

Protecting Drinking Water in Arkansas

Challenges and Opportunities in the “Natural” State

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Executive Summary

All Arkansans deserve access to safe, affordable, and reliable clean water. Good water infrastructure is vital to a healthy and prosperous state, and much of Arkansas's is reaching the end of its life cycle. Outdated water infrastructure and water resource management do the most harm to vulnerable citizens including children, the poor, and communities of color who are already suffering from lack of resources. With further investment through existing federal programs, Arkansas can guarantee that our drinking water, and the our communities who consume it, will be as healthy as possible. Prioritizing investments in clean water provides public health benefits and improves our economy. The U.S. Department of Commerce found that every \$1 spent on water infrastructure generates nearly \$3 in private economic output.

This report focuses on public drinking water systems in Arkansas, contaminants both regulated and unregulated that pose a threat to human health, how to find out more information about your drinking water, and policy recommendations to insure all Arkansans receive safe drinking water.

Key findings

- 94 percent of Arkansans receive water from public water systems.
- Overall, public water systems are meeting regulatory standards.
- Much of the drinking water infrastructure in Arkansas is reaching the end of its useful life.
- Two hundred and fourteen wastewater

treatment facilities are in need of facility upgrades and improvements over the next 20 years.

- Unregulated contaminants are likely posing a risk to public health in some communities.
- Watershed protections that protect drinking water sources are the cheapest and most effective way to maintain a quality supply of drinking water.

Policy recommendations:

- Drinking water standards need to be reviewed and updated. The process to update drinking water standards should be streamlined.
- Agencies and entities working to maintain and update drinking water infrastructure need adequate resources.
- Protections for drinking water sources should be implemented. Existing regulations should be enforced to prevent pollutants from entering source waters.
- Increase awareness and opportunities for citizens to: take actions that reduce pollutants in waters; serve on water utility boards or as elected officials; and participate in the decision-making process on issues that impact drinking water.

Introduction

Arkansas is fortunate to be a state with rich water resources. This natural resource, paired with prior investments in water and wastewater infrastructure, have propelled the state's economy. Prioritizing protection of our water resources and investing in maintenance and improvements to our infrastructure will be necessary to ensure the public health and prosperity of Arkansans.

Our nation's water systems are facing massive challenges and Arkansas is no exception. In 2011, 2,252 small systems across the country had serious drinking water violations, 193 of which required public notification within 24 hours. Three years later in 2014, only 22 percent of those 193 systems had achieved compliance.¹ America's aging water infrastructure loses approximately 17 percent of available potable water

due to leakage and there are an estimated 240,000 water main breaks every year. The American Water Works Association estimates it will take \$1 trillion over the next 25 years to replace America's aging water systems. In Arkansas, drinking water, wastewater, and stormwater infrastructure includes: water delivery systems, purification plants, wastewater removal systems, and drainage pipes.

The 2014 Infrastructure Report Card published by the Arkansas Section of the American Society of Civil Engineers (ASCE) gave Arkansas a D+ on the state of our drinking water infrastructure and a C+ on the state of our wastewater infrastructure.² The report found that "much drinking water infrastructure in Arkansas might be reaching the end of its useful life" and that 214 wastewater facilities need upgrades or improvements in the next 20 years."³

When we turn on a faucet or take a shower we expect that water to be safe for use and consumption. The Safe Drinking Water Act guarantees Americans a certain quality of drinking water through uniform government regulations. However, American drinking water infrastructure systems are not always able to meet this standard. Whether through mismanagement, underfunding, or aging systems, this issue can impact entire communities and create public health epidemics for years to come. As seen in the high-profile case of Flint, Michigan, an antiquated and mismanaged drinking water system can be disastrous. In Flint, over 100,000 residents were potentially exposed to high levels of lead in the drinking water, causing a massive public health crisis and eroding the public's trust in the government to provide a basic life necessity.

This report focuses on public drinking water systems in Arkansas, regulated and unregulated drinking water contaminants that pose a threat to human health, how to find out more information about your drinking water, and policy recommendations to ensure all Arkansans receive safe drinking water.

Public Water in Arkansas

Almost ninety-five percent of Arkansas's population is served by community public water systems.⁴ In 2016 there were 1,081 active public water systems in the



state.⁵ The total average daily water used by public water systems in Arkansas is about 556 million gallons per day.⁶

The Arkansas Society of Civil Engineers' 2014 Infrastructure Report Card estimated that over the next 20 years, \$6.1 billion dollars of funding is needed to keep up with the state's growing drinking water needs.⁷ Public supply water use in Arkansas from 1965 to 2010 has increased about 238 percent. Transmission and distribution systems for water consist mostly of buried pipes, which need consistent maintenance and must be replaced over time. Arkansas's water transmission and distribution system represents 72 percent of the capital needs of drinking water facilities in the state. This is a combination of the need for new connections and pipe installation and maintenance of the aging infrastructure. It is estimated that 2,615 miles of water transmission and distribution lines will require replacement or rehabilitation within the next 20 years, due mainly to age. However, 14 percent of these projects need immediate attention. In theory every water utility should be losing no more than 15

percent of the water they are distributing.⁸ However, the most recent survey by the Arkansas Department of Health indicates that at least 54-58 percent of the water utilities in the state have more than 15 percent water loss with some having up to 85 percent water loss!⁹ These projects are critical to the delivery of safe drinking water and can help ensure compliance with many regulatory requirements. Failures in transmission and distribution lines can interrupt the delivery of water and possibly allow for contamination of the water. Leaks in aging or poorly constructed distribution systems can cause significant loss of treated water, thereby literally draining a community's resources.

Protections for Drinking Water

Congress originally passed the Safe Drinking Water Act (SDWA) in 1974 to protect public health by creating safety standards for the nation's public drinking water supply. The law has undergone significant amendments in 1986 and 1996 and establishes thorough practices to protect drinking water and its sources. The SDWA authorizes the United States Environmental Protection

Agency (EPA) to set national health-based standards for drinking water to protect against naturally occurring and man-made contaminants. The EPA sets national standards for drinking water to protect against health risks, considering available technology and costs. The EPA, state and local governments, and water systems then work together to make sure that these standards are met. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach works to ensure the quality of drinking water by protecting it from source to tap. It also requires collaboration between all levels of government.

SDWA applies to every public water system in the United States. Water systems treat the water and are required to test it frequently for specified contaminants. They must then report the results to the state. Water systems are responsible for notifying customers if they are not meeting these standards. In addition, water suppliers also provide annual reports for their customers. The public is responsible for helping local water suppliers set priorities, establish programs to protect drinking water sources, and make decisions on funding and system improvement. Water systems across the nation rely on citizen advisory committees, rate boards, volunteers, and civic leaders to protect their water resources.

Protecting Source Water

According to the 2016 U.S. Census, 1,860,091 Arkansans receive their drinking water from surface water, 811,228 from ground water, and 164,973 from a combination of ground and surface waters.¹⁰ Surface water includes streams, rivers, and groundwater that comes from aquifers. Protecting source water from contamination is one of the most cost-effective and safest ways to reduce risks to public health from exposures to contaminated waters. In a similar vein, drinking water sources can be protected by limiting the amount of both point and non-point source pollution.

Point source pollution is pollution coming out of a pipe and non-point source pollution is pollution running off roads, fields, and land into waterways. The Clean Water Act has provisions protecting rivers and lakes. The Arkansas Department of Environmental Quality is tasked with issuing and enforcing pollution permits for those discharging pollutants into water. Pollution in our drinking water sources does not only come from permitted industries and municipalities. Anytime it rains or snows pollutants present on the land's surface, such as pesticides, fertilizers, and animal waste, wash off and travel into our waterways. This is called runoff. The two largest non-point source contributors to polluting waterways are storm runoff, some of which is regulated by ADEQ, and agricultural runoff. The Arkansas Natural Resource Commission is largely responsible for limiting agricultural non-point pollutants through voluntary programs that include numerous federal, state, and non-governmental partners working together. These non-point source pollutants are difficult to manage and often need cooperation from numerous stakeholders and resources to implement. Agricultural runoff pollution is ultimately exempt from the Clean Water Act.

The 1996 Amendments to the SDWA prioritize the protection of source waters by building on key foundations such as the EPA's Watershed Approach. The Watershed Approach focuses water pollution control efforts on the protection of drinking water supplies. Under this approach, everyone plays a role in protecting source water, from the EPA to each individual. Under the SDWA and the Clean Water Act, the EPA provides information and encourages partnerships for source water protection planning.

State, local governments, and water utilities have their roles to play as well. The state must complete source water assessments for all public water systems and implement strategies to help local communities use that information to fund watershed management programs (for surface waters) and wellhead protection programs (for groundwater). Local governments develop zoning requirements and land use controls to protect water supplies. Water utilities educate their



1 Water Source

Most public systems use surface water as their source of water- for example, a lake, river or reservoir- while some public water systems use ground water sources, such as aquifers. Drinking water sources are protected under federal and state laws. The EPA, Arkansas Department of Environmental Quality and the Arkansas Natural Resource Commission all play a vital role in source water protection.

2 Water Treatment

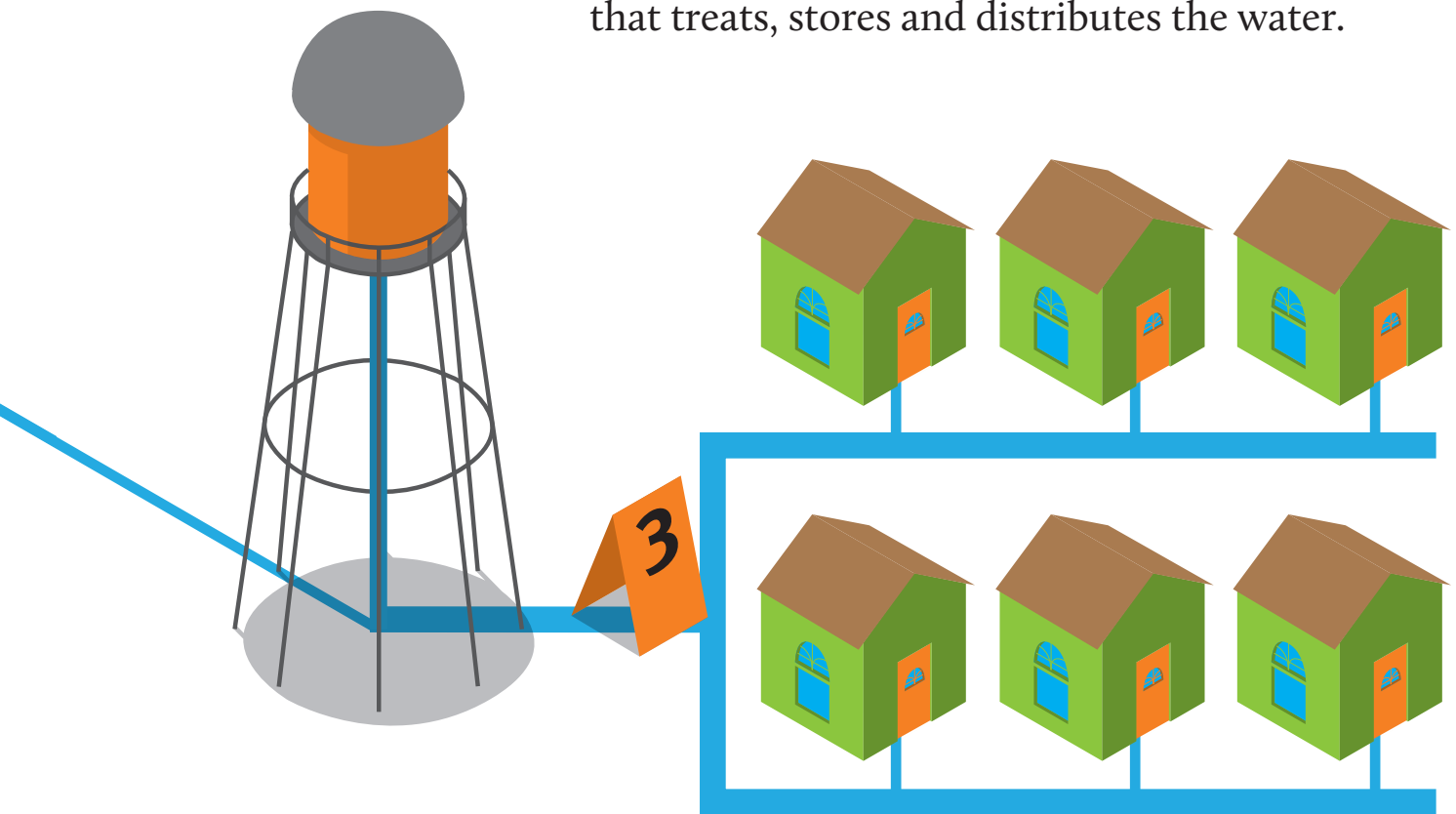
The public water system treats the source water to make sure it's safe. The Safe Drinking Water Act requires EPA to establish and enforce the safety standards that all public water systems must follow. Treatment methods include filtration and disinfection to remove debris and bacteria.

The EPA, Arkansas Department of Health and local water utilities are responsible for treating water so it is safe for consumption.

What is a public water system?

When you turn on your faucet, water seems to magically appear. The Environmental Protection Agency, states, and water utilities work together to bring clean, safe water into homes and businesses everyday.

In Arkansas, approximately 95% of the population gets drinking water from public water system that treats, stores and distributes the water.



3 Water Storage and Distribution

After treatment, the public water system may store the water in holding tanks. Eventually, the water is pumped and distributed to communities through water mains—large, buried pipes—and water lines (smaller pipes that run from the main to a residence or business). The EPA, Arkansas Department of Health, water utilities and home and business owners all play a role in ensuring the water from you tap is safe.

communities and promote source water protection. Individuals can get involved in local source water protection efforts, reduce their use of pesticides and other contaminants that will end up in waterways, and ensure their septic systems are properly maintained.

Protecting and maintaining water quality and standards takes an upfront investment from leaders who are committed to ensuring a sustainable water source. This can be a timely and cumbersome endeavor. However, having a strong watershed management plan in place, and an educated community that knows how to protect their drinking water, will have long-term benefits for public health and the economy. This multi-level approach is effective because of the compartmentalization of the issues. If an entire community can focus efforts on these issues it becomes much less daunting and much more realistic.

Regulating Contaminants

Most Arkansans receive high-quality drinking water every day from their public water systems. However, the safety of those systems cannot be taken for granted. There are a number of threats to drinking water from naturally occurring substances. Also animal wastes, pesticides, improperly disposed of chemicals, and other human threats can all contaminate drinking water. The EPA sets the quality standards for drinking water. These standards are made up of the National Primary Drinking Water Regulations and the National Secondary Drinking Water Regulations. Contaminants are prioritized for potential regulation based on risk and how often they occur in water supplies. The EPA then establishes a health goal based on risk and sets a legal limit for the contaminant in drinking water, which takes into consideration a cost-benefit analysis and input from interested parties. Also, the National Primary Drinking Water Regulations set enforceable maximum contaminant levels (MCLs) for over 90 contaminants that are commonly found in drinking water and treatment techniques that apply to public water systems.

Outside of the health and quality requirements, there are also Secondary Standards, which are non-enforceable guidelines that establish recommendations for contaminants that may cause cosmetic or aesthetic effects such as taste, odor, or color. Establishing these federal regulations has insured a consistent, safe drinking water standard across state lines.

The EPA has also set requirements for how often public water systems need to monitor their water for contaminants and how often the results need to be reported to the state. Public water systems are required to notify the public when they have violated regulations. The public notice must include a clear and understandable explanation of the nature of the violation, its potential adverse health effects, and the steps that the Public Water System (PWS) is undertaking to correct the violation. Alternative water supplies must also be noted.

The Arkansas Department of Health posts the three previous years' Public Water System Supervision Program Annual Reports on its website.¹¹

Summary of Public Water System Compliance Annual Reports 2014-2016¹²

	2016	2015	2014
TOTAL MAJOR VIOLATIONS	221	304	268
MCL/TT VIOLATIONS	323	314	309
COMPLIANCE PERCENTAGE	96.8	96.5	98

Sample of Arkansas water supplies from Environmental Working Group database

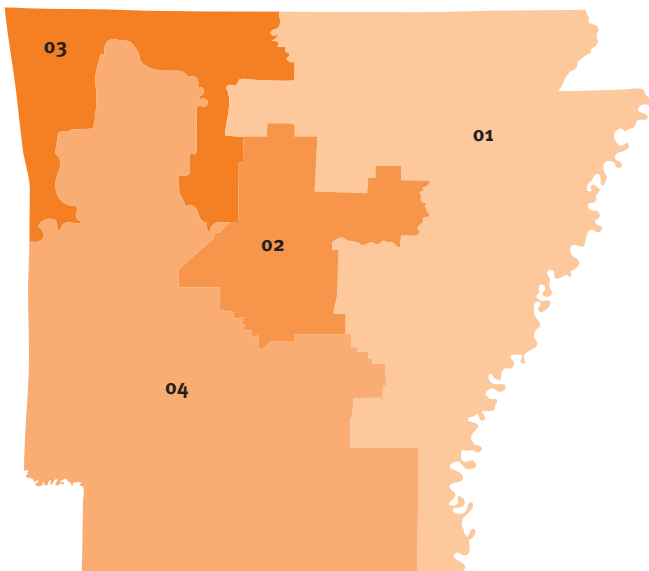
Unregulated Risks

All of these programs and regulations through the EPA have made considerable strides in the development of the consistently clean drinking water that many Americans drink. However, there are several risks that have yet to be addressed through legislation or regulation.

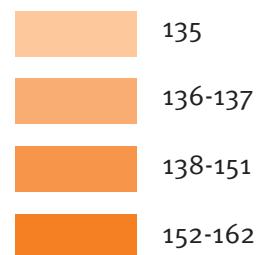
The majority of our drinking water supplies are meeting federal and state standards. Still, hundreds of contaminants are found in water supplies that are not in violation of drinking water quality standards but could still pose a risk to public health. Compounding this concern is the fact that the EPA has not added a new contaminant to the list of regulated drinking water pollutants in more than 20 years, due mostly to cumbersome red tape and political gridlock. Public Water Systems are required to monitor for some unregulated contaminants to provide data for future regulatory development. Maximum Contaminant Level Goals (MCLGs) are set to establish a level of a contaminant at which there would be no risk to human health. But these MCLGs are not always technologically or economically feasible for water treatment facilities to meet and are not enforced by any agencies.

Drinking Water Systems	EWG Database Results
West Memphis Waterworks	Bromodichloromethane, Chloroform, Dichloroacetic acid, Trichloroacetic acid
Beaver Water District (Northwest Arkansas)	Bromodichloromethane, Chlorite, Chloroform, Dibromochloromethane, Dichloroacetic acid, Trichloroacetic acid, Nitrite and nitrates, Haloacetic acid, Monochloroacetic acid
Bella Vista POA	Chloroform, Chromium, Dibromochloromethane, Dichloroacetic acid, Trichloroacetic acid
Mena Water Department	Bromodichloromethane, Chlorite, Chloroform, Dibromochloromethane, Dichloroacetic acid, Trichloroacetic acid
Hope Water and Light Company	Bromodichloromethane, Bromoform, Chloroform, Chromium, Dibromochloromethane
Pocahontas Waterworks	Bromodichloromethane, Chlorite, Chloroform, Dibromochloromethane, Dichloroacetic acid, Trichloroacetic acid

**All data sourced from the EWG Drinking Water Database.*



Number of unregulated contaminants from sample from Environmental Working Group Database



These unregulated risks pose a potential threat to the American drinking water systems. A nonprofit organization called the Environmental Working Group (EWG) has conducted an extensive examination into the quality of American drinking water. The EWG has a searchable database for over 50,000 different water systems and the contaminants that affect these systems. The EWG database acknowledges the vast majority of the nation’s drinking water supplies are in compliance with federal and state standards, but detected over 250 contaminants at levels that pose health risks. The EWG study tested for 500 different contaminants and found 297, including 93 linked to an increased risk of cancer, 78 associated with brain and nervous system damage, 63 connected to developmental harm to children, 38 that may cause fertility problems, and 45 linked to hormonal disruption.¹³

Learn more about your own drinking water

The quality of water can vary depending on where it comes from and where you live, which is often linked to socioeconomic factors. Only about half of Americans are “very confident” in the safety of their tap water, according to a 2016 Associated Press-GfK poll.¹⁴ Whites (54 percent) are significantly more likely than blacks (40 percent) or Hispanics (28 percent) to be very confident in the safety of their tap water. Only about a third of Americans say they usually drink straight tap water at home, while another third drink filtered tap water. The remaining third drink bottled water. The poll showed that just over half of blacks and four in 10 Hispanics drink bottled water home, compared to only a quarter of whites. These findings show a specific need for solutions that address the socioeconomic differences between people. Focusing on improving water systems in areas that have been historically forgotten, such as lower-income urban and rural communities, will make a definite impact on the health and prosperity of these citizens.

If you are curious or concerned about the quality of the water coming from your tap a good place to start is on the Arkansas Department of Health’s website. There you can find answers to commonly ask questions

When Might You Want To Test Your Water?

Are you experiencing any of these conditions?	Recommended Test
Recurrent gastro-intestinal illness	Coliform bacteria
Household plumbing contains lead	pH, lead, copper
Radon in indoor air or region is radon-rich	Radon
Scaly residues, soaps don’t lather	Hardness
Water softener needed to treat hardness	Manganese, iron
Stained plumbing fixtures, laundry	Iron, copper, manganese
Objectionable taste or smell	Hydrogen sulfide, corrosion, metals
Water appears cloudy, frothy or colored	Color, detergents
Corrosion of pipes, plumbing	Corrosion, pH, lead
Rapid wear of water treatment equipment	pH, corrosion
Nearby area of intensive agriculture	Nitrate, pesticides, coliform bacteria
Coal or other mining operation nearby	Metals, pH, corrosion
Gas drilling operation nearby	Chloride, sodium, barium, strontium
Odor of gasoline or fuel oil, and near gas station or buried fuel tanks	Volatile organic compounds (VOC)
Dump, junkyard, landfill, factory or dry-cleaning operation nearby	VOC, Total dissolved solids (TDS), pH, sulfate, chloride, metals
Salty taste and seawater, or a heavily salted roadway nearby	Chloride, TDS, sodium

Source: USEPA, Home Water Testing, https://www.epa.gov/sites/production/files/2015-11/documents/2005_09_14_faq_fs_homewatertesting.pdf

and your Consumer Confidence Report from your local water utility. The EWG Tap Water Database will provide you with a list of contaminants found in your public drinking water that meet legal requirements but are above amounts considered healthy. You can also have the tap water you drink directly tested for contaminants through a state-certified laboratory.

A consumer might want to have this testing done if they're concerned about contaminants not tested for by their utility or if they believe the contamination is a result of their own plumbing. You can find one in your area by calling the Safe Drinking Water Hotline at 800-426-4791 or visiting www.epa.gov/safewater/labs. The cost of testing will vary depending on which contaminants are tested for and how many. For example, the cost for sampling for nitrate, fecal coliform, and lead are between \$15-\$25 per sample.

Household ways to limit exposure to contaminants
Steps can be taken to limit exposure to many of these contaminants. Some water filtration systems can reduce the presence of many contaminants, but they are not always necessary or effective. Many are costly, require upkeep, and if used incorrectly could increase the risk of unsafe water. There are many filtration systems available on the market and it is important to do research to determine what system might be the most effective for you.

Lead contamination in tap water has received a lot of media coverage in light of the Flint, Michigan disaster. Homes built before 1986 have a good chance of having lead in their plumbing. Older homes, especially those built before 1930, have even higher risks of containing lead plumbing. No level of lead in tap water is considered safe. If you think your home might contain lead plumbing, National Public Radio has an online tool to guide you through examining your home's pipes. Or you can call a plumber to make an assessment. If you think your home or water system contains lead pipes, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

Image 5- Sources of lead in drinking water

Paying for drinking water infrastructure maintenance and expansion

Drinking water systems are funded through a combination of service charges/user fees, federal and state grants, or in some places, local taxes. Utilities often use bonds, non-ratepayer based funding, and financing to pay the upfront costs associated with

capital improvements. The bonds are often repaid by raising customer rates. Many cities struggle with a shrinking population rate, which is often coupled with higher poverty rates, higher unemployment, and lower median household incomes.¹⁵ This raises concern about affordability as utilities are forced to compensate with higher rates. And any failure to make needed investments could undermine the integrity of their water systems. The EPA generally considers drinking water affordable if it accounts for 2.5 percent or less of median household income. The Congressional Budget Office projected that between 11 and 21 percent of households will spend more than four percent of household income on drinking water alone by 2019.¹⁶

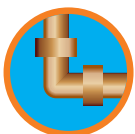
Since 1996 the Safe Drinking Water Act has required the EPA to allot Drinking Water State Revolving Fund (DWSRF) grants to each state based on the findings of the most recent Drinking Water Infrastructure Needs Survey and Assessment (DWINSA). The 2015 Arkansas assessment found the total need for the state to be \$7.4 billion.¹⁷

The DWSRF provides grants to implement state drinking water programs and to help public water systems fund the costs of improvements. Arkansas maintains a priority list for its DWSRF, which includes projects in the state that are in need of a loan from the fund. The Arkansas Natural Resource Commission administers three federal and three state programs that provide financial assistance through loans and grants for water and wastewater projects. The United States Division of Agriculture also has funds for water projects through the Rural Utilities Service Water and Wastewater Disposal Programs and the Community Resource Group's Water and Wastewater Loan Program.

Policy Recommendations

Review and strengthen drinking water standards
The Safe Drinking Water Act sets legal limits for certain chemicals that are known or suspected to cause harm to human health. These standards cover about 100 contaminants and are supposed to be reviewed every six years. However, since the passage

Sources of LEAD in Drinking Water



Copper Pipe with Lead Solder:

Solder made or installed before 1986 contained high lead levels.



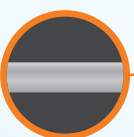
Faucets:

Fixtures inside your home may contain lead.



Galvanized Pipe:

Lead particles can attach to the surface of galvanized pipes. Over time, the particles can enter your drinking water, causing elevated lead levels.



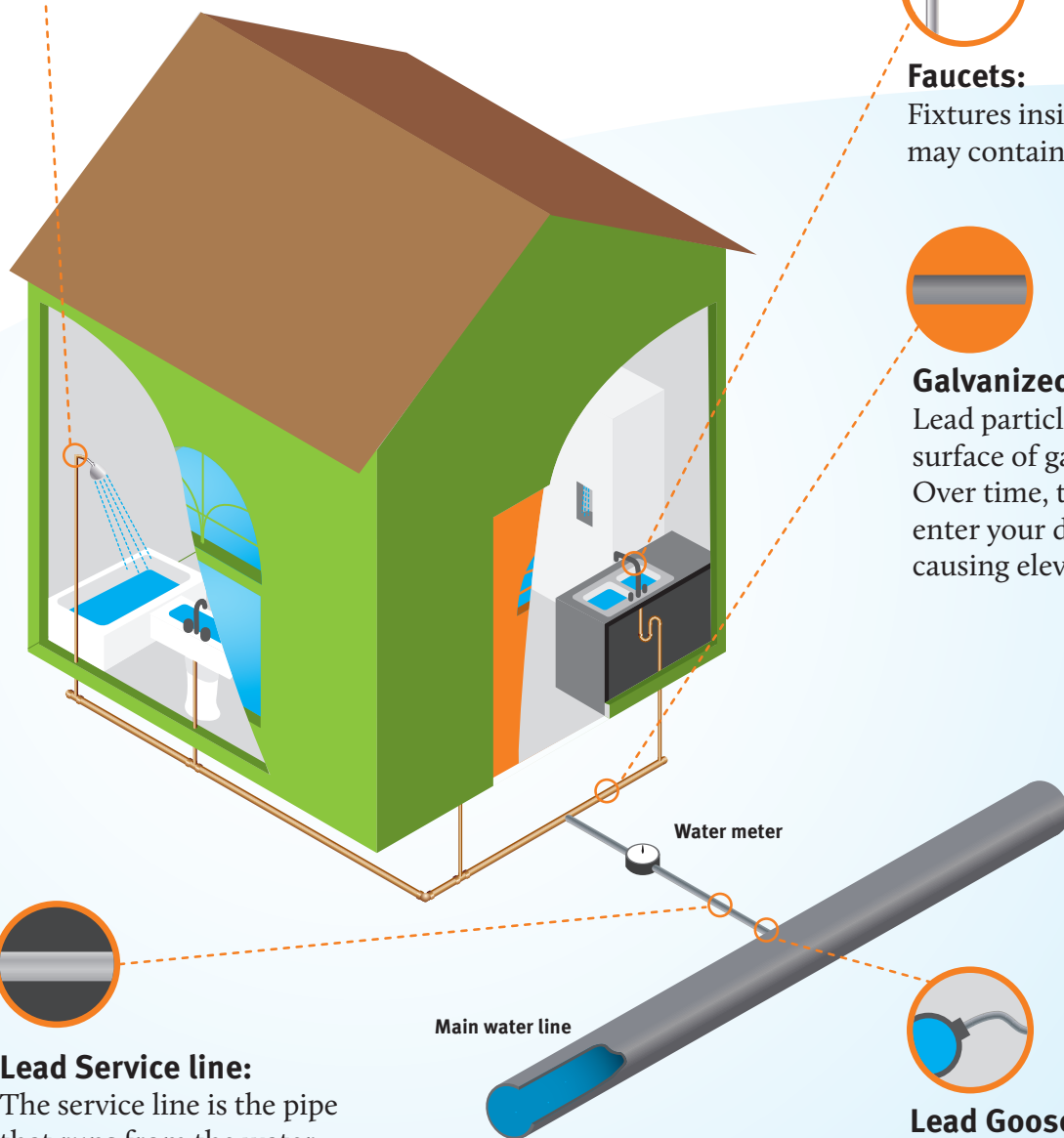
Lead Service line:

The service line is the pipe that runs from the water main to the home's internal plumbing. Lead service lines can be a major source of lead contamination in water.



Lead Goose Necks:

Goose necks and pigtails are shorter pipes that connect the lead service line to the main.



of the 1996 Safe Drinking Water Act, the EPA has not regulated a single additional contaminant, despite extensive information showing health harms of currently unregulated contaminants. The EPA should update existing MCLs and create new regulations for unregulated water contaminants. The agency's monitoring rules should also be strengthened to require more frequent and targeted testing that gives special consideration to the exposure of contaminants for young children. The drinking water standards were developed for an adult weighing 154 pounds. That should be revised to account for children's sensitivity to contaminants.

On both the federal and state level there are significant procedures and processes that must be followed to establish a new drinking water standard. This process can take years and should be streamlined to provide efficiency and adequate protection for public health. Arkansas can enact state standards that would be more protective of public health than the federal standards. However, both the state and federal governments have cumbersome processes in place to set standards that make it a timely and expensive endeavor. However, a less unwieldy approach to water quality safety can be made through improving infrastructure and enforcement mechanisms.

Infrastructure and enforcement investments

Congress and states should prioritize investments in our water infrastructure. New and innovative sources of water infrastructure funding are needed, as are increases to existing sources of funding like the Clean Water and Drinking Water State Revolving Funds. The EPA has estimated that more than \$650 billion must be invested in water infrastructure over the next 20 years just to meet current environmental protection and public health needs. Water infrastructure investments are good for the economy. According to the Economic Policy Institute \$188.4 billion spent on water infrastructure investments over a five-year period would yield \$265 billion in economic activity and create 1.9 million jobs.¹⁸ The omnibus spending bill passed by Congress on March 22, 2018, contained significant increases for clean water infrastructure investments. The State Revolving Funds received \$600 million and the Water

Infrastructure and Innovation Act (WIFIA) received \$63 million, almost doubling its previous budget. The passage of the \$1.3 trillion spending bill was counter to President Trump's budget proposal, which lacked meaningful infrastructure funding opportunities.

Agencies such as the EPA, ADEQ, ADH, and ANRC that are tasked with protecting public health through strengthening and enforcing drinking water protections must be adequately funded. Budgets to these agencies have been cut or remained consistent for decades making it difficult, if not impossible, to enforce and update existing drinking water standards. Resources must be allocated to conduct effectiveness reviews of current programs and then expand effective programs.

Stronger source water protections

The best and cheapest way to protect drinking water is to protect water before it gets contaminated. Permitting requirements and enforcement of permit limits need to be reviewed and updated based on up-to-date science and technology. The Arkansas Department of Environmental Quality is currently under scrutiny for having at least 53 National Pollutant Discharge Permits on administrative holds, which allows permit holders to continue operating, rather than going through the appropriate renewal and compliance process. Any industry discharging pollutants or proposing to discharge pollutants should be held to the highest possible standards to protect public health and water supplies. Non-point sources of pollutants, such as runoff from stormwater and agricultural operations, should be limited or prevented to the extent possible. ADEQ needs financial resources, along with political and public support, to set and enforce permit limits that are achievable by industry and protective of the state's waters.

On a smaller, more local level, collaboration between the Arkansas Natural Resource Commission, Conservation Districts, communities, farmers, and municipalities is happening. But these efforts should be better funded and supported to implement cost-effective solutions for non-point source runoff. On the federal level, our representatives can make changes to the federal farm bill that reduce agricultural pollution

of our water resources. However, resources should be shifted toward nature-based solutions that are more environmentally sustainable, such as planting trees and restoring wetlands that filter pollution, rather than building new treatment facilities. Long-term strategies and programs that create permanent solutions with environmental recommendations should be implemented for land and water conservation practices, instead of short-term projects that can't provide lasting benefits to source water protection.

Efficiency Programs

For many municipal governments, drinking water and wastewater plants are typically the largest energy consumers, often accounting for 30 to 40 percent of total energy consumed.¹⁹ Overall, drinking water and wastewater systems account for approximately two percent of energy use in the United States, adding over 45 million tons of greenhouse gases annually.²⁰ As much as 40 percent of operating costs for drinking water systems can be for energy. All utilities should commit to have no more than 15 percent water loss and should strive for zero percent loss. Consumers should hold their utility responsible for meeting these efficiencies; after all they are the ones footing the bill. The Arkansas Energy Office should be resourced to provide more education and assistance to water utilities and municipalities on how they can become more energy efficient (and stay that way). On top of reducing water loss, utilities can implement a portfolio of practices that will make them more efficient. By incorporating energy efficiency practices into water and wastewater plants, municipalities and utilities can save up to 30 percent, saving thousands of dollars with payback periods of only a few months to a few years.²¹

Race and Water Quality

David Switzer and Manuel Teodoro conducted a study in which they attempted to find a link between disparities in water quality and race. In their study, they matched “2010–2013 Safe Drinking Water Act compliance records with demographic and economic data for U.S. local government water utilities serving populations greater than 1,000 (Switzer and Teodoro 2017).” They found indisputable evidence that poorer, black, and Hispanic communities are more likely

to be under threat from inadequate drinking water infrastructure.²² They also found that “while the noninteractive model showed no significant correlation between percent black population and health violations, the interactive model finds that at very low levels of SES [socioeconomic status], black population positively predicts SDWA health violations (Switzer and Teodoro 2017).”

While we are broadly referencing and researching the quality of Arkansan and American drinking water, it is important to understand that many issues that face our state and our country also disproportionately affect members of lower-income and minority communities. While we examine certain solutions and other issues within drinking water quality, we must understand that any solutions need to address this disparity. This is where community activism and standing up for under-represented communities comes into play.

Allocating specific funding to these communities for drinking water infrastructure improvement through aforementioned funding programs, connecting with social activists and community leaders in these communities, and bridging the divide between the people and the government programs that exist to help them, can give these communities the attention and respect they deserve. While many people in these communities know there is a problem with their drinking water, they either don't believe in or are unaware of the government funded programs that are available to help them.

Citizen Involvement

Citizens should all be taking actions that result in ensuring clean drinking water. At home, citizens can prevent pollutants from reaching waterways by picking up pet poop and using less fertilizer in lawn maintenance. There are many ways to volunteer, from picking up litter, participating in your watershed management plan, or serving on your local water utility board. EPA's “Surf Your Watershed” tool provides a searchable database to find information and activities occurring in your watershed. Citizen participation is needed to hold decision makers accountable. Your local, state, and federal elected representatives make decisions about drinking water all

the time. Stay informed on pending decisions and let your representatives know you are counting on them to protect and provide safe drinking water to you and your community.

Conclusion

As Arkansans we are fortunate to have some of the safest water in the nation. Since our water resources are critical to a healthy and prosperous state, we must prioritize protecting our water sources, updating our water standards, and allocating resources to maintain and update our water systems before we run into major issues. Outside of the health benefits of maintaining these systems, the financial ramifications of faulty drinking water systems are too large to ignore. This financial insecurity, coupled with the long-term health problems, should make every person concerned with their local drinking water systems. All Arkansans should receive high-quality drinking water. They should be confident that their tap water is protective of their health. And they should know that the infrastructure that brings it into their homes is cost-efficient and prioritizes environmental and financial security. We can't allow the most vulnerable in our society, who are disproportionately affected by poor drinking water quality, to suffer through issues that have simple remedies. It is imperative that the authority and resources needed for government agencies that protect our drinking water are adequate and accessible, and that the process is transparent. Transparency will ensure many of these recommendations will be given their due and guarantee fresh and clean water for all Arkansans. Arkansans shouldn't accept anything but these realistic goals, and this report has attempted to give them some direction in achieving them.

Notes

¹ U.S. Environmental Protection Agency, Drinking Water: EPA Needs to Take Additional Steps to Ensure Small Community Water Systems Designated as Serious Violators Achieve Compliance, Report No. 16-P-0108, March 2016. <https://www.epa.gov/sites/production/files/2016-03/documents/20160322-16-p-0108.pdf>.

² Arkansas Section of the American Society of Civil Engineers. "2014 Report Card for Arkansas' Infrastructure." (October 2014). <https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2014-AR-Report-Card-FINAL-Web.pdf>

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