# COMMENTS

# The Drinking Water Supply Crisis in Flint, Michigan: What It Exposes About Enforcement of Water Supply Law and Public Health in the United States

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## I. INTRODUCTION

The ongoing water crisis in Flint, Michigan, is being discussed and examined across the United States.[1] Investigations are underway in hopes of determining how the water supply reached Flint residents while

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1. The Flint, Michigan, water crisis is an ongoing issue as of May 2016. This Comment covers information available as of January 2016.

untreated.[2] Many questions arise from the current difficulties that have fallen upon Flint. How was the corrosivity of the Flint River overlooked when it was determined to be the water supply? Why were the citizens' suspicions of the water so easily pushed aside? Why should U.S. citizens in 2016 need to worry about their drinking water? Everyone wants to pin down who is to blame. They want to feel that justice has been served, and that Flint can be fixed. However, there is a larger issue underlying what happened in Flint: why and how the existing laws failed this city. From this issue stems the need to study enforcement, effects, and the future of safe drinking water in the United States.

The purpose of this Comment is to delve into the policy issues surrounding the water crisis currently happening in Flint, Michigan. Part II of this Comment explains the situation in Flint as of January 2016 with the events leading up to the water supply change and following consequences. Part III explains the existing federal and state laws that, in theory, should have prevented lead from leaching into the drinking water supply and required that the public be informed before major harm occurred. Part IV analyzes the public effect of failed legal assurances, the possibilities of recovery for Flint residents, and the future implications from this event. Finally, this Comment will conclude with suggestions of changes necessary for natural resource and public health laws to be effective.

## II. BACKGROUND

### *A. Lead in the Flint Water Supply and the Negative Health Effects*

Flint, Michigan, is a small city that has gained national attention in recent months because of the damage the Flint River water supply inflicted on both the infrastructure and the community. An estimated 40% of Flint's 100,000 population lives below the poverty line.[3] Due to financial constraints, Flint's emergency manager switched the city from the City of Detroit's Huron water supply to water from the Flint River in April 2014.[4] Shortly following the change, the residents began

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2. *See* Nora Macaluso, *EPA Takes Action on Flint, Mich., Water Crisis*, 31 TOXICS L. REP. 82, 82 (2016).

3. Mitch Smith, *Flint Wants Safe Water, and Someone to Answer for its Crisis*, N.Y. TIMES (Jan. 9, 2016), http://www.nytimes.com/2016/01/10/us/flint-wants-safe-water-and-someone-to-answer-for-its-crisis.html?_r=1.

4. Abby Goodnough, Monica Davey & Mitch Smith, *When the Water Turned Brown*, N.Y. TIMES (Jan. 23, 2016), http://www.nytimes.com/2016/01/24/us/when-the-water-turned-brown.html?smid=tw-nytimes&smtyp=cur&_r=0; Smith, *supra* note 3.

complaining about the taste, odor, and color of the water supply.[5] The state government and city leaders, however, assured citizens of the water supply's safety.[6] Meanwhile, a General Motors engine plant in Flint switched its water supply because the corrosivity of the Flint River was corroding parts.[7] Later, Virginia Tech researchers discovered that lead contaminated the drinking water supply at elevated levels.[8] Additionally, a local pediatrician, Dr. Mona Hanna-Attisha, thought there might be a link between the water and the recent influx of patients suffering from rashes and hair loss.[9] Because Medicare requires states to keep records of blood lead levels in toddlers, Dr. Hanna-Attisha investigated the issue.[10] She found that the levels had doubled, tripled in some instances, from the approximate time the water supply switched from Lake Huron to the Flint River.[11] The water of the Flint River is highly corrosive and caused lead to leach into the water from Flint's water supply pipes.[12]

The negative health effects of lead vary in degree depending on exposure and age, but it is well known that any lead exposure is harmful to human health.[13] According to the Agency for Toxic Substances and Disease Registry, lead exposure can affect the entire body, especially the nervous system.[14] Lead exposure can increase blood pressure, cause anemia, cause miscarriages in pregnant women, and cause brain and kidney damage.[15] Children are at an especially high risk of negative health effects from lead exposure because the lead can impair development and growth.[16] Children exposed to high lead levels may suffer from stunted cognitive development in particular.[17] The Centers for Disease Control (CDC) states there is no known safe blood lead level

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5. *See* Smith, *supra* note 3.

6. *See* Goodnough, Davey & Smith, *supra* note 4.

7. Jeremy Lin, Jean Rutter & Haeyoun Park, *Events That Led to Flint's Water Crisis*, N.Y. TIMES (Jan. 21, 2016), http://www.nytimes.com/interactive/2016/01/21/us/flint-lead-water-timeline.html.

8. *See* Sara Ganim & Linh Tran, *How Tap Water Became Toxic in Flint, Michigan*, CNN (Jan. 13, 2016, 10:53 AM), http://www.cnn.com/2016/01/11/health/toxic-tap-water-flint-michigan/.

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.*; Smith, *supra* note 3; Goodnough, Davey & Smith, *supra* note 4.

13. *Integrated Science Assessment (ISA) for Lead*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/isa/integrated-science-assessment-isa-lead (last updated Aug. 14, 2015).

14. DIV. OF TOXICOLOGY & HUMAN HEALTH SCIS., AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, Chemical Abstracts Service No. 7439-92-1, LEAD–TOXFAQS 1 (2007).

15. *Id.*

16. *Id.* at 2.

17. *Integrated Science Assessment (ISA) for Lead*, *supra* note 13.

for children.[18] The consequences for children exposed to high levels of lead will endure for the rest of their lives. Dr. Hanna-Attisha indicated in an interview that the word "lead" immediately raises serious concerns among doctors.[19] Therefore, Dr. Hanna-Attisha took her exploration of blood lead levels in Flint residents very seriously from the outset.[20]

### *B. The Events Preceding and Following the Change to the Flint River Water Supply*

The consequences from the lead leaching are still being discovered in Flint. In January 2016, Governor Rick Snyder declared the city to be in a state of emergency and requested help from President Obama.[21] Since then, the National Guard entered the city and has been part of water distribution action.[22] Even though the water supply changed back to Lake Huron, the pipes can still leach lead in their current state.[23] Mayor Karen Weaver stated that the estimated cost of replacement of the infrastructure is greater than $1.5 billion.[24] Governor Snyder's appointed task force has said the state Department of Environmental Quality's (DEQ) response to citizen complaints and sampling information was unacceptable.[25] The Governor has since made multiple apologies to Flint for the tragedy.[26] Multiple government and agency employees have stepped down from their positions following the admissions and discoveries surrounding how the water supply was inadequately treated.[27] These resignations include the Region Five administrator of the Environmental Protection Agency (EPA) and the Michigan DEQ director.[28]

The decisions surrounding the switch to the Flint River as the city water supply and the following water crisis were made at the state government level, not at the city level.[29] According to a verified class

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18. *Lead*, CTRS. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/nceh/lead/default.htm (last updated Jan. 29, 2016).

19. Sanjay Gupta, Ben Tinker & Tim Hume, *'Our Mouths Were Ajar': Doctor's Fight To Expose Flint's Water Crisis*, CNN (Jan. 22, 2016, 8:25 AM), http://www.cnn.com/2016/01/21/health/flint-water-mona-hanna-attish/.

20. *Id.*

21. Lin, Rutter & Park, *supra* note 7.

22. *Id.*

23. Smith, *supra* note 3.

24. *Id.*

25. *Id.*

26. *Id.*

27. Macaluso, *supra* note 2.

28. Macaluso, *supra* note 2.

29. Ganim & Tran, *supra* note 8.

action complaint filed in the State of Michigan Court of Claims in January 2016, Flint government officials commissioned a study of the safety of the Flint water back in 2011; this report noted the high corrosiveness of the river and that it would require an anti-corrosivity agent for the water to be safe.[30] In March 2013, a resolution for future water service from a regional water authority, Karegnondi Water Authority, was set to begin in 2016.[31] However, in April 2014, the city-appointed emergency manager, Darnell Earley, ordered the use of the Flint River as the water supply.[32] At the time of this decision, Mr. Earley and the state had knowledge from the 2011 study that the water from the Flint River would need treating for its corrosivity in order to protect public health.[33] The estimated cost of the anti-corrosivity agent addition to the water supply was less than $100 per day; by the spring of 2014, the defendants were aware that such anti-corrosivity prevention was not applied to the water.[34] In January 2015, Flint water users received a notice that the drinking water was not in compliance with levels of Trihalomethanes (TTHM).[35] Allegedly, Mr. Earley refused subsequent city council demands for responsive action for public health.[36] Mr. Earley even rejected Detroit's offer to waive the $4 million reconnection fee to reconnect to the Lake Huron water supply.[37] Mr. Earley left his position as emergency manager and was replaced by Gerald Ambrose.[38] Mr. Ambrose proceeded to reject the City Council's vote in March 2015 to return to Detroit's water supply.[39] In the summer of 2015, Virginia Tech researchers tested drinking water samples, discovering that the lead levels in the drinking water were above the federal action level of five parts per billion.[40] In that same time frame, Dr. Hanna-Attisha's work on lead blood levels came to light.[41] By October 2015, Genesee County Health Officials had issued a public health emergency directing residents not to drink the tap water, and Governor Snyder had ordered the water supply to

30. Verified Class Action Complaint for Declaratory Relief, Injunctive Relief, Equitable Relief & Damages at 14, Mays v. Snyder, No. 16-000017-MM, (Mich. Ct. Cl. Jan. 21, 2016).
31. *Id.* at 15.
32. *Id.* at 16.
33. *Id.*
34. *Id.*
35. *Id.* at 19.
36. *Id.*
37. *Id.*
38. *Id.* at 19-20.
39. *Id.* at 20.
40. *Id.* at 25.
41. *See id.* at 22-23, 25-26.

reconnect to Detroit.[42] Thus far, much of the investigative inquiry surrounding how the water was inadequately treated has centered on the Michigan DEQ and the actions of the emergency managers.[43] There are allegations that the state ignored data on the lead levels of the water supply and were aware of inaccurate test results.[44] The determination of who is ultimately responsible for the decisions causing the allowance of lead leaching into the water supply remains to be seen.

As of January 22, 2016, the EPA announced it would be taking over the lead sampling and analysis with publication on the Internet to provide better information to the public.[45] The EPA issued an emergency administrative order on January 21, 2016, declaring, that both the City of Flint and the State of Michigan failed to take the necessary measures to protect public health.[46] Under the order, Michigan must create a public website for all information and reports regarding the actions taken to test and solve the lead crisis within five days, respond to an EPA task force on Flint's drinking water within ten days, and provide the EPA with monitoring and testing data from 2013 to the present.[47] The media, various government groups, agencies, environmental defense organizations, and political individuals are espousing the flaws in the initial responses to the situation and bringing forth calls to action.[48] Multiple emergency actions are now in process, including EPA orders, class action lawsuits, and President Obama sending in aid.[49] However, water supply laws already exist with the protection of public health as their major purpose. In theory, the tragedy with Flint water should never have happened under current rules and regulations.

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42. *Id.* at 26-27.

43. *See* Macaluso, *supra* note 2.

44. Verified Class Action Complaint for Declaratory Relief, Injunctive Relief, Equitable Relief & Damages at 22-25, Mays v. Snyder, No. 16-000017-MM, (Mich. Ct. Cl. Jan. 21, 2016).

45. *Id.*

46. City of Flint, Michigan, U.S. ENVTL. PROT. AGENCY (Jan. 21, 2016), https://www.epa.gov/sites/production/files/2016-01/documents/1_21_sdwa_1431_emergency_admin_order_012116.pdf (hereinafter the Safe Drinking Water Act Emergency Order); *see also* ENVTL. PROT. AGENCY, *EPA Response Activities—Update*, 2016 WL 316431 (Jan. 27, 2016).

47. *Id.*

48. *Id.*

49. *See* Lin, Rutter & Park, *supra* note 7.

## III. APPLICABLE RULES AND REGULATIONS AFFECTING DRINKING WATER SUPPLY

### *A. The Safe Drinking Water Act*

The federal law in existence to ensure U.S. citizens receive clean drinking water is the Safe Drinking Water Act (SDWA). The main purpose of the SDWA is to study the various contaminants that exist in potential sources of drinking water and produce national primary drinking water regulations with maximum contaminant-level goals.[50] The Administrator of the EPA (Administrator) is charged with the oversight of the SDWA and enforcement of its standards.[51] Under the SDWA, U.S. citizens should not have to worry about the quality of water they are putting into their bodies through their homes. The Administrator, alongside the CDC and state government agencies, review methods of contaminant entry, detection of this entry, and prevention under 42 U.S.C. § 300i-3.[52] Under this section, the Administrator reviews the methods and means necessary to give public water operators adequate information about the water systems and the contaminants' potential effects on those who use the water.[53] There is additional review of equipment and methods that allow for the mitigation of negative effects from the contaminants' entry.[54] These studies also review the way pipes and other conveyances of public water supplies could be damaged or unable to provide safe drinking water to the public, and the methods and effects of water treatment and distribution.[55] These reviews are intended to protect the public and the public water supply through prevention and detection. The Administrator even has the authority to issue orders and commence civil actions seeking relief or injunctions as necessary to protect the public in situations where the state or local governments have failed to do so.[56] He or she may act under this authority if there has been information provided on the presence or threat of a contaminant that presents a substantial danger to public health through the drinking water.[57]

The SDWA not only provides for review of the methods and means of water supply and protections but also assures the availability of information, finances, and technology to hold the safety and health of the

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50. Safe Drinking Water Act, 42 U.S.C. § 300g-1 (2012).
51. *Id.* § 300g-2.
52. *Id.* § 300i-3.
53. *Id.*
54. *Id.*
55. *Id.* § 300i-4(a).
56. *Id.* § 300i(a).
57. *Id.*

public water supply to the national standards.[58] The Administrator has the authority to perform research and studies on causes, diseases, treatment, and other human harm relating to safe drinking water supplies.[59] The Administrator additionally may assemble and "make available information," with recommendations, of studies on the provision of safe drinking water along with making available proper Agency research facilities to the appropriate groups conducting research.[60] Within this section of the SDWA, the Administrator must perform certain studies relating to the potential carcinogenic effects of various contaminants and treatment chemicals in the water and their effects on public health.[61] States can ensure provision of the necessary chemicals for treatment of their water supply through application if they cannot financially acquire the chemicals themselves.[62] A national assistance program exists for technological and financial assistance through grants for the rehabilitation and construction of water supply systems.[63] Under these federal assurances, states should be able to adequately provide safe drinking water to their citizens, even in times of financial distress.

Those who are found in violation of the SDWA are subject to civil penalties.[64] These penalties apply to both individuals and agencies.[65] A person who fails to comply with an order from the Administrator issued for the protection of public health may be subject to fines up to $15,000 per day of noncompliance with the order.[66] If a federal agency is found to be in violation of a subchapter of the SDWA, that agency may be subject to penalties of up to $25,000 per day of violation.[67] If a court enters a judgment for the protection of public health as the result of a regulation violation, the violators may receive a civil penalty that will not exceed $25,000 per day of violation.[68] Through civil penalties, the enforcement of the SDWA has the potential for substantial amounts of penalties based on the amount of time in which the Act was violated. The monitoring and enforcement provisions of the SDWA indicate that notice of a dangerous contaminant entry or the violation of a regulation should be quickly acknowledged. However, as the situation in Flint demonstrates,

58. *Id.* §§ 300j, 300j-1, 300j-2.
59. *See id.* § 300j-1(a)(1).
60. *Id.* § 300j-1(a)(2).
61. *Id.* §§ 300j-1(a)(9), (10).
62. *Id.* § 300j(a).
63. *Id.* § 300j-3(c).
64. *Id.* §§ 300g-3, 300i, 300j-6.
65. *Id.*
66. *Id.* § 300i(b).
67. *Id.* § 300j-6.
68. *Id.* § 300g-3.

if the state does not begin the process of notification, then large amounts of damage to the public can occur before any action is taken.[69]

### *B. Michigan State Law*

Under 42 U.S.C. § 300g-2, the states have the primary enforcement responsibility of the national drinking water standards.[70] The SDWA applies in the State of Michigan through its health chapter of the state's compiled laws.[71] Section 1001a of this chapter states the legislative intent of the chapter is to "provide adequate water resources research institutes and other facilities within the state of Michigan so that the state may assure the long-term health of its public water supplies and other vital natural resources."[72] The state provisions relating to the safety of public drinking water are extensive and detailed. The DEQ is charged with the promulgation and enforcement of the state drinking water standards, which can be no less stringent than the national standards, and monitoring requirements to ensure public health.[73] The DEQ also enforces the requirements necessary for the assurance of safe drinking water through the public water supply facilities.[74] Michigan follows the maximum contaminant level regulations in accordance with the SDWA.[75] Michigan law requires the collection of water samples in order to check the water quality in labs approved by the DEQ.[76] The DEQ has the authority to impose fines on the supplier for failure to collect the samples for water quality checks.[77] The DEQ additionally requires suppliers to notify users of noncompliance if the public water supply falls out of compliance with the standards.[78] The DEQ is authorized to act if the water is found to pose a hazard to public health.[79]

Subsection 1014 of the Michigan law imposes requirements on water suppliers for public notification in relation to water quality.[80] Suppliers must provide consumer confidence reports to customers as required under SDWA.[81] These reports and/or additional reports must

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69. *See infra* notes 80-84 and accompanying text.
70. 42 U.S.C. § 300g-2.
71. MICH. COMP. LAWS § 325.1001 (2015).
72. *Id.* § 325.1001(a).
73. *Id.* § 325.1005(b).
74. *Id.* § 325.1005(e).
75. *Id.* § 325.1006.
76. *Id.* § 325.1011.
77. *Id.* § 325.1007.
78. *Id.* § 325.1019.
79. *Id.* §§ 325.1005, 1006, 1007, 1011, 1019.
80. *Id.* § 325.1014.
81. *Id.* § 325.1014(2).

contain specified information if regulated contaminants are found in the water supply.[82] This information includes all relevant information pertaining to the contaminant, the population at risk from exposure to such contaminant, and the possible negative health effects from exposure.[83] However, this information is only required if the DEQ provides water suppliers with statements on "the adverse effects of regulated contaminants on vulnerable subpopulations" from the EPA or other approved sources.[84]

Penalties and enforcement for violations of the Michigan law fall under Subsections 1021 and 1022 of the health chapter.[85] Minor offenses are punishable by fines of up to $5000 per day of violation and imprisonment for no longer than a year.[86] Under this subsection, a "minor offense" is a violation of a permit that does not prohibit the function of the water supply nor the level of health the system provides.[87] The DEQ can request the Attorney General to bring about an injunctive action in the name of the people for the enforcement of the SDWA.[88] The court may impose a civil penalty for no greater than $5000 per day of violation.[89]

### *C. The Lead and Copper Rule*

In 1991, the EPA published the Lead and Copper Rule (LCR).[90] The LCR has undergone several revisions over the years, the latest in 2007.[91] When this rule was created, the EPA knew that the main point of entry of lead into drinking water systems was through the delivery system, plumbing.[92] This is largely in part due to the corrosivity of the water supply.[93] Water systems must apply the rules relating to the treatment of water for lead once the concentration of lead has reached the "action level" of at least 10% of the required samples resulting from the monitoring rules.[94] The action level, an enforceable requirement of the

82. *Id.* § 325.1014(3).
83. *Id.*
84. *Id.* § 325.1014(4).
85. *Id.* §§ 325.1021, 1022.
86. *Id.* § 325.1021(1).
87. *Id.* § 325.1021(3).
88. *Id.* § 325.1022.
89. *Id.*
90. 40 C.F.R. § 141 (1991); OFFICE OF WATER 4601, U.S. ENVTL. PROT. AGENCY, EPA 570/9-91-400, LEAD AND COPPER RULE FACT SHEET (1995).
91. 40 C.F.R. § 141, 142 (2007).
92. OFFICE OF WATER 4601, *supra* note 90.
93. *Id.*
94. *Id.*

LCR, for lead is 0.015 milligrams per liter, or fifteen parts per billion.[95] Water systems providing for more than 50,000 people are required to perform additional monitoring of water quality affecting corrosion.[96]

High lead levels in a water system require four types of action under the original LCR.[97] The source water requires monitoring for the presence of lead or copper, followed by state-approved treatment.[98] Water systems require monitoring and corrosion control studies as well as a corrosion control treatment recommendation based on the discovered information.[99] The LCR additionally provides a list of available treatment options, and then the State approves the proposed corrosion treatment.[100] Besides monitoring and treatment of the water to prevent lead and copper from damaging the public, the LCR requires systems to distribute educational informational materials within sixty days of knowledge of the system's noncompliance from above-action-level lead concentrations in the drinking water.[101] Through these materials, the public is supposed to have adequate guidance and the ability to reduce their lead exposure at home. Following a revision in 2000, systems must report compliance with the public education requirements within ten days from each required time period.[102] The fourth requirement under the original LCR is the most intensive of the four actions: lead service line replacement.[103] If the lead remains above action level following the implementation of proper corrosion control treatment to the water system, then this fourth action must be taken.[104] The lines to be replaced are those that contribute lead into the drinking water system above action level.[105] Once this procedure has begun, the system must replace 7% of the lines per year, with a complete line replacement in the following fifteen years.[106]

The LCR underwent a series of revisions in 2007 with the goals of improving compliance with the requirements for public education to affirm that those affected by lead in the drinking water receive the information they need and improve implementation of the LCR

95. *Id.*
96. *Id.*
97. *Id.*
98. *Id.*
99. *Id.*
100. *Id.*
101. *Id.*
102. OFFICE OF WATER 4606, U.S. ENVTL. PROT. AGENCY, EPA 816-F-99-011, LEAD AND COPPER RULE MINOR REVISIONS FACT SHEET FOR STATE PRIMARY AGENCIES (2001).
103. OFFICE OF WATER 4601, *supra* note 90.
104. *Id.*
105. *Id.*
106. *Id.*

generally.[107] The 2007 revisions of water treatment requirements increased precedent steps to improve water treatments for changes in the water system that could affect lead levels.[108] Any intended changes to water systems that would have an impact on corrosivity must be approved by the primary agency.[109] Through the approval, the system is supposed to have adequate time to research potential effects of the treatment change.[110]

## IV. THE EFFECTS ON FLINT AND FUTURE IMPLICATIONS

### *A. When Assurances Do Not Stand on Solid Ground*

The above rules and regulations suggest that the provision of safe, clean drinking water is a priority and close to a guarantee for U.S. citizens. The SDWA provisions include contaminant studies as well as technological and financial assurances that states will receive the information and tools necessary to provide clean water through public water systems.[111] The Michigan laws assure the public that they will receive important information about their drinking water quality.[112] Both the federal and the state laws indicate that action would be taken against those who violate the laws in ways that result in potential harm of public health. The existence and revisions of the LCR demonstrate how the dangers of lead in particular are well known, as are the mechanisms through which the lead may affect water systems and harm consumers.[113] These laws are not new, nor does their implementation require technology that is not yet in existence, as other natural resource issues involve. Yet, the entire population of Flint, Michigan, suffers from consuming the water their local and state government assured them was safe. Given the above rules and regulations, water-quality studies should have shown that there were elevated levels of lead in the drinking water. The law suggests that a corrosivity treatment should have been applied to the Flint River water that was distributed to Flint residents. The consequences of the failure of the law and of the people involved are far-reaching and, in some cases, irreparable.

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107. OFFICE OF WATER 4607M, U.S. ENVTL. PROT. AGENCY, EPA 815-F-07-03, FACT SHEET: REVISIONS TO THE REGULATIONS CONTROLLING LEAD IN DRINKING WATER (2007).

108. *Id.*

109. *Id.*

110. *See id.*

111. *See* Safe Drinking Water Act, 42 U.S.C. §§ 300j, 300j-1, 300j-2 (2012).

112. *See* MICH. COMP. LAWS ANN. § 325.1014 (West 2015).

113. *See* 40 C.F.R. pts. 141-42 (2015); OFFICE OF WATER 4601, *supra* note 90.

As previously stated, the citizens of Flint knew that something was going on with the water after the switch from the Hudson to the Flint River.[114] The community spoke out about the taste and color of the water to their local government.[115] Skin lesions, hair loss, and rashes increased in Flint patients.[116] If the public is supposed to be as informed as the rules and regulations indicate, then the Flint community would have been informed about the corrosivity of the water supply and the potential effects from the lead exposure. However, the public was not informed until the damage was done. The local government assured citizens that the Flint River water was safe and challenged Dr. Hanna-Attisha's findings.[117] President Obama authorized federal emergency aid, and residents were given bottled water.[118] Children who have consumed the lead-contaminated water may be affected for the rest of their lives.

It is not surprising that the Flint community no longer trusts the government in its actions attempting to remediate the water crisis. Even without knowing the relevant law, the Flint community knows that this tragedy should never have happened. The assurances of both federal and state rules and regulation have fallen short. The laws indicate numerous measures that are to be taken upon discovery of elevated lead levels in the water supply. The SDWA additionally assures financial and technological assistance in reaching safe drinking water quality.[119] So what happens when the laws intended to protect public health are not followed through? The public no longer believes in what the government says.

Time will tell if the DEQ of Michigan and the EPA regional administrators purposefully altered the water quality testing and thus caused notifications of the need for help to go unsounded. However, the reason underlying the switch from Detroit's water supply to the Flint River was a financially-based decision.[120] The switch of the water supply would have triggered studies under the LCR for a change in water supply, and the financial constraints causing the change in the water supply would merit a notification applicable to SDWA. The law assures assistance, but where does the assistance come from? The money necessary to treat the Flint River with an anti-corrosivity agent was not

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114. *See* Smith, *supra* note 3.
115. *See* Smith, *supra* note 3.
116. Ganim & Tran, *supra* note 8.
117. *See* Goodnough, Davey & Smith, *supra* note 4.
118. *See* Lin, Rutter & Park, *supra* note 7.
119. *See* Safe Drinking Water Act, 42 U.S.C. §§ 300j, 300j-1, 300j-2 (2012).
120. *See* Smith, *supra* note 3.

an extremely large sum, approximately $100 per day.[121] However, if Flint was unable to supply that money, then, under the SDWA, shouldn't the federal system have stepped in to help? Furthermore, now that the damage is done, in what manner and with what finances can it be fixed?

### *B. The Future—Remediation and Prevention*

#### 1. Recovery

Violations of the SDWA and the Michigan laws can result in civil penalties.[122] Even if it was determined that there had been violations from the time the water supply switched to the Flint River, these penalties would not have a hard hit on those responsible. Additionally, these civil penalties, while they may punish those whose actions caused the damage, do nothing to benefit the residents of Flint. The health impacts of the lead on the Flint community may last the entire duration of their lives in some cases. Citizens may potentially be compensated for their ongoing medical expenses through a structured settlement if a court finds the local and state governments and agencies liable for the lack of corrosion treatment under tort law. However, even with compensation, the quality of life for many, especially the younger generations, will never be the same. Children who have consumed the water may suffer from developmental damages that will affect their adult lives. Even with medical compensation, the damage to Flint as a city and community remains.

There may be another pathway of recovery for Flint residents. Recent events in the State of Louisiana may have opened a door to recovery for agency failures through suit as a Fifth Amendment Takings Clause of the U.S. Constitution.[123] In a liability order for *St. Bernard Parish Government v. United States*, the plaintiffs were awarded an order of liability against the U.S. Army Corps of Engineers (Army Corps) for a temporary taking by flooding.[124] The Parish Government alleged that the Army Corps caused a taking by property flooding in its construction, operations, and maintenance failure of the Mississippi River-Gulf Outlet.[125] The property damage took place following Hurricane Katrina,

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121. Verified Class Action Complaint for Declaratory Relief, Injunctive Relief, Equitable Relief & Damages at 16, Mays v. Snyder, No.16-000017-MM (Mich. Ct. Cl. Jan. 21, 2016).

122. 42 U.S.C. § 300g-3,300i, 300j-6; MICH. COMP. LAWS § 325.1021-.1022 (2015).

123. U.S. CONST. amend. V; *see generally* St. Bernard Par. Gov't v. United States, 121 Fed. Cl. 687 (2015) (supporting the idea that the government may be liable for their actions).

124. *See St. Bernard Par. Gov't*, 121 Fed. Cl. 687.

125. *Id.* at 690-91.

along with the following hurricanes shortly thereafter.[126] The issue was originally filed as a negligence tort claim in which the United States District Court for the Eastern District of Louisiana ruled for the plaintiffs, and the United States Court of Appeals for the Fifth Circuit affirmed.[127] However, shortly thereafter the Fifth Circuit reversed its decision on rehearing.[128] Following the Fifth Circuit's reversal, the Parish Government filed a claim for a violation under the Fifth Amendment Takings Clause using the facts of the negligence claim.[129]

The Takings Clause of the Fifth Amendment states, "nor shall private property be taken for a public use without just compensation."[130] In order to bring a suit for a Takings Clause violation, the plaintiffs must have standing through the demonstration of "injury in fact," a causal link between the harm and the alleged conduct, and the harm must be likely redressable.[131] Additionally, plaintiffs must show they had a protectable property interest under state law and that the damage they suffered from the action was foreseeable.[132] In the United States Court of Federal Claims, the plaintiffs proved their property interests as protectable under Louisiana Law.[133] In establishing a temporary taking, St. Bernard Parish showed that they had individual, protectable property interests and that the consequences from the Army Corps' actions were foreseeable.[134] They proved a causal link between the property damage and the actions of the Army Corps with the information available to the Army Corps before the damage occurred.[135] They proved that both agency and external research studies suggested a likelihood of an increased chance of surge and flooding of the Mississippi River-Gulf Outlet.[136] The Army Corps continued its actions leading to the flooding, despite the available information.[137] The damage from the flooding was also substantial and severe in the eyes of the court.[138] The court even went so far as to emphasize that the Army Corps' post-remedial action did not negate its

126. *See id.* at 692-93.
127. *See id.* at 691-92.
128. *See id.* at 692.
129. *See id.*
130. U.S. CONST. amend. V.
131. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 560-61 (1992).
132. *See St. Bernard Par. Gov't*, 121 Fed. Cl. at 719 (citing Ark. Game & Fish Comm'n v. United States, 133 S. Ct. 511, 522-23 (2012)).
133. *See id.*
134. *See id.* at 719-23.
135. *See id.* at 724-38.
136. *See id.*
137. *See id.*
138. *See id.* at 745-46.

liability.[139] *St. Bernard Parish* will possibly set favorable precedent for the ability of plaintiffs to recover under a constitutional takings theory for agency failure and consequences.

The situation in *St. Bernard Parish* provides another example of an event caused by actions that were intended for public protection, but ultimately ended in causing harm. The levee was intended to protect the public and reduce flooding. Similarly, the switch to the Flint River as the water supply was intended to save money and reduce financial constraint on the city.[140] Instead, members of the community had toxic water in their taps. If Flint can establish the elements in a manner similar to *St. Bernard Parish*, they may be able to recover under a takings claim. The failure of the EPA and the DEQ to properly treat the water supply may allow Flint residents to prove that their homes were irreparably damaged within a protectable property interest under state law. Safe drinking water law and water sampling information coming under scrutiny shows that those in charge of Flint's water supply were aware of its corrosivity, similar to the studies suggesting increased flooding chances in *St. Bernard Parish*. If this claim is successful, Flint has the potential to experience drastic changes. Flint citizens may use the money from a takings claim recovery to rebuild their homes and lives in Flint, or they may decide to take the money and start over somewhere new.

2. Prevention

It is clear that the lead leaching and subsequent consequences in Flint should not have happened under existing law, but how could it have been prevented in the first place? Remedial actions are underway, but thoughts should be put forth on how to prevent another tragedy like this in the future. This story is common throughout various environmental disasters in the United States. A tragedy strikes, and only afterwards is action taken to try to fix it. In regard to natural resources, the United States tends to act to solve a problem rather than prevent it from happening. The Cuyahoga River catching fire had a key influence on the passage of the Clean Water Act of 1972.[141] The Exxon Valdez oil spill paved the path for the Oil Pollution Act of 1990.[142] The disaster of toxic

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139. *See id.* at 743-44.

140. *See* Smith, *supra* note 3.

141. *See Protecting the Clean Water Act*, AM. RIVERS, http://www.americanrivers.org/initiatives/pollution/clean-water-act/ (last visited Jan. 31, 2016).

142. *See* Adam Hadhazy, *20 Years After the Exxon Valdez: Preventing and Preparing for the Next Oil Spill Disaster [Slide Show] The Biggest Oil Spill in U.S. History Sparked Improvements in Tanker Construction and Navigation Technology, Along With Better Crew*

dumping resulting in the federal government buying out a whole community in the tragedy of Love Canal in the 1970s drew attention to the need for toxic-cleanup regulation.[143] In 1979, Eckardt Beck, a former EPA regional administrator, wrote on Love Canal and stated, "It is within our power to exercise intelligent and effective controls designed to significantly cut such environmental risks. A tragedy, unfortunately, has now called upon us to decide on the overall level of commitment we desire for defusing future Love Canals."[144] The water crisis in Flint, Michigan, may be one of the future Love Canals to which Mr. Beck alluded.

The true tragedy of the Flint water crisis is that existing law should have prevented the inadequacy of the water treatment. The laws and rules pertaining to drinking water exist for the protection of public health but hold no weight when people do not enforce them. It is possible that a new, major change is needed in the provision of safe drinking water in the United States. According to the CDC, four million homes with children in them, at a minimum, experience exposure to high lead levels.[145] The CDC also has said that for children there is not a determined safe level of lead in their blood.[146] However, the actionable legal level of lead for public water systems is fifteen parts per billion.[147] Early estimates of cost for replacing the infrastructure of Flint's water piping is $1.5 billion, but the LCR shows a system in place for replacement of lines spaced over time upon the discovery of elevated lead in the system.[148] Under the SDWA, lead-lined cooler tanks for water required replacing because they were an imminent hazard to human health.[149] These provisions alone beg the question of how the replacement of lead pipe infrastructure has not been more actively pursued. The treatment of water with anti-corrosivity agents prevents the lead leaching, but this requires the water to be treated in the first place. Flint demonstrates the failure in the underpinnings of these rules and regulations. However, if people do not enforce the law, there remains uncertainty of whether a policy change would be effective.

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*Training, but the Danger Remains*, SCI. AM. (Mar. 23, 2009), http://www.scientificamerican.com/article/exxon-valdez-20-years-later-oil-spill-prevention/.

143. *See* Eckardt Beck, *The Love Canal Tragedy*, U.S. ENVTL. PROT. AGENCY (Jan. 1979), https://archive.epa.gov/epa/aboutepa/love-canal-tragedy.htmlhttp://www.epa.gov/aboutepa/love-canal-tragedy.

144. *Id.*

145. *Lead*, *supra* note 18.

146. *Id.*

147. OFFICE OF WATER 4601, *supra* note 90.

148. Smith, *supra* note 3.

149. *See* Safe Drinking Water Act, 42 U.S.C. § 300j-22 (2012).

The assurance of safe drinking water involves a cooperation of both state and federal agencies and laws. However, as shown earlier in this Comment, the states are the entities primarily responsible for the actual implementation of the regulations and provision of safe water to the public. In the case of Flint, it appears that the primary failure was in the state's DEQ. Therefore, the federal law needs to provide greater oversight and, in so doing, provide a safety net for when the state agency fails in any way to assure safe drinking water. The SDWA should contain a provision that mandates not only the affirmation of a change in water supply, but also requires the federal agency to review the potential water supply change and its possible impact on public health. Through this requirement, emergency managers who only look at economic costs and benefits are not the ultimate decision-makers; instead, the local and state agencies provide information on the current water supply and the potential change to the EPA, which then independently reviews and recommends whether or not to pursue the change. A requirement that the state follow the EPA's recommendation may infringe too much into the rights of the states. But if the state determines not to follow the EPA's recommendation, it must provide sufficient reasoning, outside of economic factors, as to why because the states adopted the SDWA. Given the financial assistance that the SDWA assures in the provision of safe drinking water, the implementation of the law should weigh what is best for public health above other factors surrounding the water supply in question.[150] Finally, by strengthening the federal law through increased federal oversight, the benefits of the change in federal law would apply in each state that has adopted the SDWA into its state laws, thereby potentially preventing future Flint crises from happening in other American cities.

## V. CONCLUSION

The water crisis in Flint demonstrates the ineffectiveness of the current laws intended to protect the public drinking water supply and public health. Therefore, there needs to be a change in the enforcement of those laws. There is no clearly laid out solution to this problem, but there are options that could begin to impact the force of the law outside of the federal policy changes discussed previously.

The following are recommendations of steps that would change the physical elements of safe drinking water assurance and provision. The requirements for monitoring contaminants and treatment processes could

150. *See id.* § 300j.

be tightened. By increasing the frequency of reporting, there is an increased ability to pursue accountability for compliance. Additionally, if monitoring required multiple testing methods for each contaminant, then any discrepancies in the results could more quickly indicate a potential noncompliance issue. Alongside increased monitoring, the health standards for contaminant levels should reflect the true risk of exposure to the public. Stronger standards may be met with resistance because a more stringent standard often equates more effort in compliance. However, the crisis in Flint demonstrates the true cost and damage that can result from less stringent standards. If standards had properly addressed the true toxicity of lead, then the infrastructure for Flint's water supply may not have even required a lead prevention chemical agent.

Another option is looking to the infrastructure itself of lead piping in drinking water supply systems. Replacing a large amount of the country's water-supply infrastructure would be costly and time intensive, but the national attention Flint received during this water crisis exemplifies the high value the issue has in society. Therefore, Flint could lead to the development of a superfund for lead piping infrastructure replacement. With a superfund for water piping replacement, future Flint water crises may be prevented as more lead piping is replaced.

These aspirational changes to the supply of safe drinking water in the United States require more than money and enforcement. They would require an overarching change in mentality. We as a society tend to undermine the importance of effective natural resource law until there is a deleterious impact on the human population. Flint provides a reason to take safe drinking water and the importance of water as a natural resource seriously. The view of access to water as a human right is increasing.[151] The United States is a first-world country where most would not need to consider safe drinking water to be an issue. The crisis in Flint indicates otherwise. Perhaps the crisis in Flint will advance changes in the U.S. water supply system.

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151. *See* G.A. Res. 64/292, The Human Right to Water and Sanitation (Aug. 3, 2010); Keith Peterman, *Human Rights, Indigenous Peoples, and Climate Change at COP21*, HUFFPOST GREEN (Dec. 10, 2015, 2:59 PM), http://www.huffingtonpost.com/keith-peterman/human-rights-indigenous-p_b_8770968.html.