Timestamp

Approved, SCAO | Original - Court; 1st copy - Defendant | 2nd copy - Plaintiff; 3rd copy - Return

STATE OF MICHIGAN JUDICIAL DISTRICT 7th JUDICIAL CIRCUIT COUNTY PROBATE	SUMMONS AND COMPLAINT	CASE NO. 16-107274-CZ

Court address: 900 Saginaw Street #204, Flint, Michigan 48502

Court telephone no.: (810) 424-4355

JOSEPH J. FARAH P-30439

Plaintiff's name(s), address(es), and telephone no(s).		Defendant's name(s), address(es), and telephone no(s).
Tiffany Davenport, Individually and As Next Friend and Mother of B.W. and E.D., Minor Children, Merin Johnson, Gregory Miller, and Twylla Walker, Individually and As Next Friend and Mother of M.N. and D.W., Minor Children,	v	Lockwood, Andrews & Newnam, P.C.; Lockwood Andrews & Newnam Inc.; Leo A. Daly Company; Veolia North America, Inc.; Veolia North American, LLC; Veolia Water North America Operating Services, LLC; Veolia Environnement S.A.,
Plaintiff's attorney, bar no., address, and telephone no. David J. Shea (P41399) SHEA AIELLO, PLLC 26100 American Drive, 2nd Floor Southfield, Michigan 48034 248-354-0224		

SUMMONS **NOTICE TO THE DEFENDANT**: In the name of the people of the State of Michigan you are notified:

1. You are being sued.
2. **YOU HAVE 21 DAYS** after receiving this summons to **file a written answer with the court** and serve a copy on the other party **or take other lawful action with the court** (28 days if you were served by mail or you were served outside this state). (MCR 2.111[C])
3. If you do not answer or take other action within the time allowed, judgment may be entered against you for the relief demanded in the complaint.

Issued	This summons expires	Court clerk
JUL - 6 2016	OCT - 4 2016	Stephanie Davis

*This summons is invalid unless served on or before its expiration date. This document must be sealed by the seal of the court.

COMPLAINT ***Instruction: The following is information that is required to be in the caption of every complaint and is to be completed by the plaintiff. Actual allegations and the claim for relief must be stated on additional complaint pages and attached to this form.***

☐ This is a business case in which all or part of the action includes a business or commercial dispute under MCL 600.8035.

Family Division Cases

☐ There is no other pending or resolved action within the jurisdiction of the family division of circuit court involving the family or family members of the parties.

☐ An action within the jurisdiction of the family division of the circuit court involving the family or family members of the parties has been previously filed in _____ Court.

The action ☐ remains ☐ is no longer pending. The docket number and the judge assigned to the action are:

Docket no.	Judge	Bar no.

General Civil Cases

☐ There is no other pending or resolved civil action arising out of the same transaction or occurrence as alleged in the complaint.

☑ A civil action between these parties or other parties arising out of the transaction or occurrence alleged in the complaint has been previously filed in this court and other courts Court.

The action ☑ remains ☐ is no longer pending. The docket number and the judge assigned to the action are:

Docket no.	Judge	Bar no.
	Honorable Archie L. Hayman and Honorable Richard B. Yuille	

VENUE

Plaintiff(s) residence (include city, township, or village)	Defendant(s) residence (include city, township, or village)
Flint, Michigan	Flint, Michigan
Place where action arose or business conducted: Flint, Michigan	

07/05/2016
Date

Signature of attorney/~~plaintiff~~

If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you fully participate in court proceedings, please contact the court immediately to make arrangements.

STATE OF MICHIGAN
IN THE CIRCUIT COURT OF THE COUNTY OF GENESEE

TIFFANY DAVENPORT, INDIVIDUALLY AND AS NEXT FRIEND AND MOTHER OF B.W. AND E.D., MINOR CHILDREN, MERIN JOHNSON, GREGORY MILLER, AND TWYLLA WALKER, INDIVIDUALLY AND AS NEXT FRIEND AND MOTHER OF M.N. AND D.W., MINOR CHILDREN,

Plaintiffs,

vs.

LOCKWOOD, ANDREWS & NEWNAM, P.C.; LOCKWOOD ANDREWS & NEWNAM INC.; LEO A. DALY COMPANY; VEOLIA NORTH AMERICA, INC.; VEOLIA NORTH AMERICA, LLC; VEOLIA WATER NORTH AMERICA OPERATING SERVICES, LLC; VEOLIA ENVIRONNEMENT S.A.,

Defendants.

16-107274-CZ

JOSEPH J. FARAH
P-30439

Civil Action No.

CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

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STATEMENT REGARDING ASSIGNMENT OF RELATED CASES

Numerous civil actions between these parties or other parties arising out of the transaction or occurrence alleged in this complaint has been previously filed in this Court and other Courts, assigned to Hon. Archie L. Hayman and Hon. Richard B. Yuille. The actions remain pending.

CLASS ACTION COMPLAINT FOR DAMAGES AND EQUITABLE RELIEF AND DEMAND FOR JURY TRIAL

Tiffany Davenport, Merin Johnson, Gregory Miller, and Twylla Walker, individually and on behalf of a class of all others similarly situated, bring this action for damages and equitable relief and demand a jury trial. Unless stated otherwise, all allegations contained herein are made on information and belief. In support of their claims, Plaintiffs allege as follows:

I. NATURE OF THE CASE

1. Plaintiffs and the Class – all residents and businesses of Flint, Michigan – have suffered, and continue to endure, the consequences of having been exposed to toxic levels of lead and other hazards from the drinking water. With this suit, Plaintiffs seek to hold the persons and entities that caused this crisis accountable.

2. For nearly five years, the City of Flint has existed in a state of financial emergency pursuant to which the City is controlled by a Governor-appointed Emergency Financial Manager. In 2014, in an effort to save money, the Emergency Financial Manager authorized a switch to the Flint River as the City's sole water source.

3. In making this switch, Flint's Emergency Financial Managers and Flint employees failed to implement a corrosion control protocol as required by the Safe Drinking Water Act and otherwise failed to exercise reasonable care with regard to Flint's water system. Absent mandatory corrosion controls, the acidic water of the Flint River coursed through unprotected pipes to residents and businesses – leaching lead and other harmful chemicals into the water along the way.

4. Flint engaged and relied upon the professional services and expertise of two engineering firms – Defendants Lockwood, Andrews & Newnam (LAN) and Veolia North America (Veolia) – to review its water distribution system, ensure compliance with federal and state environmental regulations, and provide expert engineering advice to the City and its Emergency Financial Managers. By taking on this assignment, LAN and Veolia assumed the responsibility to satisfy the standard of a reasonable engineer.

5. In conducting their engineering services, however, LAN's and Veolia's conduct fell well below the standard for a reasonable engineer in several critical respects. First, LAN and Veolia failed to conduct a root cause analysis to determine the cause of Flint's initial water problem. Had either LAN or Veolia performed such an analysis, it would have quickly revealed that Flint River water was contaminated by corrosive salt accumulated from de-icing operations over decades of Michigan winters, and had caused extensive pipe corrosion and an extreme risk of lead contamination absent the implementation of a plan to prevent such contamination. Moreover, a root cause analysis would have revealed that the City of Flint had not adopted a corrosion control protocol as mandated by the federal Safe Drinking Water Act and related Lead and Copper Rule.

6. LAN and Veolia also ignored a series of red flags that should have led them to suspect corrosion problems in Flint's water system. LAN and Veolia should have anticipated widespread corrosion problems in light of the switch to a highly saline water source; the ineffectiveness of Flint's attempts to address coliform bacteria, which would have signaled corroded pipes to any reasonably competent engineer; the summer 2015 outbreak of Legionnaires Disease, which also should have alerted these companies to corrosion problems; and the very *color* of Flint's tap water, which was rusty and brown precisely because it was leaching metal from Flint's pipes. Any of these warnings should have warned LAN and

Veolia to a widespread corrosion problem and led these companies to implement effective corrosion controls.

7. Additionally, LAN and Veolia affirmatively recommended that Flint double the ferric chloride in its water. A reasonable professional engineer would have known that ferric chloride is highly acidic and (when used without alkaline buffering agents to raise the pH and phosphates or other corrosion control elements to coat the pipes) causes corrosion. This is exactly what happened in Flint's water system.

8. As a direct and foreseeable result of LAN's and Veolia's recommendations, Flint increased the ferric chloride in its water with grave consequences. The salinity of the Flint River was the metaphorical gasoline in this particular tragedy. The addition of ferric chloride, as recommended by the professional engineers at LAN and Veolia upon whom the City relied, was the match. The added ferric chloride dramatically increased the corrosion of Flint's pipes and, as a direct and foreseeable result, the leaching of various chemicals into Flint's drinking water – including lead.

9. Despite failing to fulfill their professional duties in a reasonable manner, both LAN and Veolia deemed Flint's water compliant with governing environmental statutes and regulations. In doing so, LAN and Veolia provided

false assurances of safety to Plaintiffs and the Class, further exacerbating the extent of the damage caused by their conduct.

10. All the while – despite public assurances of safety – government offices in Flint quietly switched to bottled water while the citizens and business of Flint continued to drink dangerously contaminated water.

11. Indeed, it was not until a memorandum from an EPA official regarding the frightening existence of lead in Flint's drinking water was leaked to the American Civil Liberties Union that the government or the Defendants acknowledged the problem.

12. Unfortunately, these acknowledgments came too late. Since the City implemented LAN's and Veolia's recommendations, more than 40% of the homes tested revealed lead contamination above the federal threshold. A study from a pediatrician at the Hurley Medical Center showed that elevated blood levels in children had more than doubled following the switch to the Flint River as Flint's water source.

13. The consequences of lead exposure are both catastrophic and permanent. Lead poisoning can cause serious damage to a child's central and peripheral nervous system, stunt growth, impair hearing, and impair the formation and function of blood cells. The effect of lead poisoning on children's brain development is particularly alarming, causing reduced IQ and serious behavioral

problems. While lead's worst effects are borne by children, lead exposure can be seriously harmful to adults as well, causing serious cardiac and reproductive problems.

14. Plaintiffs and the Class have sustained substantial personal injuries as a result of Defendants' conduct and the child-members of the Class have additionally suffered lost economic earnings.

15. Plaintiffs and the Class have also suffered significant property damage as a direct result of Defendants' conduct. The acidic and corrosive water that Defendants caused to flow through Flint's water system has irreparably damaged residents' and businesses' pipes and appliances. Moreover, the stigma associated with the water crisis has resulted in, and will continue to result in, a reduction in residential and commercial property values in the City of Flint and substantial financial harm to Plaintiffs and the Class. Despite Flint having switched back to its prior water source, corroded pipes and appliances in residents' homes and local commercial properties remain corroded. The only option for Plaintiffs and the Class to truly be safe is to entirely replace their pipes and corroded appliances.

16. Plaintiffs and the Class seek damages and other relief under theories of Professional Negligence, Gross Negligence, Negligence, Intentional and Negligent Infliction of Emotional Distress, and Unjust Enrichment.

17. Defendants must be held accountable for the harms they caused Plaintiffs and the Class injury, and Plaintiffs and the Class must be compensated – as far as possible – for the devastating, irreparable harms they have suffered. That is exactly what this suit seeks to do.

II. PARTIES, JURISDICTION AND VENUE

A. Plaintiffs

18. Tiffany Davenport resides with her children, B.W. and E.D., at 3517 Chicago Boulevard, Flint, Michigan 48503. She rents her apartment, which is serviced by water provided by the City of Flint. B.W., age two as of the date of this Complaint, and E.D., age four, tested positive for blood lead contamination in March 2016. Both Davenport and her children have suffered damages as a direct and proximate result of Defendants' conduct described herein.

19. Merin Johnson resides at 1064 Rosedale Street, Flint, Michigan, 48505. He owns his home, which is serviced by water provided by the City of Flint. He tested positive for blood lead contamination in February 2016. Johnson has suffered damages as a direct and proximate result of Defendants' conduct described herein.

20. Gregory Miller resides at 3454 Rangeley Drive, Apartment #5, Flint, Michigan 48503. He rents his apartment, which is serviced by water provided by the City of Flint. He tested positive for blood lead contamination in

January 2016. Miller has suffered damages as a direct and proximate result of Defendants' conduct described herein.

21. Twylla Walker resides with her children, M.N. and D.W., at 2015 Gilmartin Street, Flint, Michigan 48503. She owns her home, which is serviced by water provided by the City of Flint. M.N. and D.W. each tested positive for blood lead contamination in February 2016. Twylla Walker, M have each suffered damages as a direct and proximate result of Defendants' conduct described herein.

B. Defendants

22. Lockwood, Andrews & Newnam, P.C. ("LAN P.C.") is a Michigan professional corporation with its principal place of business at 1311 S. Linden Road, Suite B, Flint, Michigan 48532. At all times relevant hereto, LAN P.C. held itself out to the world as a Lockwood, Andrews & Newnam, Inc. ("LAN Inc.") company. Upon information and belief, LAN P.C. was incorporated in 2008 by LAN Inc. after it was retained by Defendants to conduct studies and reports of the feasibility of a new water supply for the City of Flint. Upon information and belief, work and services provided by LAN P.C. were conducted at LAN Inc.'s Chicago, Illinois location.

23. LAN Inc. is a Texas corporation with its principal place of business at 2925 Briarpark Drive, Suite 400, Houston, Texas 77042. At all relevant times hereto, LAN Inc. conducted business in Genesee County through Defendant

LAN P.C., at 1311 S. Linden Road, Suite B, Flint, Michigan 48532. LAN Inc. is a full-service consulting firm offering planning, engineering and program management services, including civil infrastructure engineering and municipal water treatment and design.

24. Leo A. Daly Company ("LAD") is a Nebraska corporation with its principal place of business at 8600 Indian Hills Drive, Omaha, Nebraska 68114. LAD is an international architecture/engineering firm, with nearly 800 professionals in 31 offices worldwide and projects in more than 87 countries and all 50 US states. Upon information and belief, LAD is the parent company of LAN Inc. and LAN P.C.

25. Defendants LAN P.C., LAN Inc., and LAD are referred to collectively herein as, "LAN." The LAN defendants regularly conduct business in Michigan and have committed torts in Michigan, which are bases for personal jurisdiction in this Court under MCL § 600.715.

26. Veolia North America, Inc. ("Veolia N.A. Inc.") is a Delaware corporation with its principal place of business at 200 E. Randolph Drive, Suite 7900, Chicago, Illinois 60601.

27. Veolia North America, LLC ("Veolia N.A. LLC") is a Delaware Limited Liability Company with its principal place of business at 200 E. Randolph Drive, Suite 7900, Chicago, Illinois 60601.

28. Veolia Water North America Operating Services, LLC ("Veolia Water") is a Delaware Limited Liability Company with its principal place of business at 101 W. Washington Street, Suite 1400 East, Indianapolis, Indiana 46204.

29. Veolia N.A. Inc., Veolia N.A. LLC, and Veolia Water design and provide water solutions for communities and industries across the country.

30. Veolia Environnement S.A. ("Veolia S.A.") is a French transnational corporation with its principal place of business at 36-38 Avenue Kleber, 75116, Paris, France. Veolia S.A. is a leading global provider of environmental management services, which include the supply of water, the treatment and recovery of municipal or industrial effluent, waste collection, processing and recycling, the supply of heating and cooling services and the optimization of industrial processes. Upon information and belief, Veolia S.A. is the parent corporation of Veolia N.A. Inc., Veolia N.A. LLC, and Veolia Water.

31. Defendants Veolia N.A. Inc., Veolia N.A. LLC, Veolia Water, and Veolia S.A. are referred to collectively herein as "Veolia." Veolia defendants regularly conduct business in Michigan and have committed torts in Michigan, which are bases for personal jurisdiction in this Court under MCL § 600.715.

32.

33. LAN and Veolia are referred to collectively herein as "Defendants."

34. Jane/John Doe Nos. 1-100, various other individuals, firms, and/or corporations, not named as Defendants herein, may have participated in the events that caused Plaintiffs' and the Class's injuries. Plaintiffs reserve the right to subsequently name some or all of these persons as defendants.

35. Venue is proper in this Court because the original injury and damage occurred in Genesee County; Defendants each reside and/or conduct business in Genesee County; Plaintiffs and the Class have suffered harms and incurred costs in Genesee County; and many of the occurrences described herein occurred in Genesee County.

36. The amount in dispute is in excess of $25,000, exclusive of costs and attorneys' fees, and all of the parties have transacted business in Genesee County, Michigan at all times relevant herein such that subject matter jurisdiction is properly with this Court.

III. FACTUAL ALLEGATIONS

A. The City of Flint and Its Residents

37. The City of Flint, Michigan is located along the Flint River, approximately 60 miles northwest of Detroit. Flint sits in Genesee County and is the largest city in the county. According to the 2015 Census, Flint is home to

99,002 residents, 27.3% (approximately 27,000) of whom are under 18 years of age and 8% (approximately 8,000) of whom are under 5 years of age. More than half of Flint's residents are African American. There are more than 50,000 housing units in Flint, Michigan and approximately 55% of those units are owner-occupied.

38. Like the residents of any American city, residents of Flint rely on a steady supply of safe and clean water to go about their daily lives. Flint also has thousands of commercial and other non-residential properties whose owners rely upon clean and safe water.

39. Flint's relative prosperity has paralleled that of the American automotive industry, growing exponentially during the first half of the twentieth century but experiencing catastrophic downturns in the last forty years as domestic car companies shuttered some plants and moved others. Flint's fate has been particularly tied that of its largest employer, General Motors. When General Motors downsized in the 1980s, closing facilities and laying off workers, Flint similarly witnessed substantial economic turmoil that continues to date.

40. According to the most recent Census, 41.6% of Flint's citizens – Plaintiffs here – live at or below the poverty level. The median household income in Flint is just $24,679 – 7% lower than the median income in Michigan and 54% lower than the national median income.

41. In 2011, Flint's finances reached a critical place: an audit estimated a $25 million deficit overall and Flint's water supply fund showed a $9 million deficit. In 2011, Governor Snyder declared Flint to be in a financial emergency and the City entered receivership, with responsibility for governance of the City and operation of its utilities and other services, including its water supply, under the direction of Emergency City Governors who were appointed by the Governor and employed by the State.

42. Governor Snyder appointed Michael Brown as the Emergency Financial Manager in Flint effective December 1, 2011. The democratically elected offices of Flint were subordinate to Brown. According to state Congressman Dan Kildee, Brown was appointed to "simply do one thing and one thing only, and that's cut the budget – at any cost."

B. The City Switches Water Sources

43. Many decades ago, the City of Flint drew its water from the Flint River. This changed in 1967 when the City began purchasing its water through the Detroit Water and Sewerage Department ("DWSD") as its principal water supply, with the Flint River serving as a backup source in the event of water shortage or interruption of service from the principal source.

44. As part of its receivership, Flint began exploring ways to decrease costs associated with its water and sewer system. Water and sewer costs were the

single largest expenditures in Flint's budget, rendering them obvious targets for cuts to address Flint's financial crisis. According to a September 2011 report by Rowe Professional Services, Flint could save money if it purchased its water from Karegnondi Water Authority ("KWA") rather than the Detroit Water and Sewerage Department. However, because the KWA would require substantial new construction work, an immediate switch away from DWSD water would require Flint to reopen its shuttered municipal water treatment plant, which sourced its water from the Flint River.

45. In August 2012, Governor Snyder appointed Edward Kurtz as Flint's new Emergency Manager. Four months later, Michigan Treasury officials met with Flint leaders to discuss alternative sources for Flint's drinking water, including the Flint River. The officials agreed to study two potential options for water sources: remaining with the Detroit Water and Sewer Department or switching to Genesee County's KWA.

46. In February 2013, Tucker, Young, Jackson & Tull, Inc. ("TYJT"), an engineering consulting firm retained by the State of Michigan, issued a report assessing the water supply alternatives for the City of Flint. According to its report, TYJT was retained "to provide an analysis of the water supply options to assist the Treasurer [of the State of Michigan] to provide an analysis of the water supply

options to assist the Treasurer in determining any potential risk and the best course going forward for supplying potable water to the City of Flint."

47. The TYJT assessment concluded that the cost of continuing to obtain water from Detroit likely would be lower than the costs of transitioning to the proposed KWA treatment plant. However, the report also noted that Flint had an interest in obtaining water "autonomy" vis-à-vis Detroit, and that transitioning to the KWA would serve that interest. The TYJT report did not discuss health and safety issues related to the transitional period during which Flint would source its water from the Flint River. Instead, the assessment in the report included only a discussion of financial considerations associated with the transition to the KWA, as well as the so-called "autonomy" interest that ultimately overrode the relatively cost effective alternative of remaining with the Detroit water supply.

48. On March 25, 2013, the Flint City Council voted to join KWA. The vote had no legal effect because, due to the receivership, the Emergency Manager had sole authority to authorize such a change.

49. The day after the City Council's vote, on March 26, 2013, Stephen Busch, the District Supervisor of the Michigan Department of Environmental Quality ("MDEQ") emailed Daniel Wyant, the director of MDEQ regarding the proposal to rely on the Flint River for Flint's water. In that email, Busch outlined concerns regarding the health risks posed by switching to the Flint River as a water

source. Specifically, he noted that use of the Flint River would, "[p]ose an increased microbial risk to public health," and "[p]ose an increased risk of disinfection by-product." Despite this feedback, Wyant wrote Andy Dillon, Michigan's Treasurer, to report that "[a]ll indications are that we are supportive" of joining KWA and using Flint's water as opposed to the DWSD.

50. Three days after Busch outlined his concerns, Emergency Manager Kurtz signed a resolution authorizing Flint to enter a contract with KWA. Treasurer Dillon approved that decision in April, 2013. In doing so, Dillion expressly noted that he was relying in part on the MDEQ's support of the project as well as Emergency Manager Kurtz's "representations that this deal will lead to substantial savings for the City over the coming decades."

51. In or around June 2013, Emergency Manager Kurtz hired LAN to advise the City with respect to using the Flint River as the City's water source during the construction of the new KWA treatment plant, which was projected to take approximately two years. LAN had previously advised the City regarding the design of an upgrade to the Flint Water Plant. In a January 13, 2015 document entitled "Water System Questions and Answers," the City assured citizens that "with support from LAN engineering which works with several water systems around the state, quality control could be addressed."

52. In deciding to proceed with the transition to the Flint River, the City of Flint noted LAN's "extensive experience in this field," and relied upon LAN's identification of the "engineering, procurement, and construction needs" for the project." Although the City recognized that water from the Flint River "would be more difficult to treat," the City concluded, based on LAN's recommendations, that the Flint River was "viable as a source" of the City's water. *See* City of Flint, Water System Questions & Answers (Jan. 13, 2015), available at http://mediad.publicbroadcasting.net/p/michigan/files/201512/CoF-Water-System-FAQ-1-16-2015.pdf. LAN continued to advise the City with respect to its transition to the Flint River through 2015, and ultimately was paid more than $3.8 million for its engineering services. City officials, including then-Mayor Walling, relied upon LAN's advice in pronouncing the City's water to be safe.

53. In October 2013 Darnell Earley stepped in as the Emergency Manager for Flint. Emergency Manager Earley rejected an offer by DWSD to continue purchasing water from Detroit until the KWA pipeline could be completed and the City prepared to switch to the Flint River in April 2014.

54. On April 9, 2014, the City received the necessary permits from MDEQ to draw Flint River water for distribution as the supply source for its water distribution system during the multi-year transition to the new KWA facility.

55. Despite receiving these permits, the water system was not ready to become operational. An email from Flint's Laboratory & Water Quality Supervisor, Michael Glasgow, on April 14, 2014 read:

> I have people above me making plans to distribute water ASAP . . . . I was reluctant before, but after looking at the monitoring schedule and our current staffing, I do not anticipate giving the OK to begin sending water out anytime soon . . . . If water is distributed from this plant in the next couple weeks, it will be against my direction. . . . I need time to adequately train additional staff and to update our monitoring plans before I will feel we are ready. I will reiterate this to management above me, but they seem to have their own agenda.

56. Glasgow's fears were well founded. The Flint water system was not prepared for the switch to Flint River water. The Flint River, it turned out, was contaminated with rock-salt chlorides washed into the river from road surfaces over the course of many harsh Michigan winters. The level of chlorides in the Flint River was eight times the levels provided in DWSD water. Chlorides are highly corrosive, and must be neutralized with anticorrosive agents before entering public water systems.

57. Eleven days after this email was sent, on April 25, 2014, Flint's water system officially switched to the Flint River without implementing a necessary corrosion control protocol or otherwise addressing the concerns raised in Glasgow's email.

C. Use of Flint River Water Immediately Causes Serious Problems Including Bacteria Growth and Buildup of Dangerous Chemicals

58. Within weeks of switching water sources, complaints began to pour in from residents regarding the smell, taste, and color of the drinking water.

59. Despite these complaints, then-Mayor Dwane Walling called the water a "safe, quality product," and claimed that "people are wasting their precious money buying bottled water."

60. His assurances of safety provided little comfort to residents who began to report that the water was making them ill. These concerns proved accurate when, on August 14, 2014, Flint's water tested above legal limits for total coliform and *E. coli* bacteria. The City issued boil water advisories on August 16, 2014 and September 5, 2014 in response.

61. To address the bacteria problem, the City treated the water with additional chlorine. However, as has been well known for decades, in corroded pipes chlorine preferentially reacts with the bare metal, instead of attacking solely bacteria. The addition of substantial amounts of chlorine to a water supply is thus ineffective in treating bacteria.

62. The use of chlorine to disinfect water produces various disinfection byproducts, including trihalomethanes (often referred to as Total Trihalomethanes or "TTHM"). In the presence of bare pipes not protected by a corrosion control protocol, more chlorine yields more TTHM. In low dosages, TTHM is harmless.

High dosages pose serious health risks, however. For this reason, the U.S. Environmental Protection Agency ("EPA") and various state agencies regulate TTHM levels.

63. Almost immediately following Flint's bacterial problems, it became apparent that Flint's TTHM levels were alarmingly high. This should have been a red flag. It is well known in the scientific community that high TTHM levels can be a symptom of unprotected and corroding pipes.

64. According to the World Health Organization:

> Chlorine . . . . acts as a potent oxidizing agent and often dissipates in side reactions so rapidly that little disinfection is accomplished until amounts in excess of the chlorine demand have been added. As an oxidizing agent, chlorine reacts with a wide variety of compounds, in particular those that are considered reducing agents (hydrogen sulfide [H_2S], manganese(II), iron(II), sulfite [SO_3^{2-}], Br^-, iodide [I^-], nitrite). From the point of view of DBP [disinfectant by-product] formation and disinfection, these reactions may be important because they may be *fast and result in the consumption of chlorine.*
>
> (emphasis added).

65. That is exactly what happened in Flint's water distribution system. To Flint, it seemed that the initial dosages of chlorine were not effective in treating bacteria, so they added more chlorine. Unfortunately, the problem was not that the dosage of chlorine was too low to treat the bacteria; rather, the chlorine was preferentially reacting with the bare pipes instead of solely attacking the bacteria. The pipes were bare because the Flint River's corrosive water had stripped away

the pipes' protective coating. Now Flint had a second problem: the excess chlorine generated high levels of TTHM. On December 16, 2014, Flint's water tests revealed TTHM levels in excess of federal limits.

66. Soon thereafter on December 31, 2014, the first round of lead monitoring results showed 90th percentile lead level result of 6 parts per billion with two samples above action levels for lead (15 parts per billion). Importantly, however, these samples were not necessarily drawn from the highest risk homes as required by various environmental regulations.

67. No one notified the public of these initial test results. However, on January 12, 2015, in response to water quality concerns, the state installed water coolers in state offices in Flint and gave state employees the option to use bottled water and provide bottled water to visitors. Unfortunately, the people of Flint were not given these options, resources, or information.

D. Concerns Regarding Flint's Water Multiply Exponentially as Michigan Experiences an Outbreak of Legionnaires Disease and Initial Lead Concerns Emerge

68. As City and State officials were beginning to assess the extent of Flint's TTHM problems, another problem emerged in the summer of 2014 – the Michigan Department of Health and Human Services (MDHHS) reported an outbreak of Legionnaires' disease.

69. Legionnaires' disease, or legionellosis, is a severe form of pneumonia which, when treated early enough, has a mortality rate of 20%; if left untreated, the mortality rate rises to 80%. Infection in humans occurs when water droplets contaminated with *Legionella* bacteria are inhaled or when water containing *Legionella* enters the trachea. *Legionella* has been extensively studied and the conditions for likely outbreaks of the disease are well understood.

70. The Legionnaire's outbreak should have clued City officials and engineers to a corrosion problem in Flint's pipes. According to a briefing statement prepared by MDEQ and sent to Governor Snyder:

> Most of the city's 550 miles of water mains are now over 75 years old and constructed of cast iron piping. Cast iron pipe is *subject to internal corrosion*, called tuberculation, which causes buildup on the pipe interior, leading to water quality issues, reduced flow and pressures, and leakage. Tuberculation also encourages the development of biofilms, layers of bacteria that attach to the interior pipe wall.
>
> (emphasis added).

71. In addition to a rise in the reported incidence of Legionnaires' disease, MDHHS first noted another potential problem related to Flint's water in September 2014. According to an internal memo not circulated to the public until much later, MDHHS warned that lead poisoning rates "were higher than usual for children under age 16 living in the City of Flint during the months of July, August and September, 2014."

72. Despite this knowledge, the City took no steps to address its corrosion control problems. To the contrary, officials took affirmative steps to avoid publicly recognizing the role of corrosion in Flint's water problems.

73. On October 13, 2014, General Motors announced that it would stop using water from the Flint River at its engineering plant due to fears that it would cause corrosion. In response, MDEQ's Michael Prysby wrote to Stephen Busch and others that the Flint River water had elevated chloride levels. He stated that "although not optimal[,]" the water was "satisfactory." He noted that he had "stressed the importance of not branding Flint's water as 'corrosive' from a public health standpoint simply because it does not meet a manufacturing facility's limit for production."

74. Despite the MDEQ's report that Flint's water tests revealed TTHM levels *in excess of federal law*, on January 6, 2015, Flint's former mayor, Dayne Walling, told Flint's residents the water was safe, assuring them that his family used it.

75. Three days later, on January 9, 2015, University of Michigan-Flint water tests revealed high lead levels in two locations on campus, causing the university to turn off certain water fountains.

76. Despite the well-known problems with bacteria and TTHMs and the slowly emerging concerns regarding lead contamination and Legionnaires'

disease, Emergency Manager Earley rejected pleas by City Council members to stop using Flint River water and return to DWSD. Earley stated it would be too expensive to switch back to DWSD as Flint's water source; however, some reports indicate that Earley rejected an offer from DWSD to waive the $4 million reconnection fee if Flint wished to switch back to Detroit water.

77. Instead of switching back to the DWSD, additional assurances of the water's safety were relayed to residents. On January 13, 2014, Flint's Department of Public Works published a letter regarding Flint's water and the City's response. The letter assured concerned citizens that the City was taking steps to address the bacteria and TTHM problems with Flint's water. Critically absent from this letter were any warnings related to lead exposure or the presence of Legionella contamination.

78. A recent scientific study found lingering traces of *Legionella* in Flint's water supply. Even after switching Flint's water back to the DWSD, researchers were able to culture *Legionella* bacteria from sample sites in Flint. According to Dr. Otto Schwake, a postdoctoral fellow at Virginia Tech University, the corrosion of Flint's pipes may have left them "permanently more conducive to *Legionella*."

E. LAN and Veolia – Retained to Render Flint's Water Safe – Do Just the Opposite, Worsening Flint's Corrosion and Lead Problems

79. In the midst of growing concerns about the safety of its water, Flint engaged two engineering companies to provide their professional opinion regarding the necessary changes to render the water compliant with state and federal laws.

80. First, the City engaged LAN. LAN had previously advised the City in connection with an upgrade to the Flint Water Plant and was not required to submit a bid for the new job. Rather, its services were retained by resolution. On June 26, 2013, it was resolved by Emergency Manager Kurtz, that the City would "enter into a Professional Engineering Services contract with Lockwood, Andrews & Newnam, Inc. for the administration of placing the Flint Water Plant into operation using the Flint River as a primary drinking water source at a cost of $171,000.00." In addition to Kurtz's signature, the resolution was also approved by Peter M. Bade, the Chief Legal Officer, and Gerald Ambrose, who was acting as the Finance Director at the time.

81. Initially, the City hired LAN to complete an "Operational Evaluation Report" ("OER") in conformance with EPA guidelines with the goal to determine the cause(s) of high levels of TTHM and evaluate possible solutions." The EPA's guidelines for completing an OER include examining whether there has

been a change in water source or quality which includes an examination into the pH of the water. Additionally, the guidelines require an examination into whether there has been any change in chemical applications including changing dosage or chemicals.

82. The scope of LAN's assignment expanded over time and LAN ultimately was paid approximately $3.8 million for work it performed in connection with the Flint water system between 2013 and 2015. As recently as November 2015, LAN was retained pursuant to a $907,000 "add-on" to its existing contract to advise the City regarding the transition to the new KWA plant. Throughout the relevant time period, City officials relied on LAN to use its professional expertise to properly advise them on how to maintain the safety, quality and reliability of the City's water supply.

83. In addition to its reliance upon the professional services provided by LAN, Flint also issued an Invitation to Bid for Professional Water Consultant Engineering Services. The City sought to engage an engineering company with a broad scope of work to "review and evaluate the water treatment process and distribution system, provide recommendations to maintain compliance with both state and federal agencies, and assist in implementing accepted recommendations." The Invitation to Bid further specified that the engineering firm would be asked to provide an "[e]valuation of the City's processes and procedures to maintain and

improve water quality," and a "[r]eport that outlines recommendations that will improve the water treatment and distribution system." Despite the extensive nature of the services requested, the price of Veolia's bid was only $40,000. No other firm submitted a bid.

84. The City engaged Veolia's services. On February 10, 2015, Veolia and the City issued a joint press release to the community at large, indicating that Veolia was an "urban water expert" in "handling challenging river water sources" and that it would essentially be evaluating all of the City's water treatment processes.

85. The press release contained no limitation on Veolia's scope of work. David Gadis, the Vice President of Veolia North America's Municipal & Commercial Business stated, "We understand the frustration and urgency in Flint[.] We are honored to support your community with our technical expertise so that together we can ensure water quality for the people of the city of Flint." He continued, "We have extensive experience handling challenging river water sources, reducing leaks and contaminants and in managing discolored water." Based on these representations, the people of Flint had every reason to rely on Veolia's subsequent representations of safety.

86. LAN's and Veolia's performance of their professional duties fell far short of the appropriate standard of care that would have been employed by an

engineer of ordinary learning, judgment, and skill. Specifically, LAN's and Veolia's professional negligence took two forms: (1) a failure to conduct a root-cause analysis that would have identified the need for corrosion control, and (2) the recommendation to add ferric chloride which rapidly increased the rate of corrosion in Flint and, correspondingly, the amount of lead that leached into Flint's drinking water.

1. LAN and Veolia Fail to Conduct a Proper Root Cause Analysis or Recommend Corrosion Control.

87. Both LAN and Veolia were hired to ensure Flint's water system was compliant with federal and state environmental statutes after tests revealed TTHM concentrations in excess of federal limits. In February 2015, LAN issued its report "Trihalomethane Formation Concern," and on March 12, 2015, Veolia issued its report, "Flint Michigan Water Quality Report." Critically absent from either report was a root cause analysis identifying corrosion as a cause of Flint's high TTHM levels. LAN's and Veolia's failure to perform a root cause analysis constituted professional negligence.

88. A root cause analysis is a process designed for use in investigating and categorizing the root causes of events with safety, health, environmental, quality, reliability, and production impacts. The purpose of a root cause analysis is to identify why a given event occurred in addition to describing what occurred.

Understanding why an event occurred is critical to developing effective recommendations for dealing with an event.

89. Providing engineering recommendations for addressing an event (such as high TTHM levels) without performing a proper root cause analysis to understand *why* the event occurred is the equivalent of a doctor performing heart surgery after a patient complains of chest pains – certainly surgery *may* be necessary to address the underlying cause of the patient's chest pains, but one cannot know without investigating the cause of the patient's symptoms.

90. LAN and Veolia should have done a proper root cause analysis to determine the cause of the high TTHM concentrations, but they negligently did not. Had they done so, LAN and Veolia would have discovered that the Flint River, like many urban rivers, was highly contaminated with salt from road de-icing operations that was likely corroding Flint's pipes. Salt is composed of sodium and chloride. Chloride is known to be very corrosive to iron pipes. Having identified the root cause, they would have prompted the City to address the root issue – a course of action which would have prevented almost all of the tragic consequences that actually followed. Instead, both LAN and Veolia myopically focused on what they believed to be the sole cause of TTHM – poor disinfection effectiveness.

91. LAN's and Veolia's failure to conduct a root cause analysis recognizing the corrosion's role in Flint's water problems is truly inexplicable. Indeed, several characteristics of Flint's water system and related problems should have placed LAN and Veolia on high alert that pipe corrosion was a likely cause. The most rudimentary analysis would have confirmed this. LAN and Veolia ignored several red flags that should have alerted them to the extensive corrosion and pH problems with Flint's water system.

92. For example, it should have been obvious to LAN and Veolia – as professed experts on water quality and treatment issues – that a small river in an urban environment, such as the Flint River, would be contaminated by chlorides from salt used in road de-icing operations during many Michigan winters. It is well known that chloride concentrations in northern U.S. rivers have increased dramatically over time with average concentrations approximately doubling between 1990 and 2011. This phenomenon is particularly evident in cold, urban settings, such as Flint, Michigan, where there are both significant snowfalls and dense roadways requiring de-icing. Chloride contamination should have been obvious to water-engineering specialists such as LAN and Veolia given these characteristics.

93. Indeed, in February 2004, the MDEQ, the U.S. Geological Survey ("USGS"), and the City completed an assessment of the Flint River as a possible

source of drinking water and concluded that it had a very high susceptibility to potential contamination sources. *See* City of Flint, *City of Flint 2014 Annual Water Quality Report* at 2 (2014), https://www.cityofflint.com/wp-content/uploads/CCR-2014.pdf.

94. Moreover, a simple comparison of the chloride levels in the Flint River with that provided by the DWSD, Flint's prior water source, would have quickly alerted LAN and Veolia to potentially serious corrosion issues as the Flint River contains about eight times more chloride than the DWSD-supplied water.

95. The Flint River water also had an extremely high chloride-to-sulfate mass ratio ("CSMR") of 1.6. Normally, a CSMR ratio of greater than 0.5 is a cause for serious concern. Had LAN or Veolia investigated the chloride-to-sulfate ratio in the Flint River, as would be expected of an engineer of ordinary diligence, they would have immediately had reason to believe that Flint's CSMR posed serious corrosion risks.

96. The City's inability to effectively treat *E. coli* with chlorine should have likewise alerted LAN and Veolia to the existence of corrosion. It is well established by governmental authorities and the scientific community that the inability to treat *E. coli* with chlorine is often caused by heavily corroded piping. According to a study published by the EPA, high *E. coli* concentrations are a product of corrosion, and the inability to treat *E. coli* with chlorine was caused by

corroded pipes. Flint's inability to treat *E. coli* with chlorine – and the resulting TTHM problem – should have placed LAN and Veolia on notice that Flint's pipes were corroding and releasing lead and other materials into the drinking water supply.

97. The uptick in reported cases of Legionnaires' disease, reported during a press conference prior to LAN's and Veolia's retention, should have similarly put LAN and Veolia on notice that Flint's water system exhibited signs of corrosion. *Legionella*, the bacteria that causes Legionnaires' disease, grows on the film on the inside of pipes and is found in potable water. *Legionella* can exist in water distribution systems, including homes, hospitals, hotels, and any other building supplied with water. *Legionella* is transmitted into the air by plumbing equipment such as faucets, showerheads, hot water tanks, humidifiers, respiratory therapy equipment, and whirlpool baths where it is then inhaled, resulting in infection.

98. One of the most common causes of Legionnaires' disease is exposure to impacted potable water. While *Legionella* is found widely throughout the environment, it is fairly rare that an outbreak occurs. Outbreaks are related to environmental factors, not person-to-person exposure. Flint's outbreak of Legionnaires Disease indicated the presence of *Legionella* bacteria in Flint's pipes and, relatedly, the likely presence of pipe corrosion.

99. *Legionella* exhibits several properties that allow them to persist in extreme environmental conditions such as low and high temperatures, presence of disinfectants, low pH, low nutrients and high salinity. Ideal growth conditions are in warm water between 35° and 46° Celsius (C) (95°–114.8° Fahrenheit (F)). These environmental conditions promote and protect *Legionella* growth due to the association between *Legionella* and biofilms, as well as their symbiotic and parasitic interactions with other microorganisms. They are also ideal conditions for pipe corrosion.

100. Legionnaires' disease is associated with biofilms and corrosion in piping systems, and water with a pH in the range of 5.0 to 8.5. All of these conditions were present in the Flint water supply, yet neither LAN nor Veolia made any recommendations to treat the water to prevent or abate an outbreak. LAN and Veolia should have known that the outbreak of Legionnaires' disease was related to corroding pipes, and should have recommended steps to abate the corroded pipe and conditions causing corrosion.

101. Moreover, in constructing and maintaining drinking water systems, operational and procedural efforts must be taken to prevent the growth of *Legionella*, including an assessment of the quality of the source water and the installation, operation, and maintenance of systems to protect the installations from

sludging, lime scale deposits, and corrosion. Neither LAN nor Veolia recommended any of these steps.

102. Finally, just the color of Flint's water should have led any reasonable engineer to the conclusion that Flint's pipes were dangerously corroded. The source of Flint's water discoloration was rust, a product of corrosion. The presence of rust in the water should have suggested to LAN and Veolia that Flint's water was corroding its pipes, and that there was thus a danger that lead was leaching into the Flint water system.

103. Had LAN and Veolia conducted a proper root cause analysis, or even simply paid attention to any of the myriad warning signs presented to them, they would have been alerted to the significant corrosion problem and the lack of a proper corrosion control protocol.

104. In addition, it was also very well known in the scientific community that pipes, especially old municipal water service lines, contain lead and that corroded pipes leach lead into the drinking water supply. As just one of hundreds of examples, a summer 2010 report by the Water Research Foundation stated: "Lead concentrations in tap water are strongly influenced by distribution system water chemistry. In response to changes in water chemistry, high lead concentrations can also be observed in systems with no previous history of a lead problem. . . Lead corrosion products observed on lead pipes include lead(II)

carbonates and phosphates and, more recently, lead(IV) oxide ($PbO_2(s)$). Solubility and dissolution rates of corrosion products are affected by water chemistry parameters including pH, dissolved inorganic carbon, orthophosphate, and the concentration and type of disinfectant residual."

105. To address systems such as Flint's that still incorporate lead pipes, the federal government mandates corrosion control protocols in order to protect the public against the possibility of lead entering the drinking water due to corroding pipes. Concern over lead concentrations in drinking water motivated the passage of the Lead and Copper Rule ("LCR") in 1991. The LCR requires utilities to implement methods to control lead corrosion if the 90th percentile of samples exceeds the action level of 0.015 mg/L. *See* 40 C.F.R. pt. 141, subpts. E and I.

106. Flint's lack of a corrosion control protocol constituted a clear violation of the EPA's Lead and Copper Rule. Given this violation, Veolia's conclusion in its March 12, 2015 report that its "review of water quality records for the time period under our study indicates compliance with State and Federal water regulations" was clearly false.

107. Veolia suggested the implementation of corrosion control (here the addition of phosphates or other corrosion controls) as a *possible*, but not wholly effective means for minimizing water discoloration. Veolia's report states, "The water system *could* add a polyphosphate to the water as a way to minimize the

amount of discolored water." The report explains that, "Polyphosphate addition will not make discolored water issues go away." Thus, rather than recognizing that corrosion control was *required* to render Flint's water system compliant with federal regulations and prevent catastrophic corrosion, Veolia *knew* Flint did not have a corrosion control protocol and undermined the importance of installing one by stating that it was unlikely to be effective in addressing discoloration (without the slightest mention of the urgent need to implement this to address the severe lead contamination in the water). Even Veolia's *suggested* dosage, 0.5 mg/L was far too low. The City is now adding four to eight times as much phosphate, 2 to 4 mg/L.

108. Veolia knew or should have known that the Flint water system was in violation of federal safe drinking water standards. Its affirmance that Flint was in compliance with federal environmental standards – a false assurance that Flint's water was safe – wrongly instilled confidence in Flint's water on behalf of both the City and its residents. As a direct and proximate result, Flint did not take further steps to resolve its water problems and the City's residents continued to drink the water.

109. LAN, too, knew or should have known that Flint's water was in violation of federal regulations. It should have immediately alerted Flint and its citizens to the corrosive blight eating away at Flint's pipes and poisoning its

residents; instead, it produced a bland report that implicitly endorsed Flint's policy of neglect.

110. "Lead has been a challenge and a bane for water suppliers since historical times. . . . The numerous articles printed in leading scientific journals, in the United Kingdom and United States, in the late nineteenth century, documenting thousands of cases of lead poisoning caused by lead water pipes, have largely faded in the mist of history. These cases often resulted in death, paralysis, blindness, insanity, convulsions, miscarriages and still births." Dr. Colin Hayes *et al.*, Best Practice Guide on the Control of Lead in Drinking Water, Foreword (Dr. Colin Hayes ed. 2010) (hereinafter, "IWA Guide").

111. LAN and Veolia should have quickly realized that the pipes were corroding and releasing lead and other elements into Flint's water, and that the corrosive water was coursing through resident's homes and businesses. LAN and Veolia negligently failed to make these basic observations and, as a direct and proximate result, pipes throughout Flint corroded. Had LAN and Veolia conducted any proper root cause analysis, they would have known that corrosion was causing Flint's TTHM levels as well as a related lead problem. Their failure to conduct the proper analysis constituted professional negligence.

2. LAN and Veolia Recommend Adding Ferric Chloride to Flint's Water.

112. Not only did LAN and Veolia fail to conduct any proper root cause analysis, they affirmatively made Flint's corrosion problem worse by recommending the addition of ferric chloride – a very potent, corrosive acid – without the addition of an alkaline buffer to raise the pH. This exacerbated the problems with Flint's water by *rapidly increasing* the rate of pipe corrosion and the amount of lead in the water.

113. Ferric chloride is a coagulant that is added at the water treatment plant to bind water impurities together so that they settle out of the water at the treatment plant. Ferric chloride is highly acidic and corrosive and, if unbuffered by an alkaline substance, will attack the pipes throughout the distribution system causing lead and other materials from the pipes to be released into the drinking water. Accordingly, it is universally agreed that to reduce corrosion, some form of phosphate or other corrosion control must be added to coat the pipes. This industry practice applies to minimizing the impact of ferric chloride, and indeed, chloride from other sources (*e.g.*, the Flint River). And, as discussed above, the requirement to add a corrosion control is mandated by the Federal Safe Drinking Water Act.

114. Veolia's March 2015 report states that prior to arriving at its conclusions, Veolia undertook "laboratory testing" and concluded that, "[c]urrent ferric chloride dosages are too low and dosages of 100 mg/L or more are

recommended." Veolia acknowledged that its recommended increase was significant: "This increase to 100 mg/L is twice what is currently being fed and much higher than what had previously been fed last year."

115. Specifically, Veolia's report states:

> Increase of Ferric Chloride – Four coagulants *were tested* by Veolia - ferric chloride, ferric sulfate, polyaluminum chloride (PACl) and aluminum chlorohydrate (ACH). Ferric chloride and ACH were found to be the best choice of product for effectiveness in removing TOC, a precursor to TTHM formation. *Current ferric chloride dosages are too low and dosages of 100 mg/L or more are recommended.* Again, please note, that the amount of chemical needed changes with the nature of the river and as such, water must be tested multiple times a day with corresponding changes in chemical dosages. *This increase to 100 mg/L is twice what is currently being fed and much higher than what had previously been fed last year.* The increase in chemical costs could be up to $1,000,000 per year. This change in dosage (using ferric chloride) can be made immediately without state permit review.
>
> (emphasis added.)

116. At the same time that Veolia gave the unqualified opinion that the current dosage is "too low," and should be doubled, Veolia knew that the City had no corrosion control protocol and knew (or should have known) that corrosion was already a significant problem in Flint. Veolia's directive that the City double its dosage of ferric chloride was unqualified and in no way warned that ferric chloride could increase corrosion. Moreover, Veolia failed to inform the City that in order to increase the dosage of ferric chloride (or indeed to use any chloride at all) it

must also raise the water's pH and use phosphate to protect the pipes from corrosion.

117. In August, 2015, LAN made the same recommendation to increase the dose of ferric chloride:

> Increasing the dose rate of ferric chloride is an operational change that can easily be implemented without the need for any additional equipment. Test results show that over 40% THMFP removal can be obtained with a dosage of 60 mg/L Fe^{3+} or higher. Increased dosing of ferric chloride would be most ideal coupled with regular raw water TOC monitoring so that TOC levels would dictate the appropriate ferric chloride feed rate.

118. LAN and Veolia should have told the City that the addition of phosphate and a pH buffer was *mandatory* to prevent the leaching of lead from pipes – especially if the ferric chloride concentration was increased. No such recommendation was made.

119. As a direct and foreseeable result of LAN's and Veolia's recommendations, Flint increased the ferric chloride dosage without adding corrosion controls.

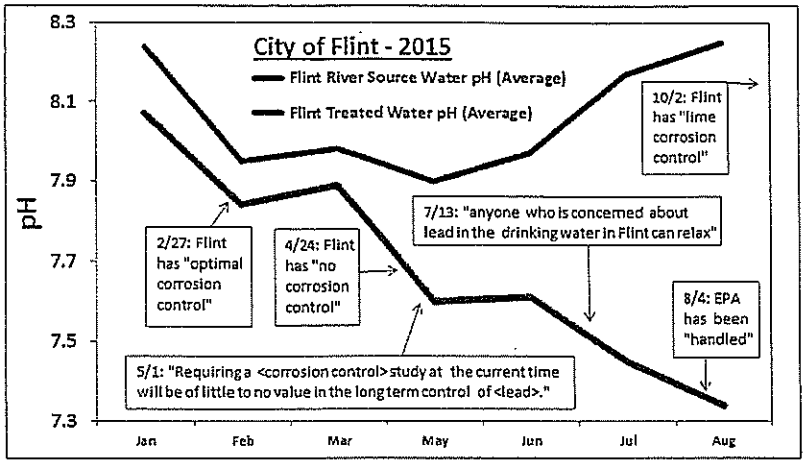
120. The ferric chloride added to Flint's water system at LAN's and Veolia's suggestion caused substantially greater amounts of lead to leach into Flint's water supply.

121. The impact of acid on metal, which would include the pipes and appliances in Flint, is well known to water experts. As indicated by the Centers for Disease Control and Prevention:

> Chemical additives are added to water during the water treatment process. More than 40 chemical additives can be used to treat drinking water. Many of these commonly used additives are acidic, such as ferric chloride and aluminum sulfate, which are added to remove turbidity and other particulate matter. . . . These acidic water treatment additives can interfere with corrosion protection. . . . Lead and copper are rarely detected in most drinking water supplies. However, these metals are a concern to consumers. Because some household plumbing fixtures may contain lead or copper, corrosive waters may leach (pick up) lead and copper from household plumbing pipes after entering a home. . . . The most common reason for water utilities to add corrosion inhibitors is to avoid lead and copper corrosion with older homes, and the second most common reason is to minimize corrosion of pipes in the distribution system. . . . The tendency of water to be corrosive is controlled principally by monitoring or adjusting the pH, buffer intensity, alkalinity, and concentrations of calcium, magnesium, phosphates, and silicates in the water.

Centers for Disease Control and Prevention, *Fluoridation of Drinking Water and Corrosion of Pipes in Distribution Systems Fact Sheet*, http://www.cdc.gov/fluoridation/factsheets/engineering/corrosion.htm (last updated July 10, 2013).

122. A graph prepared by the Flint Water Study Group from Virginia Tech University shows that the pH of Flint's water distribution system became more acidic after the Veolia Report was issued in March, even as the pH in the Flint River became less acidic:



123. The graph above shows that the Flint River had a pH at or above 8.0 S.U. for all of 2015, and steadily increased after June. By comparison, the graph shows that the pH in Flint's municipal water supply started dropping steadily from 7.9 S.U. in March (just after Veolia made its recommendation to double the ferric chloride concentration) to 7.3 S.U. in August. This difference is significant. pH is measured on a logarithmic scale, which means that a pH of one whole number, such as 7.0 S.U., is ten times more corrosive than a pH of another whole number, such as 8.0 S.U. The drop in pH from 7.9 to 7.3 indicates a dramatic increase in the corrosivity of Flint's water.

124. The graph above is punctuated with quotes from Defendants' emails and other documents that illustrate the contradictory information provided by State officials regarding the existence of corrosion control measures and lead in Flint's drinking water.

125. On June 24, 2015, the EPA reached a similar conclusion about the City's addition of ferric chloride:

> In addition, following the switch to using the Flint River, the City of Flint began adding *ferric chloride*, a coagulant used to improve the removal of organic matter, as part of the strategy to reduce the TTHM levels. Studies have shown that an increase in the *chloride-to-sulfate* mass ratio in the water can adversely affect lead levels by *increasing the galvanic corrosion of lead in the plumbing network.*

Memorandum, High Lead Levels in Flint, Michigan - Interim Report, from Miguel A. Del Toral, Regulations Manager, Ground Water and Drinking Water Branch, to Thomas Poy, Chief Ground Water and Drinking Water Branch (June 24, 2015) (emphasis added).

126. The corrosivity of ferric chloride is well known. Ferric chloride is highly acidic, and has a pH < 1, which is equivalent to battery acid. *See* James DeWolfe, *Guidance Manual for Coagulant Changeover* at 52, (AWWA Research Foundation, 2003).

127. The method for addressing the impact of ferric chloride is also well known. Because ferric chloride lowers the drinking water pH to corrosive levels, the standard procedure is to raise the pH to the neutral or even alkali ranges. "The water quality parameters that can impact the corrosion of distribution system and domestic piping systems include pH, alkalinity, TOC, aluminum, sulfate, chloride, hardness, oxygen levels, and disinfectant residual. Corrosion of lead and copper pipes has been described by various researchers. . . " EPA Office of Water,

Enhanced Coagulation and Enhanced Precipitative Softening Guidance Manual § 6.4, (EPA 815-R-99-012, May 1999) (hereinafter, "EPA Guidance").

128. The EPA has further explained that, "[c]ontrolling corrosion in the distribution and domestic piping systems is dependent on multiple water quality parameters (listed above), all of which can change when enhanced coagulation or enhanced softening is implemented." *Id.*

129. This is true because, "[i]f the raw water for a utility has a relatively high concentration of chloride and a history of lead corrosion problems, coagulants that add to chloride concentration should be avoided. Also, since a lower pH will increase corrosion in almost all cases, a utility should consider the finished water pH goal before implementing enhanced coagulation." *Id.*

130. "Enhanced coagulation and enhanced softening may change the chemistry of the water entering the distribution system. Before enhanced coagulation or enhanced softening is implemented, the current corrosion control strategy should be reviewed. . . . If the recommended mitigation actions represent a major change in corrosion control, the utility can conduct pilot-scale (pipe loop) studies to confirm that the mitigation actions will meet the existing corrosion control goals." *Id.*

131. "The vast majority of U.S. utilities were able to comply with [U.S. EPA' s] lead and copper rule by: 1) pH and alkalinity adjustment, most frequently

to the pH range of 9.0->9.5 for systems with extensive lead piping; 2) dosing of orthophosphate in the pH range of approximately 7.2 to 8.0 S.U.; or 3) the formation of insoluble PbO_3 deposits through chlorination to high ORP [and sometimes concurrent adjustment to > 9 S.U." IWA Guide at 46.

132. Fresh water can have widely ranging pH values depending on the geology of the drainage basin or aquifer and the influence of contaminant inputs. If the water is acidic, lime, soda ash, or sodium hydroxide can be added to raise the pH during water purification processes. LAN and Veolia should have recommended adding a stronger buffering agent such as sodium hydroxide or sodium carbonate to raise the pH in the water treatment system.

133. Both LAN and Veolia analyzed the pH in Flint's water. Both made recommendations about the addition of chemicals that affect pH. Both were negligent in their analysis of the pH and their recommendations. Had the City started adding polyphosphate or otherwise controlled for corrosion, or avoided increasing the dosage of ferric chloride, Flint's water would have been less corrosive and, relatedly, less lead would have leached into Flint's water.

3. Veolia and LAN Misled the Public, Falsely Assuring Them the Water Was Safe.

134. LAN and Veolia were hired for the express purpose of determining the cause of Flint's water problems and identifying the corrective measures necessary to render Flint's water system compliant with state and federal regulations.

135. LAN and Veolia entirely failed to satisfy the reasonable professional standard by conducting a root cause analysis which would have revealed that corrosion played a significant role in Flint's TTHM levels and, relatedly, caused lead and other materials leaching into Flint's water supply. Moreover, a proper root cause analysis would have revealed the complete absence of any corrosion control protocol as required by federal environmental statutes.

136. Despite recognizing that Flint did not have a corrosion control protocol as required by the Lead and Copper rule, LAN and Veolia's reports implicitly and explicitly deemed Flint's water system compliant with federal regulations. By doing so, LAN and Veolia wrongly accorded Flint's water the imprimatur of safety.

137. Accordingly, not only did the City of Flint fail to take the proper steps to render its water system compliant, but Plaintiffs and the Class were wrongly assured they could continue to drink Flint's water. These false assurances had catastrophic results.

F. The City Discovers—and Covers Up—Its Lead Crisis

138. On February 26, 2015, the City of Flint tested LeeAnn Walters's water for lead and the results were dangerously high. According to that test, the water at Ms. Walters's home contained 104 parts per billion (ppb) of lead – nearly *seven times the EPA's 15 ppb limit.* The City official who conducted the test, Michael Glasgow, characterized the result as "very high." Mr. Glasgow informed Ms. Walters, a mother of four, that he was, "[s]orry for this news," but otherwise provided no guidance regarding the relative safety of the water, what was being done to solve the problem, or whether Ms. Walters and her family should continue drinking the water.

139. Ms. Walters turned to the EPA for guidance, forwarding the test results to the EPA. Jennifer Crooks of the EPA's Region 5 office immediately reached out to Busch and Prysby at MDEQ, "to alert you to the high lead levels reported to a citizen yesterday by Flint Water Dept. . . . Mike Glasgow at the plant . . . did test it to find that the iron levels were greater than his test would go; GT 3.3. But, because the iron levels were so high, he suggested testing for lead and copper. WOW!!!! Did he find the LEAD! 104 ppb. She has 2 children under the age of 3... Big worries here."

140. Ms. Crooks further explained in her email, "[t]hat the different chemistry water is leaching out contaminants from the insides of the biofilms

inside the pipes. I think Lead is a good indication that other contaminants are also present in the tap water, that obviously were not present in the compliance samples taken at the plant."

141. The Regulations Manager of the Ground Water and Drinking Water Branch of the EPA, Region 5, Miguel Del Toral, followed up with another question for MDEQ, which he asked Ms. Crooks to pass along. Ms. Crooks emailed Mr. Busch and Mr. Prysby the following on February 26, 2015: "Miguel was wondering if Flint is feeding Phosphates. Flint must have Optimal Corrosion Control Treatment-is it Phosphates?"

142. On February 27, 2015, MDEQ's Stephen Busch falsely informed the EPA that, "The City of Flint . . . Has an Optimized Corrosion Control Program [and] Conducts quarterly Water Quality Parameter monitoring at 25 sites and has not had any unusual results."

143. On March 3, 2015 – after the City increased its ferric chloride dosage to address TTHM levels – Ms. Walters's home was retested and showed lead levels of 397, more than *twenty-six times the legal limit*. Again, neither the City nor the professional engineers retained to advise Flint regarding its water system did anything to investigate, ameliorate, or inform the public regarding the extreme hazard posed by the City's water supply.

144. Ms. Walters first took her son to a local healthcare facility to have his blood tested for lead. The local facility reported blood levels of 3 μg/dL. Fearing that the local health department had a conflict of interest, Ms. Walters took her son to another facility to have his blood re-tested for lead on March 27, 2015. This test reported a blood lead level of 6.5 μg/dL – higher than the CDC's 5 μg/dL threshold.

145. Ms. Walters brought this information to the attention of local health officials. Far from recognizing the danger posed by this result, Ms. Walters's concerns were casually dismissed and even belittled. "He is barely lead poisoned," Ms. Walters was told by a state nurse, "If CDC had not changed their lead poisoning standard from 10 down to 5, we would not be having this conversation." The same nurse continued, "I am working with kids in their 40's and 50's. It is just a few IQ points . . . it is not the end of the world."

146. Ms. Walters's water was again re-tested on April 28, 2015. Those tests showed extremely high lead levels between 200 ppb and 13,200 ppb, with an average of 2,429 ppb. The legal limit is 15 ppb – accordingly, at the high-end, *the lead in Ms. Walters' home was 880 times the legal limit.* These tests were conducted by scientists at Virginia Tech University, which reported a correlation between lead and phosphate that was consistent with the dislodging of the pipe scale from the service line. Virginia Tech assembled a volunteer group of scientists

to investigate the Flint water system. That team, led by Dr. Marc Edwards, a professor of civil engineering, created the Flint Water Study which has sought to compile information related to the Flint water crisis. In response to Virginia Tech's results, the City remained silent.

147. In May 2015, the City tested two additional sites and both tested above the legal limit. Moreover, these results likely *underestimated* the full extent of the lead problem because the sampling protocol used by the City involved "pre-flushing" before collecting samples. According to an EPA official, "pre-flushing before collecting compliance samples has been shown to result in the minimization of lead capture and significant underestimation of lead levels in the drinking water." Pre-flushing, while not expressly prohibited, "negates the intent of the rule to collect compliance samples under 'worst-case' conditions." No public announcements were made regarding the existence of lead in Flint's drinking water.

148. Having seen no action from Michigan, MDEQ, or the City in response to its prior letter regarding the Walters' high lead tests, EPA's Del Toral drafted and sent a memorandum to other EPA and MDEQ officials on June 24, 2015. In that memorandum, Mr. Del Toral stated that the EPA's "major concern from a public health standpoint" was "the absence of corrosion control treatment in the City of Flint for mitigating lead and copper levels in the drinking water."

149. Mr. Del Toral specifically noted that the extent of the corrosion and corresponding lead in Flint's water was directly related to the City's use of ferric chloride to remove bacteria and reduce TTHM levels. Mr. Del Toral explained what *any reasonable engineer* should have already known, "[s]tudies have shown that an increase in the chloride-to-sulfate mass ratio in the water can adversely affect lead levels by increasing the galvanic corrosion of lead in the plumbing network."

150. Collecting samples that accurately depicted real world scenarios – in other words, scenarios where people did not allow their water to run for several minutes before drinking it – was incredibly important because "compliance sampling results which are reported by the City of Flint to residents could provide a false sense of security to the residents of Flint regarding lead levels in the water and may result in residents not taking necessary precautions to protect their families from lead in the drinking water."

151. Moreover, initial tests for lead in Flint's water were not done in compliance with federal regulations. Specifically, water samples tested for lead during the first six months of 2015 were incorrectly labeled as having come from homes with lead service lines when, in truth, the samples had been taken from homes with underground plumbing made of copper, galvanized steel, or other

materials that pose lower risks of corrosion, according to the City's own documents.

152. The City's failure to correctly identify its water samples as coming from homes facing lower risks of corrosion not only gave the City and the public a false sense of security regarding the presence of lead in Flint's drinking water; this failure also constituted a violation of federal environmental laws which require water sampling be done at "high-risk" locations to ensure that high levels of lead or copper are detected as soon as possible. Lead service lines are most likely to leach lead into water and the American Water Works Association has stated that cities like Flint should have been collecting 50 percent of samples from such high-risk homes.

153. Michael Glasgow has admitted that the City did not comply with required protocols in selecting samples. Michigan Live has reported that, in response to questioning, Glasgow claimed the City struggled to collect the number of samples required following the water source switch and, as a result, had to rely on samples from lower-risk households. He explained that Flint never assembled the proper records regarding the location of lead service lines and instead, was forced to rely on a hodgepodge of scattered records, which failed to accurately identify at-risk homes.

154. As a result, the City failed to promptly and fully identify the presence of lead in Flint's drinking water. These failures both delayed corrective action and wrongly induced a belief among Flint's citizens that the water was safe. Flint's water crisis did not begin to get the attention it needed until an EPA memorandum on the crisis was leaked to the ACLU and the press, prompting lawsuits and investigations. Concerns regarding corrosion of Flint's pipes and corresponding lead levels continued to rise. In August 2015, a Virginia Tech study confirmed what many had long suspected: the Flint River was substantially more corrosive than Flint's prior water source with about eight times the amount of chloride. In September, Virginia Tech's analysis of water samples from 300 homes around Flint revealed many tests in excess of federal limits including a number of samples approaching levels considered "hazardous waste." The problem was widespread: according to this report, 40% of the homes that were tested had elevated lead levels.

155. On September 24, 2015, Dr. Mona Hanna-Attisha, a pediatrician at Hurley Medical Center, released a study showing that the levels of lead in children tested after the City of Flint started using Flint River water were much higher than before the switch.

156. Specifically, Dr. Hanna-Attisha studied data from blood levels processed at Hurley Medical Center for children under 5 years of age residing in

zip codes 48501-48507 and compared Elevated Blood Level ("EBL") percentages for the period January 1, 2013 to September 15, 2013 with the period January 1, 2015 to September 15, 2015. An EBL result was defined as a blood level in excess of 5 g/dL. This corresponds with the CDC's recognized blood lead limits. According to her report, 2.1% of blood samples reported EBLs during the pre-switch 2013 period compared to 4% EBLs after the switch. In other words, the incidence of blood poisoning *doubled* after Flint switched water sources and LAN and Veolia recommended the addition of ferric chloride.

157. Tragically, Dr. Hanna-Attisha's study revealed especially high incidence of EBLs for children 15 months of age and under. For those children residing in homes where drinking water tested high for lead, the rate of EBL is *three times* the pre-switch period. But no children in Flint are safe – even among those children who resided in areas of Flint that did not report high lead levels in the water, the incidence of lead poisoning nearly doubled. Moreover, the lead that was released from pipes now exists in sediment throughout the system and in the pipes and appliances in resident's homes and businesses, and can become remobilized into the drinking water at any time. This demonstrates the significant impact of the water switch on the entire community: no matter where one resides in Flint, the risk of lead poisoning cannot be escaped.

158. Despite evidence that the Michigan Department of Health and Human Services was aware of EBLs as early as September 2014, Michigan's HHSD spokesperson, Angela Minicuci, initially reported that blood lead levels in Flint had remained steady since the switch to Flint River. MHHSD later acknowledged that lead levels were increasing consistent with Dr. Hanna-Attisha's findings.

G. Despite Admissions of Wrongdoing, Problems Continue Unabated

159. On October 16, 2015 – at least eight months after being notified of illegally high lead levels in the water and more than a year after public officials recognized that corroding pipes were causing contamination of the community's water, the City switched back to using water from the DWSD.

160. In an email dated October 18, 2015, from MDEQ Director Wyant to Governor Richard Snyder and other officials, Wyant admitted that Flint and the other governmental agencies had violated federal law by failing to implement optimized corrosion control. He wrote, "I believe now we made a mistake. For communities with a population above 50,000, optimized corrosion control should have been required from the beginning."

161. It was not until these mistakes came to light that the City took the steps necessary to begin to bring Flint into compliance with federal environmental

laws. On October 30, 2015, MDEQ emailed Glasgow, instructing him to institute the requisite corrosion control.

162. By this point, however, the damage was done. The City acknowledged that it would take at least three weeks for water from the Flint River to flush out of the pipes. But even after that, the pipes were corroded to a point where the only viable means for ensuring the transportation of safe water into the homes and businesses of Flint's residents was replacing the pipes.

163. Since the crisis first came to light, various entities have initiated investigations into the persons and entities that caused the crisis. The state-sponsored Flint Water Advisory Task Force issued its final report in March, 2016. That report recognized that, "[u]ltimate accountability for Michigan executive branch decisions rests with the Governor," but found misconduct on behalf of several persons and government entities.

164. Likewise, Congress has held hearings related to the Flint crisis, calling several individuals, including Governor Snyder to testify before the Committee. Critically, however, neither the state-sponsored Task Force nor the Congressional hearings have resulted in any compensation being awarded to Plaintiffs or the Class, nor have any of these investigations fully examined the role of LAN and Veolia in causing this crisis.

H. Personal and Property Damages Suffered by the Class

165. As a direct, proximate and foreseeable cause of Defendants' conduct, Plaintiffs and the Class have suffered extensive personal and property damage.

1. Lead's Devastating Health Effects and Other Personal Injuries Caused by Flint's Water Crisis.

166. Lead's catastrophic effects are indisputable. According to the EPA, "[y]oung children, infants, and fetuses are particularly vulnerable to lead because the physical and behavioral effects of lead occur at lower exposure levels in children than in adults. A dose of lead that would have little effect on an adult can have a significant effect on a child. In children, low levels of exposure have been linked to damage to the central and peripheral nervous system, learning disabilities, shorter stature, impaired hearing, and impaired formation and function of blood cells."

167. According to the World Health Organization, "lead affects children's brain development resulting in reduced intelligence quotient (IQ), behavioral changes such as shortening of attention span and increased antisocial behavior, and reduced educational attainment. Lead exposure also causes anemia, hypertension, renal impairment, immunotoxicity and toxicity to the reproductive organs. The neurological and behavioral effects of lead are believed to be irreversible."

168. The behavioral effects of lead poisoning in children cannot be overstated. According to many of the leading researchers on lead, increased lead levels in childhood are associated with an increased likelihood of ADHD behaviors, delinquent behaviors and arrests, including arrests involving violent offenses.

169. Lead is so harmful that, according to the EPA, "ingestion of lead can cause seizures, coma and even death."

170. The effects of lead exposure are long lasting. The EPA has explained that, "[l]ead can accumulate in our bodies over time, where it is stored in bones along with calcium. During pregnancy, lead is released from bones as maternal calcium and is used to help form the bones of the fetus. This is particularly true if a woman does not have enough dietary calcium. Lead can also cross the placental barrier exposing the fetus to lead. This can result in serious effects to the mother and her developing fetus, including: reduced growth of the fetus [and] premature birth."

171. Lead is also harmful to adults. The EPA warns that "[a]dults exposed to lead can suffer from: Cardiovascular effects, increased blood pressure and incidence of hypertension, [d]ecreased kidney function, [and] [r]eproductive problems (in both men and women)."

172. The costs of lead poisoning are real and substantial. It has been estimated that each case of childhood lead poisoning leads to $5.9 million in medical care costs over the course of appropriate treatment. Leonardo Trasande and Yinghua Liu, *Reducing The Staggering Costs Of Environmental Disease In Children, Estimated At $76.6 Billion In 2008*, Health Affairs, 30, no.5 (2011): 863-870.

173. The World Health Organization explains that the direct medical costs of lead exposure include treatment for acute lead poisoning – typically chelation therapy – as well as the treatment of cardiovascular disease in adults who develop hypertension following lead exposure.

174. Given the long-lasting risks of lead exposure and the potential for lead sediment to be disturbed and re-mobilized into the water system, Plaintiffs and the Class will require regular medical and tap water testing and evaluation, at bare minimum, in accordance with government standards.

175. Additionally, as described more fully above, the water crisis in Flint caused an outbreak of Legionnaires' disease. As explained above, the presence of *Legionella* was a direct and proximate result of the switch to the Flint River as a water source and related conduct. At least 87 members of the Class contracted Legionnaires' and at least nine died. Those members of the Class who became infected with Legionnaires' disease suffered death, and for those who lived,

incurred pain and suffering as well as substantial medical costs due to Defendants' conduct.

176. Finally, as a direct and proximate result of Defendants' conduct, Plaintiffs and the Class have suffered extreme emotional distress.

2. Flint's Children: Catastrophic Lifetime Losses

177. Flint's most vulnerable – its children – have suffered the most disastrous consequences from lead exposure – diminished potential over the entire course of their lives. The World Health Organization states, "[t]hese costs are sometimes referred to as *lost opportunity costs*. Using a conservative estimate, the decrease in intelligence attractable to each 1 μg/dl increase in blood lead level is 0.25 IQ points, and the decrement in lifetime economic productivity associated with lost IQ point is 2.4%. When exposure to lead is widespread in a society, the aggregate loss of intelligence (and thus economic productivity) can be substantial."

178. Notably, this estimate is conservative as it relates solely to lost earning potential and does not include costs related to special educational, medical, sociological, disability and occupational services, or long-term monitoring and treatment costs.

179. According to an analysis of the economic losses attributable to lead exposure in 2009, "[t]he present value of Michigan's economic losses attributable to lead exposure in the 2009 cohort of 5 year-olds ranges from $3.19 billion (using

U.S. blood lead levels) to $4.85 billion (using Michigan blood lead levels) per year in loss of future lifetime earnings." Michigan Network for Children's Environmental Health, *The Price of Pollution: Cost Estimates of Environment-Related Childhood Diseases in Michigan* (June 2010). This report, of course, does not include estimates of the fallout from Flint's lead crisis.

180. Other researchers have estimated the economic impact of childhood lead poisoning to be as high as $50.9 billion per year in lost economic productivity resulting from reduced cognitive potential from preventable childhood lead exposure. *See supra*, Trasande & Liu.

181. As a direct and proximate result of Defendants' conduct, Flint's children have suffered specific, measurable damages in the form of lost earning potential. They have also incurred damages in the form of required special educational, medical, sociological, occupational and disability services and related education assistance programs.

3. Property Damages Caused by Defendants' Conduct

182. In addition to the devastating health effects and lost economic productivity caused by lead exposure, Defendants' conduct, as described above, has caused significant property damage.

183. The property damages sustained by Plaintiffs and the Class fall into three basic categories. First, the Plaintiff- and Class-owned pipes and

appliances themselves have corroded, shortening their life span, and causing further damage when they break. Second, the corroded pipes and appliances remain a continuing source of lead and potentially Legionella – thus, pipes and appliances must be replaced or else remain a continuing source of harmful exposure. Finally, the value of Plaintiffs' and the Class's real property has been substantially diminished as a result of the continuing questionable safety of Flint's water and existence of corroded pipes and appliances.

184. Although the City has begun adding polyphosphate to its system to reduce the leaching of lead from its service lines, this is unlikely to render Flint's water safe because many of the pipes have become so corroded that not even phosphate will be able to fully encapsulate the surface of the pipes and prevent lead from leaching into the water supply.

185. The residents' homes have been affected in the same fashion. Even with the addition of phosphate, their pipes and appliances will remain corroded until replaced, and continue to be a source of lead and potentially Legionella. Solubilized and particulate lead and Legionella remain in portions of the piping system and appliances, and can become remobilized at any time, causing further damage and health effects.

186. The effect of corrosive water on residential and commercial piping and appliances is well understood. For example, a 2014 study by the Water

Research Watershed Center stated: "[w]ith respect to the corrosion potential of YOUR drinking water, the primary concerns include the potential presence of TOXIC Metals, such as lead and copper; deterioration and damage to the household plumbing, and aesthetic problems such as: stained laundry, bitter taste, and greenish-blue stains around basins and drains."

187. The Water Research Watershed Center has further explained that, "The cost of corrosion can be expensive. Corrosion can impact you and your family's health, aesthetic quality of your water, waste money, and damage your household piping and fixtures."

188. Not only does corrosion cause the "premature failure of household plumbing and plumbing fixtures," the Water Research Watershed Center has explained, corrosion also "decreases the efficiency of hot water heaters and may cause premature failure to the heater." According to a Michigan Radio news story, Virginia Tech researchers have recently returned to Flint out of concern that "lead and other metals leaching from damaged pipes have accumulated in their hot water heaters making bathing hazardous." The Virginia Tech researchers will be testing water heaters for lead and *Legionella* bacteria.

189. Moreover, residents have already reported damage to major appliances such as dishwashers and washing machines following Flint's decision to switch water sources.

190. According to emails from Governor Snyder's office, the State estimates that replacing Residents' pipes alone could cost between $6,000 and $8,000 per household. Other estimates of those replacement costs are far higher.

191. Corroded pipes not only present a continuing health threat, they risk further damage to one's property because corrosion can result in deep pits in the pipe or tank walls that can eventually break, causing substantial water damage to homes and businesses.

192. Although the City has stated it intends to begin replacing some City-owned pipes, this is far from sufficient to render Flint's water safe. Sergio Kapusta, a fellow at NACE International, an industry organization that develops corrosion prevention and control standards in Houston, has explained that "changing all the mains in the city will not really solve the problem for the homeowners" because the lead piping in these homes probably has been severely compromised. "The corrosion is not going away. It's still there."

193. Plaintiffs and the Class have been left to pay for the damage caused by Defendants. This has proven nearly impossible as many of the City's residents survive on very little money. To make matters worse, the Washington Post has reported that, "many in Flint say banks are refusing to offer refinancing that could free up money to pay for the retrofitting, and that the costs are not

covered by insurance. The crisis has created a perfect storm to strip their houses of their remaining value, they say."

194. Replacing the piping and affected appliances in each home and business is the only way to guarantee that a home or business will be unaffected by corrosion and lead. The cost of such replacements will range into the tens of thousands, if not more, per structure.

195. Moreover, the problems associated with Flint's water have had and are having a significant impact on residential and commercial property values and rental rates in the City. As Daniel Jacobs, an executive with Michigan Mutual explained, "[t]he tragedy is an already depressed community is now likely to see housing values plummet not only because of the hazardous water, but because folks cannot obtain financing."

196. Certain banks and mortgage companies have refused to make loans, unless the borrower establishes that its water is potable. A Wells Fargo & Co. spokeswoman said it is reviewing government lending guidelines: "[u]ntil [water] testing and potability is affirmed, it will be difficult to lend," said the spokeswoman, who said such difficulties would apply to all lenders. Representatives from Bank of America and J.P. Morgan similarly have acknowledged requiring verification of potable water to provide financing to Flint's residents. Lenders claim their hands are tied. As the Federal Housing

Administration, which backs loans to less-creditworthy borrowers, explained, government regulations require "a continuing and sufficient supply of safe and potable water" to provide home financing.

197. This creates a true catch-22. Despite having switched back to receiving its water from DWSD, the current extent of corrosion in Flint renders the water unsafe because the pipes and appliances will remain corroded and sources of lead until they are replaced. However, residents cannot obtain financing to replace their pipes and appliances until the water is deemed safe.

IV. CLASS ACTION ALLEGATIONS

198. Plaintiffs bring this action pursuant to Michigan Court Rule 3.501 on behalf of themselves and a Class of similarly situated persons and entities, which is defined as follows:

> All persons and entities that have resided in, or owned or rented property in, the City of Flint, Michigan since April 25, 2014.

199. The following persons or entities are excluded from the Class: Defendants; Defendants' parent companies and their subsidiaries, agents or affiliates; Defendants' officers, directors, management, employees, subsidiaries, agents or affiliates; and federal governmental entities and instrumentalities of the federal government, the Judge to whom this case is assigned and the Judge's staff and immediate family.

200. Plaintiffs reserve the right to amend the Class definition if discovery and further investigation reveal that any Class should be expanded, divided into additional subclasses, or modified in any other way.

201. Plaintiffs believe that there are thousands of Class members located in the United States, making the Class so numerous and geographically dispersed that joinder of all members is impracticable.

202. Questions of law or fact that are common to the Class and that predominate over individual questions include:

(a) whether Defendants engaged in the conduct alleged herein;

(b) whether LAN and Veolia committed professional malpractice when they failed to conduct a root cause analysis and recommended Flint double its dosage of ferric chloride without adding a buffering agent and sufficient corrosion control;

(c) whether Defendants knew or should have known that Flint's water supply indicated the presence of lead;

(d) whether Defendants knew or should have known that Flint's water supply indicated the presence of Legionella;

(e) whether Defendants took steps to conceal the presence of lead in Flint's water supply or otherwise falsely assured Plaintiffs and the Class that Flint's water was safe;

(f) whether Defendants' conduct was tortious under Michigan law, on the theories set forth herein;

(g) whether Plaintiffs and Class Members are entitled to damages and other monetary and equitable relief, and if so, in what amount and nature.

203. These and other questions of law and fact are common to the Class and predominate over any questions affecting the Class members individually.

204. Plaintiffs' claims are typical of the claims of Class members, and Plaintiffs will fairly and adequately protect the interests of the Class. Plaintiffs and all members of the Class are similarly affected by Defendants' wrongful conduct in that they suffered damages as a direct and proximate result of Defendants' illegal conduct. Plaintiffs' claims arise out of the same common course of conduct giving rise to the claims of the other Class members. Plaintiffs' interests are coincident with, and not antagonistic to, those of the other Class members.

205. Plaintiffs are represented by competent counsel with experience in the prosecution of class actions.

206. The prosecution of separate actions by individual members of the Class would create a risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for Defendants.

207. A class action is superior to other available methods for the fair and efficient adjudication of this controversy. The Class is readily definable.

Prosecution as a class action will eliminate the possibility of repetitious litigation. Treatment as a class action will permit a large number of similarly situated persons to adjudicate their common claims in a single forum simultaneously, efficiently, and without the duplication of effort and expense that numerous individual actions would engender. This action presents no difficulties in management that would preclude maintenance as a class action.

208. In the alternative, Plaintiffs seek class certification as to particular issues as permitted under MCR 3.501(B)(3)(d)(i). Plaintiffs seek certification as to the questions identified in Paragraph204 (a) through (h). Plaintiffs respectfully maintain that the class certification as to these issues is appropriate, as required by the Rule because certification as to particular issues provides a superior to any alternative means of adjudication as it eliminates the possibility of duplicative, inefficient litigation of identical issues.

V. CAUSES OF ACTION

First Cause of Action

(Professional Negligence)

209. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

210. LAN and Veolia undertook, for substantial consideration, to render services for the City of Flint which each should have recognized as necessary for

the protection of Plaintiffs, the putative class, and their property, and reasonably could and should have foreseen that the failure to satisfy the standard of reasonable engineering professionals in performing those services would endanger Plaintiffs, the putative class, and their property.

211. As a result, LAN and Veolia owed Plaintiffs and the Class a duty to act with reasonable care in undertaking its obligations. As professional engineers, LAN and Veolia had duties to act as engineers of ordinary learning, judgment, or skill would.

212. As more fully described herein, LAN and Veolia breached their duties of care by (1) failing to conduct a fulsome root cause analysis and (2) recommending the addition of ferric chloride without concomitant corrosion control.

213. As a direct and proximate result of LAN and Veolia's negligence, Plaintiffs and the Class have suffered and continue to suffer personal and property damages.

Second Cause of Action

(Gross Negligence)

214. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

215. Defendants owed Plaintiffs and the putative class a duty to exercise reasonable care. Upon learning of the release of the contaminants, Defendants owed Plaintiffs and the Class a duty to act reasonably to remediate, contain, and eliminate the contamination before it injured Plaintiffs, the Class and their property and/or to act reasonably to minimize the damage to their property.

216. Defendants, individually and collectively, caused drinking water with concentrations of lead exceeding applicable standards, and *Legionella*, to be provided to Plaintiffs and the Class in contravention of federal environmental statutes and guidelines. As such, Defendants with gross negligence, recklessly, willfully, wantonly, and/or intentionally contaminated drinking water in and around the real property of Plaintiffs and the Class.

217.

218. LAN and Veolia owed Plaintiffs and the Class a duty to act with reasonable care in undertaking its obligations. As professional engineers, LAN and Veolia had duties to act as engineers of ordinary learning, judgment, or skill would. As more fully described herein, LAN and Veolia breached their duties of care by (1) failing to conduct a fulsome root cause analysis and (2) recommending the addition of ferric chloride without concomitant corrosion control. As a direct and proximate result of LAN's and Veolia's gross negligence, Plaintiffs and the Class have suffered and continue to suffer personal and property damages.

219. Defendants' conduct was so reckless as to demonstrate a substantial lack of concern for whether injury would result to Plaintiffs or the Class.

Third Cause of Action

(Negligence)

220. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

221. Defendants owed Plaintiffs and the putative class a duty to exercise reasonable care.

222. Defendants, individually and collectively, breached their duty of reasonable care by allowing contaminants to be released into the drinking water of the City of Flint, including but not limited to lead.

223. Upon learning of the release of the contaminants, Defendants owed Plaintiffs and the Class a duty to act reasonably to remediate, contain, and eliminate the contamination before it injured Plaintiffs, the Class and their property and/or to act reasonably to minimize the damage to Plaintiffs, the Class and their property.

224. Defendants breached that duty by failing to act reasonably in providing Plaintiffs and the Class usable water. Furthermore, Defendants failed to

take reasonable, adequate and sufficient steps or action to eliminate, correct, or remedy any contamination after they occurred.

225. Defendants further breached that duty by failing to timely notify the Plaintiffs and the Class of the contamination of Flint's drinking water, and, consequently, the presence of lead and other contaminants in the homes, businesses and rental properties of Plaintiffs and Class Members.

226. As a result of Defendants' breaches of their duty to timely notify, Plaintiffs and the Class were forestalled from undertaking effective and immediate remedial measures, and Plaintiffs and the Class have expended and/or will be forced to expend significant resources to test, monitor, and remediate the effects of Defendants' negligence for many years into the future.

227. Defendants negligently breached their duties to the Plaintiffs and the Class to ensure that the Flint water supply was safe and sufficiently secure as to prevent the release of the contaminants into the water facilities and, consequently, the homes and rental properties of Plaintiffs and Class Members.

228. Defendants willfully and wantonly breached their legal duty to properly remediate the contamination despite full knowledge of the extent of the contamination and the threat it poses to human health and safety.

229. LAN and Veolia owed Plaintiffs and the Class a duty to act with reasonable care in undertaking its obligations. As professional engineers, LAN and

Veolia had a duty to act as an engineer of ordinary learning, judgment, or skill would. As more fully described herein, LAN and Veolia breached their duties of care by (1) failing to conduct a fulsome root cause analysis and (2) recommending the addition of ferric chloride without concomitant corrosion control. As a direct and proximate result of LAN and Veolia's negligence, Plaintiffs and the Class have suffered and continue to suffer personal and property damages.

230. As a direct and proximate result of Defendants' negligence, Plaintiffs and the Class have suffered and continue to suffer personal and property damages.

Fourth Cause of Action

(Intentional Infliction of Emotional Distress)

231. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

232. Defendants owed Plaintiffs and the putative class a duty to exercise reasonable care. As alleged herein, Defendants intentionally and/or recklessly engaged in conduct that had the direct and foreseeable result of causing Plaintiffs and the Class serious emotional distress. Defendants' outrageous conduct in causing, prolonging, and obscuring Plaintiffs' exposure to toxic, lead contaminated water exceeds all bounds of decency in a civilized society. Defendants knew that Plaintiffs' distress was certain, or substantially certain to result from their conduct,

or Defendants acted in deliberate disregard of a high degree of probability that the Plaintiffs and the putative class would suffer emotional distress as a result.

233. Defendants' outrageous conduct caused severe distress to Plaintiffs and the Class and was the proximate cause of Plaintiffs' injuries.

234. As such, Defendants breached their duty to exercise reasonable care towards Plaintiffs and the Class.

235. Plaintiffs and the Class suffered serious emotional distress as a direct and foreseeable result of Defendants' conduct.

Fifth Cause of Action

(Negligent Infliction of Emotional Distress – All Defendants

236. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

237. Defendants owed Plaintiffs and the putative class a duty to exercise reasonable care.

238. As alleged herein, Defendants failed to exercise reasonable care which had the direct and foreseeable result of causing Plaintiffs and the Class severe emotional distress.

239.

Sixth Cause of Action

(Unjust Enrichment)

240. Plaintiffs incorporate and re-allege each allegation set forth in the preceding paragraphs of this Complaint.

241. Plaintiffs and the Class were sold toxic drinking water that was unfit for human consumption instead of receiving clean, safe drinking water, as promised.

242. LAN and Veolia unjustly received compensation for providing engineering services that did not satisfy their duties of professional responsibility.

243. Accordingly, the LAN and Veolia Defendants should be ordered to disgorge their unjustly retained benefits.

VI. DEMAND FOR A JURY TRIAL

244. Pursuant to Michigan Court Rule 2.508, Plaintiffs demand a jury trial as to all issues triable by a jury.

VII. PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray as follows:

A. That the Court determine that this action may be maintained as a class action under Michigan Court Rule 3.501.

B. That judgment be entered for Plaintiffs and Class members against Defendants for personal and property damages sustained as a direct and proximate

cause of Defendants' conduct as well as any punitive damages or disgorgement monies owed to Plaintiffs and the Class.

C. That Plaintiffs and the Class recover pre-judgment and post-judgment interest as permitted by law.

D. That Plaintiffs and the Class recover their costs of the suit, including attorneys' fees, as provided by law.

E. For such other and further relief as is just and proper under the circumstances.

July 6, 2016

Respectfully submitted,

/s/ David J. Shea

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