additionally, as discussed in sections A and B of the background, the nitrate problem constitutes a significant burden on many rural families, as it did his.[223]

Iowa Code Section 455E.6 is unconstitutional despite *Board of Water Works*. In *Board of Water Works*, the court ruled that public entities, like city boards, could not sue based on nuisance takings issues.[224] Justice Waterman expressed an affinity to respect the legislatures right to decided immunity

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[217] *Bormann*, 584 N.W.2d at 316–17.

[218] *See generally* Legal Effects—Liability, IOWA CODE ANN. § 455E.6.2-3 (2018).

[219] *Bormann*, 584 N.W.2d at 321.

[220] *Gacke*, 684 N.W.2d at 175.

[221] *Gacke*, 684 N.W.2d at 178.

[222] *Honomichl*, 914 N.W.2d at 235.

[223] *Supra* Part (II)(A)–(B).

[224] *Bd. of Water Works Trs.*, 890 N.W.2d at 72.

issues.[225] However, the prospective plaintiff here, like the man in Clayton County, is a private citizen, thus easily satisfying that prong. Additionally, while it is important that the Court noted that the legislature had good intent in their farmer immunity laws, the precedent to date outlines how to find when the legislature has exceeded its authority, be the policy wise or not.[226]

B. A Note on Impact

Due to the generally soluble nature of nitrates dissolved in water and the way that water drainage districts work, it would likely not be possible to pinpoint much of the runoff on individual farmers.[227] One would have to target large swaths of farmers as potential defendants. So, even though they likely use far less in the way of dangerous practices, small farmers too would likely be caught up by litigation as jointly liable for damages. Iowa Code Section 455E.6 protects farmers, and when many of the rural poor are farmers themselves, it seems to defeat the purpose to attack them as well as large operations. It would be counterintuitive to hurt the struggling rural poor communities even more in the process of attempting to help them. Therefore, this Note does not suggest that this litigation is an end in and of itself, but rather a means to hopefully propel the issue of water quality for rural Iowans to the forefront of a legislative agenda. If the Iowa Legislature wants to find a way to spread the costs of nitrate pollution in Iowa, or preferably even stop the process of pollution with new techniques either through subsidies or other policy changes, then it ought not to do so on the backs of the rural poor.

IV. CONCLUSION

Iowa's rural poor have borne the brunt of the risks associated with rising levels of nitrates in the water supply. Nitrates were introduced to mass farming in the United States in the mid 1900's, and since then, levels have grown to dangerous amounts in rural communities across the nation. [228] This has led to considerable financial, physical, and developmental issues in these communities, and will continue to do so if left unchecked.[229] However, litigation may be a way to bring this issue to the forefront that activists might

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[225] *Id.* at 64.

[226] *Bormann*, 584 N.W.2d at 321.

[227] Luebbers, *supra* note 4.

[228] *Supra* Part (II).

[229] *Id.*

achieve some change. Under the right fact patterns, Iowa Code Section 455E.6 is an unconstitutional taking of property rights under both the Federal and State Constitutions according to Iowa Supreme Court precedent.[230] A litigant could use this knowledge to potentially open new territory in the fight for clean water in Iowa. Should the Iowa Supreme Court rule consistently with the precedent laid out here in this Note, the legislature would have no choice but to reexamine Iowa Code Section 455E.6 and the general immunity from liability afforded to farmers in this manner. It would give activists another notch in their tool belt to fight for a right to clean water in Iowa.

[230] *Supra* Part (III)(A).