A life source and a light center

TPCA

TEXAS PRISONS COMMUNITY ADVOCATES

An Investigation of Water Quality in Texas Department of Criminal Justice Facilities:

2019–2023 ANALYSIS

Written by:

Sloan Rucker, MA

Amite Dominick, PhD

Emily Sharer, BS

Richard Thomas, BA, MDiv, ThM

Acknowledgments

We acknowledge the invaluable contributions of the Prison Policy Initiative, Fight Toxic Prisons, and individuals such as Martha Jamail, BA, MA, and Princess Ivette Adams, BA, whose hard work, dedication and efforts made this report a reality. We are always grateful to the individuals currently and formerly and impacted family and friends who shared their truths with us.

About Texas Prisons Community Advocates

Texas Prisons Community Advocates (TPCA) is dedicated to serving incarcerated individuals and their impacted families by raising awareness, providing education, and fostering collaboration to create effective advocates for humane prison conditions in Texas. TPCA recognizes that the Texas prison system, like others across the United States, routinely fails incarcerated individuals and their families on a massive scale, largely due to public misconceptions and a lack of awareness about the inhumane conditions and environmental hazards within these facilities. By exposing outdated and false narratives that perpetuate acceptance of these conditions, TPCA aims to drive systemic change, ultimately reducing mass incarceration and leading to the closure of unlivable prison facilities. Through research, grassroots mobilization, and advocacy, TPCA holds authorities accountable for maintaining humane and safe prison standards. Their model for change includes connecting individuals with information about inhumane conditions, empowering incarcerated individuals and their families to become effective self-advocates, and increasing public awareness of the unacceptable realities within Texas Department of Criminal Justice (TDCJ) facilities, with the broader goal of inspiring nationwide reform that upholds dignity and respect for all affected individuals.

Contents

List of Abbreviations 2
Executive Summary 3
Introduction and Literature Review 3
Methods 3
Results 3
Discussion and Conclusion 4
Introduction 5
Literature Review 5
Environmental Justice and Prisons 5
Metal Contamination 7
Arsenic 7
Lead and Copper 8
Bacterial Contamination 9
H. Pylori 9
Legionella 10
Coliform 10
Exacerbating Conditions 12
Inadequate Medical Care and Heightened Risk of Illness 12
Failing, Inadequate Infrastructure 13
Climate Change and Natural Disasters 14
Gaps in the Literature 16
Methods. 16
Results 18
Metal and other Mineral Contamination 18
Lead and Copper 18
Other Metals (e.g., Arsenic) and Minerals 19
Survey and Letter Responses 20
Summary and Examining Results in Context 22
Bacterial Contamination 23
TCR Sample Results 23
Survey and Letter Responses 24
Summary and Examining Results in Context 26
Other Contamination Sources and Actions by Incarcerated Texans 27
Notices of Violation and Enforcement 29
Notices of Violation 29
Notices of Enforcement (Texas Data Portal) 32

Discussion and Recommendations 33
Investigation 33
Decarceration 34
Medical Solutions and Carceral Autonomy 36
Short-Term Solutions 36
Conclusion 37
References 39
Appendix A: System Susceptibility 50
Appendix B: Estimated Number Affected 51
Appendix C: Violations by Category 52

List of Abbreviations

CAFO	Concentrated animal feeding operation
E. coli	Escherichia coli
EJ	Environmental justice
EPA	Environmental Protection Agency
EWG	Environmental Working Group
H. pylori	Helicobacter pylori
SD	Standard deviation
SDWA	Safe Drinking Water Act
TCEQ	Texas Commission on Environmental Quality
TCR	Total coliform rule
TDCJ	Texas Department of Criminal Justice
TPCA	Texas Prison Community Advocates
US	United States

Executive Summary

Introduction and Literature Review

Although incarcerated people have been subject to water contamination (bacterial and mineral/metallic) in prisons across the US and are protected by the **Safe Drinking Water Act (SDWA)**, their rights are **often deprioritized** compared to their free-world counterparts.

Environmental justice (EJ) principles apply to incarcerated people's water rights. EJ seeks to center those most affected by environmental issues (i.e., low-income people of color) disproportionately targeted by incarceration. Prisons' location in rural or remote areas can lead to hazards (Whitfield; Purdum et al.; Waters; Neff and Blakinger; Chu et al.) as well as their location on explicitly toxic tracts of land (Bradshaw; Equal Justice Initiative; Leon-Corwin et al.; Russell; Shen; Verniero; Wang; Waters). Metal contamination has been documented in prisons across the US, including arsenic (Abdul et al.; Banks; Cunniff et al.; Hsu et al.; Gilna; Kopinski et al.; Nigra and Navas-Acien; O'Connell; Tchounwou et al.; Tsolkas, 2015) and lead and copper (Biggers; Ehlers; Waters; Wang; Wren). Bacterial contamination in US prisons often takes the form of H. pylori (Cunniff; Eaton-Robb; Malfertheiner et al.; Moritz; Waters), Legionella (Ehlers; Maslin; Townsend-Lerdo and Claudy; Wang; Weill et al.), and coliform (Fisher; Hibrar; Haupt and Miller; Levine et al.; McDowell et al.; Nicole; Rogers; Wing et al.). This potential for contamination is exacerbated by conditions such as inadequate medical care and heightened risk of illness, failing, inadequate infrastructure, and climate change and natural disasters (e.g., extreme heat and drought, hurricanes). Although some EJ media, activist, and scholarly attention has been given to Texas, there is still a large gap in terms of water contamination in Texas. This report seeks to fill that gap by providing a comprehensive look at water contamination in a sample of Texas prisons.

Methods

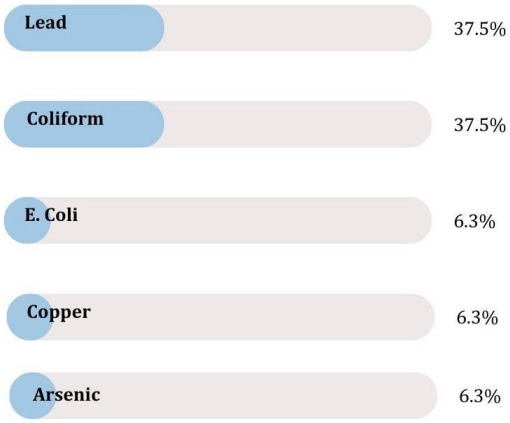
This method utilizes several types of data. Primarily, this report relies on results from the Texas Commission on Environmental Quality (TCEQ) "Water System Search" database, which allowed us to look at a subsample of TDCJ units (n=16), as well as data on water violations and notices of enforcement from the Texas Open Data Portal. No formal hypothesis testing was conducted as part of this study. We also analyzed letters sent to Texas Prison Community Advocates (TPCA) by incarcerated Texans and preliminary survey results from loved ones concerning water contamination in Texas prisons.

Results

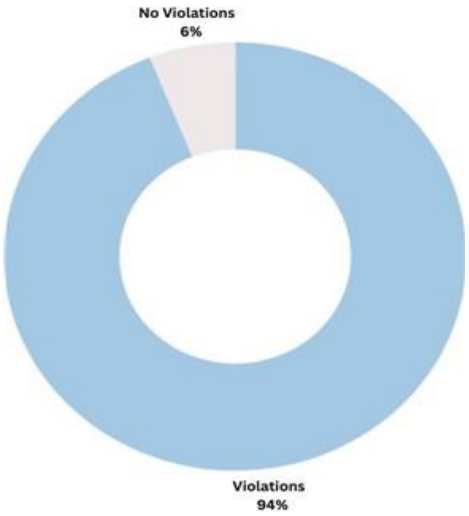
Between 2019 and 2023, out of 16 active sampled locations, 6 had lead results exceeding action levels (37.50%) and 1 had copper results exceeding action levels (6.25%). Of note, the 6 units with lead present service an estimated total of 14,806 incarcerated people (TDCJ High Value Dataset), thus placing many individuals at risk of exposure. 14 had trace levels of metallic analytes (87.50%), but for 1 of these units, the level of analyte exceeded the Environmental Working Group (EWG) limit, namely, a non-mineral herbicide called atrazine. No results for arsenic were flagged for exceeding the limit in the TCEQ database; however, 4 units had trace levels of arsenic (25.00%), 1 of which, when rounded to the nearest hundredth, met the Environmental Protection Agency (EPA)'s limit and therefore has been counted.

6 units had at least 1 sample during the period with the presence of coliform (37.50%), and 1 area tested positive for *E. coli* as well (6.25%). Between 2019 and 2023, the total number of coliform samples between the 6 locations with contaminated water samples rose. Of note, all 6 units used well-ground systems and service an estimated 18,552 incarcerated people. Preliminary survey results from loved ones indicate concerns around water quality, and letters sent to Texas Prison Community Advocates (TPCA) illustrate a bevy of water-related complaints ranging from unsanitary handling of ice and water for distribution to allegations ranging from arsenic and lead to *H. pylori* in the water. In terms of notices of violation, during our given period, 15 of the 16 locations (93.75%) had violations documented by the TCEQ's Water System Search database based on local lab tests. TCEQ inspectors' data captured in the Texas Data Portal showed 5 units (31.25% of the sample) with violations ranging from **unauthorized discharge** of sewage water and maintenance violations. According to the Texas Data Portal, TCEQ issued no notices of enforcement during the period, though the majority were issued right before our period in 2018.

Analytes in Active Units



Percent Active Units with TCEQ Violations



Discussion and Conclusion

Based on these results, we offer several solutions:

1. **Expanded Investigation:** Implementing expanded and consistent investigation via wastewater testing and comprehensive test panel across all TDCJ units and a variety of areas within of each facilities. Handling waste and safeguarding water should involve ensuring that all stakeholders adhere to clear and transparent protocols. Furthermore, transparency should be increased by providing water test results to the public and incarcerated.
2. **Decarceration:** Reducing the size and scope of prisons through policies advocated by scholars and activists. Non-compliant and units constructed with hazardous materials such as lead pipes should be should be closed indefinitely or until they are compliant with TCEQ standards.
3. **Medical Solutions and Prisoner Autonomy:** Incarcerated people must be routinely tested for water-borne communicable diseases and/or related stomach infections, given access to medical testing upon request, and have access to state-wide data on water-borne illnesses. Additionally, consideration for release the medically vulnerable should be expanded within the MRIS program.
4. **Short-Term Solutions:** Providing incarcerated Texans with bottled water, filtered water, boiling techniques, and water advisories. Refine grievance procedures to investigate reports of potential contamination.
5. **Policy Change and Litigation:** Addressing the impacts of contaminated water on incarcerated persons.

We place responsibility on governing and regulatory institutions to acknowledge a crisis of contamination in Texas prisons, and to consider and enact our solutions to benefit the health of those who do not have the autonomy to dictate their environment and respond to environmental injustice.

Introduction

As community organizers and academics, our attention has been drawn to the contamination of water in Texas prisons, stemming from both bacterial and metallic (and other mineral) sources. Contaminated drinking water is often the result of unregulated industrial work (Cunniff et al.) or agricultural work (Wing; Nicole). From our research and anecdotal reporting, we know that people incarcerated in Texas prisons experience illness from the effects of toxic metals and water-borne bacterial diseases. The question is not whether countless Texas incarcerated persons have gotten sick from contaminated water, but rather to what extent. Evidence (i.e., comprehensive water testing) is needed to confirm the quality of water in Texas prisons, and solutions must be implemented to protect those incarcerated in Texas prisons.

Incarcerated people are sometimes regarded as a subclass of the population, or "less than human," thus making it difficult to advocate for their **basic human rights** (Roudebush; Waters). Despite the **social stigma incarcerated people** may face, they are **citizens** who are protected by the **Safe Drinking Water Act**, or the **"SDWA"** (Equal Justice Initiative), making their **exposure to contaminated water** a subject of **legal debate**. However, advocates argue that regulatory agencies such as the Environmental Protection Agency (EPA) do not extend the same protections to incarcerated people (Equal Justice Initiative; Verniero), triggering the need to champion a high quality and quantity of water for incarcerated people. This report provides a background on water issues across the United States, insight into the current state of water within a cross-section of Texas Department of Criminal Justice (TDCJ) locations, and proposed, tailored solutions to address these problems.

Literature Review

Environmental Justice and Prisons

Water contamination is a pertinent case of environmental injustice in carceral facilities such as prisons and jails in the United States (Austin). Although the environmental justice movement has sought to center individuals most affected by environmental issues (i.e., low-income people of color), incarcerated people have not historically been centered in this discussion, thus excluding millions from the conversation (Thompson; Wang). Prison ecology is a topic that has garnered limited scholarly attention (Bradshaw), though some researchers and environmental groups are increasingly focusing on the intersection of prison and environmental protection (Vance). This topic becomes ever more pressing given how vulnerable incarcerated people are to environmental injustice, such as water, extreme temperatures, and air pollution, due to the lack of oversight in prisons (Thompson) and their involuntary confinement to a particular location (Purdum et al.).

The location of prisons is one factor that can impact access to quality water. In the 1990s, hundreds of prisons were built in rural counties across the United States (US), with many rural communities welcoming this expansion for the promise of economic opportunities (Whitfield). The demand for large swaths of affordable land "led to prisons being built in rural areas and often with **little concern** for the presence of **environmental and technological hazards**" (Purdum et al.). For instance, environmental impact statements drafted at the proposal stage of a prison fall short, as they only consider its impact on the local environment but fail to consider the environment's impact on those incarcerated (Waters). The fact that many prisons are located in rural or remote areas (Neff and Blakinger) with no consideration for environmental and accompanying health effects (Purdum et al; Waters) becomes problematic when one

considers that developing **rural areas** are at risk for waterborne pathogens in unsafe drinking water, partly due to limited resources and lack in infrastructure (Chu et al.).

Additionally, prisons have a history of being built on undesirable tracts of land in proximity to[1] or on toxic waste sites such as coal and waste dumps, landfills, abandoned mines, and military bases (Bradshaw; Equal Justice Initiative; Leon-Corwin et al.; Russell; Shen; Verniero; Wang; Waters). In fact, as of 2017, almost 32% of state and federal prisons were located within 3 miles of a Superfund site (Bernd et al; Equal Justice Initiative; Waters), locations which are associated with **lower life expectancy and illness** (Lybarger et al.). In the state of Texas, there are a few units that are near sites on the Superfund National Priorities List. According to the EPA's Environmental Justice Screening and Mapping Tool (Version 2.2), the superfund proximity (based on national percentiles) for the Wallace Pack unit was in the 82nd percentile, meaning it was closer to a Superfund site than 82% of other locations in the dataset, suggesting a high vulnerability to exposure to contamination. Dominguez State Jail was in the 83rd percentile, Mark W Stiles unit was in the 90th percentile, and the LeBlanc unit was in the 91st percentile.

> ***Prisons are set up for environmental and health disasters by the cycle of building on rural and/or toxic land in remote areas that may sicken its inhabitants.***

There are several examples of so-called "toxic prisons" in the US. The Central Michigan and St. Louis Correctional facilities are located near the former Velsicol Chemical Corporation plant (Bradshaw). The Lorton Prison Complex in Virginia is located near an incinerator and landfills, and has one facility on a former missile site (Austin).

Rikers, one of the more infamous prisons, is located on a toxic waste landfill, where some incarcerated persons allegedly cough up blood (Rakia), and officers have even sued the city after developing cancer (New York Daily News; Wang). Such sites can expose incarcerated persons to hazards such as contaminated water and air[2] (Bradshaw; Leon-Corwin et al; Russell) and contribute to adverse health outcomes (Austin; Equal Justice Initiative). Accordingly, 17% of prisons and jails in the US with available data have violated federal environmental regulations (Bradshaw), an undercount that begs the need for comprehensive data. Such results align with the argument that prisons are set up for environmental and health disasters by the cycle of building on rural and/or toxic land in remote areas that may sicken its inhabitants.

---

[1] A superfund site, in plain words, is a contaminated, hazardous site that has been identified and targeted for clean up by the Environmental Protection Agency (EPA) as part of its Superfund program.

[2] Though outside the scope of this report, coal ash exposure from a nearby mine at SCI-Fayette in Pennsylvania (Equal Justice Initiative; Waters) and valley fever from contaminated soil in California carceral facilities (Equal Justice Initiative; Shen; Bernd et al.) are examples of air contamination.

Metal Contamination

Metal contamination is one source of contamination under the larger umbrella of mineral contamination that has been documented in US prisons, with arsenic, lead, and copper appearing in the media often.

Arsenic

While arsenic is poisonous in massive quantities, even exposure to lower levels over time can result in **disastrous health effects** (Cunniff et al.). Exposure to arsenic is associated with a heightened risk of cancer of several organs (e.g., bladder, lungs, kidneys, skin) (Tchounwou et al.) as well as skin lesions, rashes, gastrointestinal issues, blood vessel damage, and impaired nerve function (Abdul et al.). Arsenic exposure can also exacerbate pre-existing medical conditions such as hepatitis C virus (Hsu et al.), for which incarcerated individuals are already at an elevated risk of infection (Kopinski et al).

Arsenic-contaminated water in prisons is a documented issue in states across the US. For example, since the unit's inception in 2005, incarcerated people at Kern Valley State Prison in California have been exposed to water contaminated with arsenic (Cunniff et al.; Rothfeld; Thompson). Although prison officials informed incarcerated people of the contamination, officials offered no alternative (Cunniff et al.). This theme is prevalent throughout several incarcerated individuals' reports: one where officers drink bottled water (Tsolkas, 2017; Wang; Waters) while incarcerated people are not given that option and thus suffer accordingly.

While incarcerated at Kern Valley State Prison, one man started demonstrating signs of arsenic poisoning during his confinement (Cunniff et al.). Another man had to have his kidney removed due to the sudden presence of tumors, and yet another broke out into rashes from showering when he arrived at the unit, later developing headaches, nausea, and vomiting blood (Cunniff et al.). Such experiences led at least 18 individuals to independently file lawsuits. Some incarcerated people were met with retaliation, and one man died shortly after his release (Cunniff et al.). Staff posted boil water notices in the interim until an arsenic treatment system was built in 2012 (Cunniff et al.), a small victory that nonetheless does not undo past exposure and illness.

Additionally, it is worth noting that Texas prisons also post boil notices within their prison facilities based on TCEQ notices. However, incarcerated persons cannot boil water with the "hot pots" sold at the commissary (Bernd; Washington 2015, 2017) and are dependent on funds from outside friends and family to purchase a limited amount of bottled water. Therefore, even with the knowledge water is tainted, incarcerated people have little they can do about it.

Such incarcerated persons accounts are also backed by data. Hundreds of thousands of arsenic monitoring records from tens of thousands of community water systems using EPA data from 2006 to 2011 revealed that the average arsenic concentrations in a sample of southwest correctional facilities' water systems were higher than other southwestern water systems (Nigra and Navas-Acien). In the southwest alone, 26.1% of correctional facilities had 6-year arsenic averages higher than 10 µg/L (Nigra and Navas-Acien). The researchers found people incarcerated in the southwestern region of the US were at an elevated risk for arsenic exposure between 2006 and 2011, prompting them to call for EPA regulations and funding for community water systems serving correctional facilities (Nigra and Navas-Acien).

Elevated levels of arsenic have been documented in Texas prisons as well (Gilna; Banks), the source of which could be traced back to agricultural and industrial run-off and erosion (Tsolkas, 2015). The Wallace Pack unit in Navasota, Texas, houses elderly and disabled incarcerated people. Under a decade ago, the unit

had a known case of arsenic in the 2 wells they operate for the prison, yet the city of Navasota refused to pay to extend the water line outside the city to the unit (Grits for Breakfast; Tsolkas, 2015) while officials denied any major problems (Tsolkas, 2015) and allegedly ignored the problem further (Vance). Incarcerated people in that unit had reported ailments from muscle pains to edema (Tsolkas, 2015). Incarcerated persons argued that arsenic-tainted water was a violation of the SDWA (Tsolkas, 2015); a lawsuit was brought forth in 2014, and class certification was established in 2016 (Clarke et al.). In this class action lawsuit against the unit, the combined conditions of extreme heat and arsenic-tainted water were labeled as "cruel and unusual" punishment (Gilna, O'Connell).

> ***Ellison argued it was a violation of the Eighth Amendment (Gilna) and "contemporary standards of decency" (O'Connell) for the unit to provide water with arsenic levels 2.5 to 4.5 above what was acceptable by the EPA (Gilna; Grits for Breakfast; Bernd; Banks; O'Connell).***

In 2016, U.S. District Court Judge Keith Ellison ordered TDCJ to provide clean drinking water at the Wallace Pack Unit. Ellison argued it was a **violation of the Eighth Amendment** (Gilna) and "contemporary standards of decency" (O'Connell) for the unit to provide water since 2006 with arsenic levels 2.5 to 4.5 above what was acceptable by the EPA (Gilna; Grits for Breakfast; Bernd; Banks; O'Connell). On this basis, he issued a preliminary injunction against the unit, further arguing that incarcerated people do not have the personal health autonomy to access clean water in their confinement (Gilna), echoing advocates' assertions that incarcerated people lose much of their autonomy and bodily control, leaving facilities responsible for securing their basic human rights (Austin). He ordered the unit to replace its water supply within 15 days (Equal Justice Initiative; Johnson).

As a court order was formally established to provide clean water, a filtration system was installed the next year in 2017 (Bernd), a win for the group of incarcerated persons that filed the lawsuit (Johnson). However, yet again it should be noted that a fix like a new filtration system cannot undo years of arsenic exposure. Certain incarcerated people have alleged that they have developed skin cancer from arsenic exposure (Roots Action; Washington 2015), and testing and treatment are necessary to undo past harm. For this reason, some formerly incarcerated demand the right to monetary reparations for incarcerated people afflicted by water-related illnesses (Washington, 2018).

Lead and Copper

In addition to arsenic, lead and copper (often tested for and/or discussed together) are other leading sources of metal contamination. Copper can enter waterways through corroded copper pipes or farms and industrial

waste (Biggers). Furthermore, prison infrastructure is not often renovated, so obsolete methods of plumbing and construction such as lead pipes may be the source of water contamination in prisons (Townsend-Lerdo and Claudy). Lead pipes, galvanized pipes, or pipes welded with lead are especially a concern when a prison was built before the mid-70s and up until 1986, when the SDWA was established. This act prohibited pipes, solder, or flux that are not explicitly lead-free or contain under a certain percent of lead (Wren; EPA 2023). Of note, just over 20 TDCJ facilities were constructed prior to 1986 when this directive was issued. The Lead and Copper Rule followed a few years later in 1991 to reduce the amount of lead and copper in American's drinking water. In this way, particularly old prisons pose a risk for contamination due to the lack of regulations during construction.

Despite this legislation being issued, problems still persist, as some incarcerated people report the presence of such metals in their drinking water (Ehlers; Waters). For example, reports from Statesville prison in Illinois indicated water can be *"brown... smelling like **sewage**"* with *"black flecks in it"* (Ehlers). Uptown People's Law Center of such accounts date back to 2013, with prisoners concerned about lead-contaminated water (Ehlers). Sometimes, air contamination and water contamination are inextricably linked, with lead, copper, and arsenic occurring together (Waters). For instance, since SCI Fayette in Pennsylvania was built on the outer edge of a coal-ash dump, the ash remaining at the unit contained arsenic, lead, and mercury, tainting both the air and water, creating elevated levels of carcinogens from the reaction between ash and chlorine (Waters). Accordingly, an estimated 65% of the incarcerated people who died between 2010 and 2013 in SCI-Fayette died of cancer (Waters; Wang).

This phenomenon, where the location of prisons introduces harmful agents like lead and copper into the environment, affects detained migrants as well. The Northwest Detention Center in Washington is situated by the Tacoma Tar Pits, part of a Superfund site that contains toxic sludge from a neighboring coal plant and both arsenic and lead runoff from a copper smelter (Waters). At the Victorville Federal Correctional Complex (FCC), where ICE detainees have been transferred, people suffer from elevated copper levels. One formerly incarcerated man reported that copper in his system upon release was up to “40 times higher” than it should have been (Waters). Frequent excess exposure to copper can cause damage to the liver, vomiting, and abdominal pain (NIH 2022), and for lead, the effects can include brain and nervous system damage, slowed development and growth, learning, behavioral, speech, and hearing problems (CDC 2024). Considering these risks, more scholarly attention on lead and copper exposure in prisons is needed.

Bacterial Contamination

H. pylori

Sometimes bacterial and metal contamination exist together. In the case of the Victorville FCC in California, people suffered not just from high copper levels alone, but accounts demonstrate that many people experienced stomach ulcers from the bacterium *Helicobacter pylori* (*H. pylori*) (Waters). Though its primary route of transmission is not through water, *H. pylori* bacterial infection can be contracted from water and is also communicable across persons (Cunniff et al.), causing persistent gastritis that can progress to cause ulcers, gastric cancer, and lymphoma (Malfertheiner et al.). One of the men incarcerated at the Kern Valley State Prison also shared that he had contracted *H. pylori* during his confinement (Cunniff et al.). *H. pylori* is not isolated to Victorville and Kern State alone; reports from Prison Legal News allege that *H. pylori* was responsible for hundreds of illnesses in California prisons in the early 2000s (Dannenberg).

More recently, an Associated Press article from 2019 revealed that incarcerated individuals at a Connecticut prison alleged the tap water was tainted with *H. pylori* from **sewage contamination** (Eaton-Robb). According to complaints, guards brought their water to work and therapy dogs were even provided bottled or filtered water; those incarcerated at the unit were asking for the same consideration (Eaton-Robb). The prison denied the allegations, though the representing attorney stated that healthy individuals left the unit with digestive issues, many receiving diagnoses of infection (Eaton-Robb). Although incarcerated persons failed to supply scientific evidence and were denied a preliminary injunction to provide bottled water (Moritz), their allegations and experiences should not be ignored.

Legionella

Other bacterial contamination has been documented in US prisons, such as *Legionella*, which can cause a respiratory infection called Legionnaires' disease if contaminated water enters a person's lungs through breathing in water droplets while showering or through aspiration while drinking (Weill et al.). Cases of Legionnaires' disease have been documented in prisons across states such as California, Illinois, and New York (Wang; Weill). For instance, in 2015, the San Quentin State Prison suffered an outbreak of Legionnaires' disease, with incarcerated people suffering the hallmark pneumonia-like symptoms, turning the prison into a so-called "petri dish" (Maslin). Between 2011 and 2022, *Legionella* was found in the water of multiple Illinois prisons, prompting advocates to call for monitoring and a massive investigation of water at the state's units (Ehlers; Weill et al). This bacterial overgrowth can be caused by corroded pipes (Wang) and other poor maintenance of aging, overcapacity facilities (Weill et al.), though its presence is not consistently tested for in state facilities across the US, reflecting some advocates' notion that prison water may be rarely and inconsistently tested (Townsend-Lerdo and Claudy).

Coliform

> ***While coliform is naturally occurring in the environment and most coliform bacteria are harmless, elevated levels can also signal potentially dangerous bacteria are present (Levine et al.) as certain kinds of coliform bacteria can cause harmful effects (e.g., diarrhea, vomiting, fever) in large amounts (MDHHS 2024).***

Coliform is another source of contamination in prisons (Fisher). While coliform is naturally occurring in the environment and most coliform bacteria are harmless, elevated levels can also **signal potentially dangerous bacteria** are present (Levine et al.) as certain kinds of coliform bacteria cause harmful effects (e.g., diarrhea, vomiting, fever) in large amounts (MDHHS 2024).

The coliform family contains *Escherichia coli* (*E. coli*), which can be transmitted between animals and humans, causing major health concerns (Rogers). Exposure to this pathogen can make you sick, causing ailments ranging from severe diarrhea to abdominal gas (Hibrar), and it can even cause death, with the elderly most at risk (MDHHS 2024). *E. coli* has been documented in US prisons throughout the years. For instance, in 2012, a massive outbreak occurred where 96 individuals (incarcerated people and guards) in a Michigan prison were infected with *E. coli* (News Desk), either from food or water contamination.

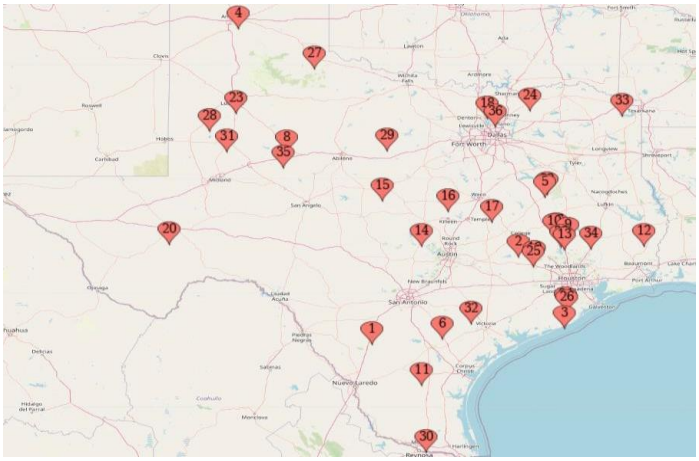
In 2015, a prison in Nevada had a documented case of *E. coli* poisoning in one of its incarcerated individuals, with many others suspected of being infected as well (Pritzker Law Firm), prompting an investigation. In 2022, the CUNY Law Review published an interview with one incarcerated man at Sullivan Unit who reported *E. coli* from well water making several people experience vomiting and diarrhea, an issue that had been swept under the rug until a family member intervened, prompting a boil water advisory (Haupt and Miller). In 2023, court records demonstrated the presence of coliform in drinking water at a New Mexico women's prison, causing sickness in several of the women there (Fisher). While the prison has since fixed its water issue, at the time, women incarcerated there were not notified of water contamination (Fisher). Though attorneys representing the New Mexico Corrections Department argued the prisons were not required to notify the incarcerated people (Fisher), it is harmful to expose a group of people to a potentially dangerous source of contamination and withhold the information.

The issue of coliform may also be linked to industrial agriculture and livestock operations. For instance, there are prisons around the nation that have concentrated animal feeding operations (CAFO) (McDowell et al.) which may lead to a large production of manure, which, depending on the scope of the farm, can produce a couple of thousands to over a million tons of waste (GAO). The issue of animal manure is serious, as it contains over 150 harmful, infectious pathogens, including *E. coli* (Hribar). Swine manure specifically contains harmful pathogens such as *Salmonella*, *Staph*, and *Listeria* in addition to *E. coli*. Exposure to such pathogens can cause ailments ranging from severe diarrhea (Hilbrar) to respiratory issues (Thorne) and may even cause illness or fatality for the elderly, pregnant, and immunocompromised people (Hibrar).

Groundwater can be affected by excessive land application of manure run-off, by the leaching of manure improperly distributed on land, or by manure storage units becoming compromised (Hibrar). Surface water may be affected, too, by heavy rain causing storage to overfill and run off into bodies of water in proximity, through drainage systems, and soil erosion affecting watersheds (Hibrar). All coupled with accidental leaks, effects may be disastrous, prompting some advocates to call the systems of CAFOs to contribute to environmental injustice (Nicole; Wing et al.).

Texas alone includes 38 sites for agribusiness, land, and minerals (Figure 1). Examples of such industries reflect operations for cow/calf and beef, swine finishing, contract farming and grazing, pork processing, egg laying operations, horse breeding, edible and food crops, and more.

Figure 1. TDCJ Locations Involved in Agribusiness, Land & Minerals



Some pinned units reflect approximate locations.
Source: TDCJ website "Manufacturing, Agribusiness and Logistics Division"

Exacerbating Conditions

Inadequate Medical Care and Heightened Risk of Illness

In addition to vulnerability to environmental health hazards, incarcerated people have reported a lack of access to adequate medical care, ranging from **neglect to maltreatment** (Ady, Farney, Wangmo; Austin; Rucker; Tsai; Tsolkas, 2015; Young). While incarcerated, one may experience delayed or denied medical treatment, staff indifference, and/or apathetic treatment (Ady, Farney, Wangmo; Rucker; Tsai; Young). These medical challenges may increase individual medical conditions that have been caused by water contamination. For example, researchers have noted that healthcare on the inside often involves treatment with generic prescription pills, regardless of the issue and its unique needs (Austin).

One might also be gaslit by their medical professional, insisting their health problems are not real (Herring; Waters). Researchers analyzing the Bureau of Justice Statistics 2004 survey data found that 20.1% of state-incarcerated people did not receive a medical exam since their initial incarceration (Wilper et al.). Additionally, medical co-pays that some incarcerated people struggle to afford can "disincentivize treatment," thus worsening illnesses and, in some cases, making illnesses more prone to spread (Wang).

> ***Carceral facilities can act as petri dishes for communicable diseases, as there are health and safety impacts of overcrowding (Vance).***

Therefore, any infections that may occur due to bacteria and/or metal contamination have a risk of getting worse while one is under a prison's medical care. Furthermore, the environment of prisons itself exacerbates health issues. Prisons act as "vulnerable spaces housing individuals who are at increased risk of chronic and infectious diseases" (Purdum et al.). In other words, carceral facilities can act as Petri dishes for communicable diseases, as there are health and safety impacts of overcrowding (Vance). One study found that the spatial density in prison cells was associated with infectious disease outcomes, such as pneumococcal disease, infectious dermatoses, and tuberculosis (Simpson et al.). This should be of concern considering Texas prisons' overcrowding (Tsolkas, 2015). Furthermore, researchers have noted that prison populations that have a high prevalence of chronic conditions and co-morbidities worsen the spread of infectious diseases such as COVID-19 (Abraham et al.), or, as it might be inferred for our purposes, *H. pylori* as well.

Failing, Inadequate Infrastructure

Failing infrastructure is another factor that exacerbates the availability of quality water in prisons. For example, the previously discussed Connecticut prison with H. pylori-tainted water allegedly had sewage contamination in the water after work on lines at the unit led sewage to seep into local groundwater and soil (Eaton-Robb). Similarly, in 2017, the water plant servicing SCI-Frackville in Pennsylvania failed, causing a water pump to go down and sediment to seep into the prison's water. Though prison officials claim that safety procedures were followed, a man incarcerated at the unit claimed the administration failed to notify incarcerated persons when their water system had been compromised and should have avoided drinking tap water, leaving them to suffer health consequences such as diarrhea, dizziness, vomiting, and sore throat (Arroyo).

In 2013, the Connally Unit in Texas experienced staffing shortages and a lack of water, initially speculated to be due to droughts but was reportedly caused by the city's water well malfunctioning (Neff and Blakinger; Stroh et al.). The unit was shut down, with people reporting being confined to their cells in over 100- degree heat with limited access to water

In 2023, the Connally Unit in Texas experienced staffing shortages and a lack of water, initially speculated to be due to droughts but was reportedly caused by the city's water well malfunctioning (Neff and Blakinger; Stroh et al.) The unit was shut down, with people reporting being confined to their cells

in over 100-degree heat with limited access to water (Stroh et al.). Such prisons that get their water from wells are of a unique concern. Droughts (to be further discussed in the subsequent section) will affect wells that get their water from groundwater sources such as aquifers (Moreland). Wastewater spills can contaminate local wells, as illustrated recently in Houston, Texas, at a wastewater treatment center in which a holding tank infrastructure failure caused sludge to seep into nearby private wells (Phillips). Special attention must be given to units that have their own welled water sources.

Further examples of failing infrastructure affecting quality water availability have been documented in prisons across the US. The William Hobby women's unit in Texas has seen multiple cases of water contamination, from city treatment malfunctions and corroded pipes (Kadlubar). In the early 2000s, water from the unit was rationed to 18 ounces (about 532.32 ml) total a day (Price). In 2017, incarcerated individuals at Eastham unit (now Wainwright) documented water shut-offs due to a burst pipe, lasting over 4 days, that affected both their ability to shower, flush toilets, and have access to sufficient drinking water (Washington, 2017). This issue of water shortages from poor plumbing is a trend in Texas prisons, as further exemplified by the Smith unit and the century-old Darrington unit in 2020 (Neff and Blakinger). In 2020 at Smith Unit, a burst in a water pipeline caused the unit to shut off their water; when it was turned back on, sewage pipes burst and flooded the cells (Neff and Blakinger). That same year, continuous water outages at the Darrington unit were unaccompanied by any indication of when the water was safe to drink (Neff and Blakinger).

In 2021, a Nebraska prison lost access to running water for a couple of days due to a plumbing issue (Schulte). While emergencies happen, one might wonder if the current state of infrastructure in many prisons is adequate to service such a large population, especially considering the sheer age of some prisons. For instance, the San Quentin Prison in California, which finished completion in 1854 (Tikkanen), has been deemed by many to be unfit (Fimrite and Maggiora). Accordingly, in 2023, a failed water pipe left the unit without drinking water or toilets for several days (Halstead). These examples call into question whether some US carceral facilities lack the infrastructure to safely house individuals and fulfill their rights to adequate water.

Climate Change and Natural Disasters

Extreme Temperatures and Drought

Issues of human rights abuses and environmental injustice are predicted to worsen with climate change across the US and especially in Texas (EPA, 2016; Vance). Accordingly, the availability of quality water is also affected by conditions of climate change such as droughts, floods, extreme heat, and heavy rainstorms (EPA, 2016; Vance). In states like California, many prisons are in the desert and thus strain the local water supply with the immense amount of water their large population requires (Shen), making droughts even more menacing.

> ***"...[B]etween 2001 and 2019, an estimated 271 incarcerated Texans may have died from extreme heat..."***

Extreme heat from climate change is another exacerbating condition that, combined with contaminated water, becomes extremely dangerous (Austin). In 2017, incarcerated persons at the Eastham (Wainwright) unit in Texas suffered from a 4-day water shut-off that limited their drinking water access during days with heat indices between 110 and 130 degrees (Washington, 2017). At the Price Daniel Unit, one incarcerated Texan wrote about not receiving sufficient water frequently enough in weather up to 140 degrees (Hernandez); the executive director of TDCJ Bryan Collier himself admitted during a hearing that incarcerated Texans are "not necessarily consistently" getting access to water (Salhotra).

Lack of water plus extreme heat is a **deadly combination**, with at least 20+ confirmed heat-related deaths occurring between 1998 and 2017 in Texas prisons (Bernd) and 10 happening in 2011 alone (Vance). It should be noted these are undercounts excluding deaths contributed by heat and other factors (Vance). As purported by another study, the true mortality rates may be higher; between 2001 and 2019, an estimated 271 incarcerated Texans may have died from extreme heat judging by researchers' associations between counts of morality, extreme heat, and the availability of AC in units (Skarha et al.). It is difficult to corroborate these numbers as Texas has not reported a heat-related death in 12 years, though Collier stated in court temperatures had "contributed" to several incarcerated people's deaths, marking the distinction between heat as a primary cause of death or contributing factor (Salhotra).

Regardless of the extent of fatal heat, such conditions have prompted the Human Rights Clinic at the University of Texas (2014) to call the "deadly temperature and humidity levels" a violation of incarcerated individuals' "human and constitutional rights." Researchers have concluded that heat-related deaths in Texas prisons are associated with units with no air conditioning, prompting calls for adopting AC policies in Texas prisons (Skarha et al.). Currently, only about 30% of Texas prisons are fully air-conditioned (Lozano); another study looking at a different unit of analysis claims 66% of Texas prison beds are not in areas with air conditioning. The combination of contaminated water and heat can be potentially lethal (Vance). For instance, men incarcerated at the Wallace Pack Unit, which was found to have dangerously elevated levels of arsenic (Austin; Equal Justice Initiative; Gilna; Banks), had to choose between suffering from a heat-related illness or the side effects of arsenic exposure (Austin). Such instances, though representing extreme cases, are nonetheless concerning given the droughts facing states in the south and southwest such as Texas are compounded by increasingly hot summers. In addition to extreme heat, extreme cold is another type of disaster caused by climate change that can exacerbate water issues (Blakinger), especially in the northern US. According to one reporter, the 2021 freeze in Texas led 20 units to experience either partial or total water shortages, leaving many incarcerated persons with no option to stay warm or ensure adequate drinking water (Blakinger). Conditions were only exacerbated further by staff shortages (e.g., insufficient quantity and quality of food), leaving those incarcerated without the help needed during the crisis (Blakinger).

Hurricanes

When natural disasters such as hurricanes occur, incarcerated people are not given the option to evacuate and are thus often left vulnerable to flooding, power outages, and a decrease in quantity and/or quality of water due to city and/or prison water contamination (ACLU 2016; Baptiste et al.; Roudebush; Wang). The ACLU (2006) reported insufficient drinking water and contaminated floodwater during Hurricane Katrina in 2005 which affected men, women, and children alike (Roudebush). Some incarcerated people, when left without water, "resorted to drinking the contaminated floodwater, or water that was backed up in the toilets" (ACLU 2016).

Similarly, incarcerated people in Galveston County during Hurricane Ike in 2009 suffered limited access to food, medication, and water (Kozlowska; Roudebush). Hurricane Harvey caused disaster in Beaumont;

reports from the Federal Correctional Complex included 8 ounces (about 236.59 ml) of water per day, flooding in the facility, and using the restroom in their sack lunch bags to preserve the toilet water for drinking (Democracy Now). Similarly, some of the 3,000 incarcerated at the Stiles Unit in Beaumont, Texas, during Hurricane Harvey in 2017 were stuck in their cells while the city disabled its water supply (Feltz). Those incarcerated reported flooding by potentially contaminated water[3] and extremely inadequate and limited water supply; though different incarcerated people reported confirmed one another, allegations were denied by TDCJ (Baptiste et al.; Caballero et al.; Neff and Blakinger; Vance).

As in Katrina, some incarcerated individuals had to resort to drinking toilet water, which killed 2 men, though such accounts are denied by TDCJ (Feltz, Vance). When the town of Beaumont received an 8-day boil notice (Baptiste et al.), many of the folks we were corresponding with at the Stiles Unit did not know they should and/or were unable to boil their water, a common theme reported by other writers, advocates, and incarcerated (Bernd; Neff and Blakinger). However, incarcerated persons accounts are often not received by the public as prison officials and media alike tend to report what we believe to be a rosier view of what transpires during disasters (Roudebush; Rosenblatt). Disaster readiness for incarcerated Texans such as for mass evacuations and contingency plans have not improved with subsequent disasters and are still lacking (Vance). In these ways, incarcerated people have historically and continue to be vulnerable to a lack of clean water during and not during times of crises.

Gaps in the Literature

Given what has been published on the topic, there is a current gap in both scholarly, media, and activist attention toward environmental issues in Texas prisons, particularly in matters of water quality. Despite many local and national news sources on water contamination in US prisons, scholarly work on the topic, especially in Texas, remains limited. This report seeks to fill that gap by providing a comprehensive look at water contamination in Texas prisons and an objective presentation of readily available data. Though advocates have asserted that Texas prisons' water contains high coliform and levels of some metals (Vance) and TDCJ as an agency has received many fines related to toxic water as well as requested monies from legislators for the installation of water treatment measures, we seek to confirm the accounts from those impacted as well as quantify the need for immediate change. As some advocates allege the Texas legislature does not grant adequate attention to prison infrastructure (Blakinger), it is our goal to illuminate current issues so they cannot be ignored any longer but rather addressed immediately. This report will explore the 2 major categories of contamination in Texas prisons, both metallic/mineral and bacterial.

Methods

This report seeks to address the nature of water contamination in Texas prisons, utilizing data from several sources. One data source included a survey of loved ones of incarcerated Texans. The online survey was sent out by Texas Prison Community Advocates (TPCA) members on the research team in early July 2024, with preliminary data analyses occurring at the beginning of September.

Questions gathered information related to units visited by the incarcerated person, and their observations on the frequency of water contamination markers, though the recall period was not specified (i.e.,

[3] This is something that also occurred at the Smith Unit in West Texas as a result of a burst water pipeline and the Telford Unit in Texarkana- illustrating this issue exists outside of disasters alone (Neff and Blakinger).

observations may fall outside our 2019-2023 period). Additionally, questions probed about complaints made in the past and related medical concerns, diagnoses, and grievances surrounding water contamination.

We utilized the TCEQ's "Water System Search" database[4] to find water test records for TDCJ's various units and locations over a 5-year period (i.e., 2019-2023).[5] According to the SDWA, sites that treat their water (e.g., soften tap, treat well water) must provide water test results.

Violations against the location stemming from lab-tested water samples, system susceptibility, TCR, non-TCR, and PBCU results were analyzed in all locations that included "TDCJ" in the name between 01/01/2019 to 12/31/2023. Water samples appear to have been conducted monthly. Sample locations were provided but varied by location, though most appeared to be located outside of the unit walls (e.g., testing wells on the perimeter), sometimes appeared to be located inside the unit (e.g., bathrooms, kitchens) and sometimes in other facilities on unit (e.g., farm shops). System susceptibility summaries outside of this period were analyzed for further context (included in Appendix A). Data was collected so that the researchers input either positive results (e.g., the presence of coliform), negative results (e.g., the absence of coliform), or no results (e.g., no coliform results, either positive or negative).

Of the 43 TDCJ sampled locations, 24 were inactive[6] and 3 were proposed and were thus excluded from analysis. We also analyzed data from the Texas Open Data Portal focusing on correctional facilities through the following query: "Business Type" contains "CORRECTIONAL" AND "Media" contains "WATER." In the TCEQ Notices of Violation[7] from the Texas Open Data Portal, the following query was performed: "Business Type" contains "CORRECTION INSTITUTION" OR "CORRECTIONAL INSTITUTION."

Lastly, we analyzed letters that had been sent to TPCA from incarcerated Texans between 2019 and 2023. Some people sent in letters spontaneously, while others responded to a heat survey that contained some questions on the quality and quantity of water provided, as well as a survey on COVID-19 in prison in collaboration with the Campaign to Fight Toxic Prisons, and a general issues survey for participants to rank the importance of different issues in prison. These letters were tagged by different concepts in Google Pinpoint. Letters that were tagged for contamination and water were reviewed and pulled to provide verbatim quotes for this report.

No formal hypothesis testing was conducted as part of this study for several reasons. First, the amount of data was limited to a small number of sampled locations; therefore, sample size poses an issue in a test for difference's ability to detect assumed differences. Second, in the event TDCJ prisons were seen to have the same level of contamination as other registered systems in the state, it must be kept in mind that incarcerated people have significantly less autonomy to accommodate themselves (e.g., to work for compensation to purchase water, install filters, etc.).

---

[4]https://dww2.tceq.texas.gov/DWW/JSP/SearchDispatch?number=&name=&ActivityStatusCD=All&county=All&WaterSystemType=All&SourceWaterType=All&SampleType=null&begin_date=10%2F23%2F2021&end_date=10%2F23%2F2023&action=Search+For+Water+Systems

[5] Sampled locations also included different points of sampling within each unit (e.g., back gate, front gate, kitchen, etc.).

[6] There may be a few different reasons for inactive TDCJ sampled locations. For one, some units may have transferred to city water systems. For instance, according to Public Utility Commission of Texas data, it appears Stiles Unit is now on Beaumont's city water system, and Wynne, Estelle, and Goree are all on Huntsville water system. On the other hand, units like TDCJ Bartlett may have closed during the time frame of analysis (though Bartlett is set to reopen [Bell and Delcid]).

[7] https://data.texas.gov/dataset/Texas-Commission-on-Environmental-Quality-Notices-/mwzi- gyw7/data_preview

Results

Metal and other Mineral Contamination

Lead and Copper

> ***All 6 locations with samples exceeding action levels for lead and/or copper utilized groundwater sources, specifically from wells. Four of these locations (i.e., Ramsey, Memorial, Jester III, Ferguson) were constructed before 1986, when the SDWA prohibited the use of lead plumbing fixtures.***

Lead and copper summaries were analyzed for action level exceedance. An action level refers to the point at which a given contaminant (i.e., lead, copper) is so concentrated in a water source that if it is elevated any higher, it indicates the need to treat the water and abide by other requirements set by regulatory agencies (e.g., the EPA under the SDWA), Of the 16 active sampled locations (full list in Appendix B**), 6 locations had PBCU results exceeding action levels** during the given period, 5 had data present for PBCU summaries but showed no violations of action levels, and 5 had no results. To put things into perspective, the 6 units with lead present service an estimated total of 14,806 incarcerated people (TDCJ High Value Dataset), thus putting many people at potential risk through contamination.

It is worth noting that some inactive locations showed past exceedances. For instance, the water system for TDCJ Estelle, now inactive, had many non-TCR sample results exceeding action levels in the past (5 copper and 11 lead) when last tested in 2013. TDCJ Wynne had 1 lead sample exceeding the action level when last tested in 2008. The average (standard deviation) number of samples exceeding action levels for lead amongst the 6 locations was 2.17 (1.47) and ranged from 1 to 5 between 2018 and 2023. All 6 locations with samples exceeding action levels for lead and/or copper utilized groundwater water sources, specifically from wells. Four of these locations (i.e., Ramsey, Memorial, Jester III, Ferguson) were constructed before 1986 when the SDWA prohibited the presence of lead plumbing fixtures. It is worth noting that the String fellow unit in the Ramsey area and the Memorial unit are both over 100 years old.

Table 1. Number of Lead and Copper (PBCU) Samples Exceeding Action Level (2019-2023)

Sampled Location	Primary Active Water Source	Lead Exceedance	Copper Exceedance
Chase Field*	Groundwater	5	0
Ramsey Area**	Groundwater	2	0
Memorial	Groundwater	1	0
Jester III	Groundwater	2	0
Baten & Jordan	Groundwater	1	0
Ferguson	Groundwater	2	1
Average (SD)	NA	2.17 (1.47)	0.17 (0.41)

Abbreviations: SD: Standard deviation

*A former naval air station in Beeville, the Chase Field Criminal Justice Complex colloquially refers to the area in Beeville that is the site of the Garza East and Garza West, a TDCJ Region IV office, and the Chase Field Work Camp. Given that the sampled location services over 5,000 people, it is likely this location includes all TDCJ- affiliated properties.
**The Ramsey Area includes the Ramsey, Stringfellow, and Terrell units.

Other Metals (e.g., Arsenic) and Minerals

Non-TCR Sample Results

Non-TCR sample results include analytes other than total coliform bacteria results. Only trace amounts of metals and other mineral analytes were detected in the TCEQ database. Of the 16 active sampled locations provided by the TCEQ database, 2 had no results, and 14 sampled locations had trace amounts of one or more analytes. Analytes included barium, chromium, fluoride, nickel, a chemical herbicide called atrazine, arsenic, and selenium. Out of those 14 sampled locations with non-TCR positive results between 2018-2023, the average (standard deviation) number of positive results was 4 (2.29), ranging from 1 to 7.

Fluoride and barium were the two most common analytes across water samples. Small levels of fluoride are not believed to be dangerous. Although the levels of barium in food and water are not high enough to be a health concern, research is still being conducted to evaluate whether exposure to low levels of barium can cause health issues (Agency for Toxic Substances and Disease Registry).

> ***Clemens had an atrazine level of 0.14 µg/L, which exceeded the Environmental Working Group (EWG) limit of 0.1 µg/L... Chase Field had a quantity of arsenic (0.0061 mg/L) which when rounded to the nearest hundredth, meets the EPA limit of 0.01 mg/L.***

Very few of the results were flagged as exceeding the limit of the acceptable amount; however, Clemens had an atrazine level of 0.14 µg/L, which exceeded the Environmental Working Group (EWG) limit of 0.1 µg/L. Atrazine can be introduced to ground or surface water sources located downstream from fields of crops treated with atrazine; the effects of atrazine exposure can range from heart congestion to cancer to reproductive issues (Pathak and Dikshit). Elevated levels of arsenic were not found in sampled locations with available results; however, trace amounts of arsenic were found in 4 sampled locations, including Chase Field, Memorial, Jester, Baten, and Jordan. Chase Field had a quantity of arsenic (.0061 mg/L) which when rounded to the nearest hundredth, meets the EPA limit of 0.01 mg/L. In other words, Chase Field's sample was just .0039 mg/L below the limit for arsenic. It is worth noting that the Wainwright and Clemens units, both represented in this section, are over 100 years old.

Table 2. Number of Non-TCR Positive Sample Results (2019-2023)

Sampled Location	Primary Active Water Source	Non-TCR Positive Results
Coffield & Michael*	Groundwater	7
Beto	Groundwater	6
Chase Field	Groundwater	5
Hauler R-IV Facilities** Maintenance	Groundwater purchased	1
Clemens***	Surface water purchased	4
Ramsey Area	Groundwater	8
Memorial	Groundwater	3
Buffalo Ranch Prison Farm****	Groundwater	1
Jester III	Groundwater	7
Baten & Jordan	Groundwater	4
Luther*****	Groundwater	2
Pack	Groundwater	3
Wainwright	Groundwater	3
Ferguson	Groundwater	2
Average (SD)	NA	4 (2.29)

Abbreviations: SD: Standard deviation

*Coffield and Michael units are 2 separate and adjacent units that share a water supply.

**TDCJ owns and operates water hauler facilities, or, in other words, drinking water providers that disseminate water by trailer or tank truck. As a public water system, they are regulated by TCEQ and must adhere to the SDWA, groundwater rule, and revised total coliform rule while keeping requirements on record keeping, compliance sampling, etc. (TCEQ Water Supply Division)

***This location is labeled Clemens 2. The site for TDCJ Clemens shows an inactive water system, so it is our best assumption that Clemens 2 was the newly created profile TCEQ made for the Clemens unit. This location is hereafter referred to as the Clemens unit.

****Incarcerated Persons from the Wallace Pack Unit are bused to the Buffalo Ranch Prison Farm to work daily. The farm is used for crop production and contains a single oil well.

*****This location is labeled Luther units (plural), which refers to the trusty camp associated with Luther unit.

Survey and Letter Responses

Preliminary results from a 2024 **survey of family members or friends** of an incarcerated loved one (N=6) and one formerly incarcerated person (N=1) who had been incarcerated for 2 years or longer demonstrated some support for TCEQ results. Surveys mentioned an array of units, with Stringfellow, Beto, and Garza West mentioned twice. Participants reported conditions for their loved ones that could potentially be related to mineral contamination. Of note, most respondents answered the water was **"often" cloudy/murky/unclear, with only one loved one answering "rarely" and another answering "always."** Only one respondent indicated there was "never" sediment in the water (e.g., black flecks of sediment). No one indicated there was "never" a brown or orange tint to their water, a greasy or oily film, or a smell of chemicals like chlorine (how a swimming pool smells). Only a couple respondents indicated the water "never" smelled of sulfur (how rotten eggs smell), with the rest indicating its presence to some degree. Only a single respondent answered their loved one had access to clean drinking water at times when the water quality was poor - notably, the one incarcerated respondent answered no.

In terms of **letter responses**, a handful of incarcerated Texans wrote to TPCA alleging that there was arsenic and lead in their unit's water. One shared that the "sink water is hot" and that the "water is contaminated with heavy metals, dirt, and excessive amounts of arsenic" (Eastham Unit, August 2019).[8] Another person shared that the water is just a few steps away in the mop closet. However, it is hot and laced with arsenic. The S.S.I. must pass it out when we are locked down "(Connally Unit, July 2022). Kenedy, Texas, from which Connally Unit is likely to get its water, has been proven to have trace amounts of arsenic (.0042 mg/L) below the EPA's maximum contaminant level (MCL) (.01 mg/L) as of 2024 (TCEQ Water System Search).

An incarcerated individual at the McConnell Unit in Beeville, Texas, about 30 minutes from Connally Unit in Kenedy, shared the following: "*Around Kennedy Texas and parts of Beeville, you will see poisonous pools of water with warning signs cautioning the water is either heavily contaminated with* ***arsenic or cyanide*** *another poison.* ***Uranium mining*** *was a regular practice during the Cold War."* (McConnell Unit, December 2019). Indeed, uranium mining was conducted in the counties Connally and McConnell are housed in, Karnes County and Bee County, respectively (Texas Groundwater Protection Committee). This same person went on to explain his observations on Pack Unit, mentioned before its arsenic-related lawsuit. He shared the following:

"[*T]his old 76-year-old person who came from [P]ack had bumps on his skin. That is a sign of unpure, contaminated water. Thus, all the money they used for purifying water to drink is still not clean. A failure when there was a cheaper method of obtaining water. hooking up with the county water line. But that would include having someone monitoring you. TDCJ hates overseers. But just like they tell the Offenders. If you are not doing anything wrong, being overseen should not be a problem. Hypocrites."* (McConnel Unit, December 2019)

> ***"The situation with our drinking water on this unit is terrible. Sometimes the water is so brown you can't see the bottom of your cup" (Hobby Unit, January 2023).***

Some spoke of poor water quality in ways that might suggest contamination by metals such as iron and lead. Many referenced physically brown water. Someone wrote that *"water in [the] cell [is] brown and lukewarm"* (Goree Unit, October 2021). A few spoke of **particles in their water**. One shared, "*The water is contaminated with rust and other particles. Smells bad!"* (Beto Unit, September 2022). One woman echoed, *"The situation with our drinking water on this unit is terrible. Sometimes the water is so brown you cannot see the bottom of your cup"* (Hobby Unit, January 2023). One incarcerated man at Wallace Pack described *"small white crystal-like particles"* he had been told might be "calcium crystals" from the water out of the sink. He went on to note that "*[t]here is a new filtration system installed on this unit, but it's not working properly"* (May 2022). Another person shared, "*The water at Darrington was a major issue. The water was brackish. It tasted weird, very weird. If the water were*

[8] Quotes are verbatim except for some uppercase words have been corrected to lowercase for readability, at times extra apostrophes were removed, and words were corrected for spelling.

placed into a hot pot that did not boil, it would separate into 3 layers, a bottom-heavy opaque layer, an upper clear but bubbly layer and at the very top in the center would be an oily slimy center layer" (August 2022).

Several individuals echoed the notion that their unit's water had, either intermittently or commonly, a **foul taste (e.g., like dirt)** or a **foul smell (e.g., like feces, mold, toilet water)**. One incarcerated person at Michael Unit noted the water has ***"the taste of a strong metallic flavor"*** (August 2019). One individual incarcerated at Terrell shared "*The water here* ***stinks like fish and it is not properly treated*** *I am an X water plant operator. And know it is not filtered right or properly processed. We are forced to drink contaminated water"* (June 2019). Excessive barium in water can produce a fishy smell (Torrent Laboratory Inc.). Sure enough, Terrell's water source (Ramsey Area) contained trace amounts of barium as recently as 2023 (.424 mg/L).

Many incarcerated Texans alleged that the water issues traced back to **plumbing**. One person wrote that "*[t]he water has a lot of toxicity elements brown water coming from pipes"* (Carol Vance, June 2022). Others shared their observations:

"*[W]ater in my cell is unsafe to drink after coming through this piping from the water tower to wing. I have step 1&2 [grievance] asking for water to be tested in my cell. No final ruling, in my cell I can put a cloth under a dripping faucet and in a few hours, it has a rust spot."* (Ramsey Unit, July 2022)

"*I must secure an eight-layered filter [of cloth] over the spigot in the cell sink that; within 6 days, turns orange from ox oxidization of the iron water supply pipes -- due to the chlorination of the well water supply pumped into the water tower…." (Stringfellow Unit, April 2022)*

"The water tasted like pennies soaking in it. The pipes are 30 years old, so we may be exposed to lead poisoning." (Michaels Unit, August 2019)

A few incarcerated people spoke of contaminated water about **boil water notic**es (or lack thereof). One woman located at Hobby in September of 2021 shared how there were no visible signs of water contamination or an infestation of coolers but was still given boil water notices. Another woman at the Gatesville unit in 2022 explained that whenever a water line break occurs, they "*don't get boil water notices not that we can boil water"* (Mountainview Unit, December 2022). Two incarcerated people at different units shared similar reports: "*The faucet water is cloudy, the entire piping system up to the cells are dilapidated, no notice of boiling water is given, which is useless, hot pots do not boil"* (Ramsey Unit, June 2021). "*The[y] never clean the water cooler, the water here on this unit is contaminated they tell us to boil water before drinking it, but we have no way to boil water"* (Michael Unit, January 2019).

Summary and Examining Results in Context

Several of the sampled locations above are represented in system susceptibility summaries published by TCEQ (see Appendix A) with ratings of high susceptibility of metals and/or minerals (i.e., Coffield and Michael, Chase Field, Clemens, Ramsey Area, Memorial, Buffalo Ranch Prison Farm, Baten and Jordan, Pack, Wainwright, and Ferguson). Although such summaries were published before the period analyzed in this report (i.e., 2019-2023), they align with what is revealed from recently published reports. Written accounts from incarcerated persons illustrated concerns about corrosive pipes. Around 2016, incarcerated persons at Wainwright filed a federal complaint to the Eastern District of Texas, modeled after the Pack Unit lawsuit, alleging that they are drinking water tainted with lead and copper from the prison's decaying and corroded service lines, causing stomach disease for some (Bernd). One advocate alleges that TCEQ has notified neighboring residents of copper and lead in the water system servicing the unit (Tsolkas, 2017). The Wainwright unit only had trace barium, chromium, and fluoride. However, test results indicate improvement with lead and copper within limits.

> ***Given that copper, lead, and other metals remain an issue in some TDCJ units, immediate solutions must be provided to allow incarcerated people to decontaminate their water, followed by long-term solutions guided by environmental justice.***

Although the SDWA was passed in the late 80s, some advocates allege that Texas refused to spend money to replace such pipes (Washington, 2018), reflecting letter responses detailing corrosive pipes, which is a claim to our knowledge that has yet to be refuted. Should TDCJ implement purification plans at its units, filtration alone would not address the issue of facilities with lead piping and fixtures. Metal contamination is something that will need to be combatted from the inside in. The Biden-Harris administration has spearheaded an initiative to replace toxic lead pipes across the country (The White House). Though a great step toward ensuring clean water for the country, people incarcerated in correctional facilities would not benefit from such initiatives. In sum, given that copper, lead, and other metals remain an issue in some TDCJ units, immediate solutions must be provided to allow incarcerated people to decontaminate their water, followed by long-term solutions guided by environmental justice.

Bacterial Contamination

TCR Sample Results

Total coliform rule (TCR) samples reveal the presence of total coliform bacteria and *E. coli*. Of the 16 active sampled locations, 10 had acceptable results while **6 locations revealed the presence of coliform**, and **one area** (i.e., Ramsey) showed ***E. coli*** as well.[9] Of the units with contaminated water samples over the 2018-2023 period (n=6), the average number of samples with coliform present ranged from 1 to 8, with an average (standard deviation) of 4.5 (2.43) contaminated samples. From 2019 to 2023, the total number of samples with coliform between the 6 locations with contaminated water samples rose; while there were no positive TCR samples in 2019, the largest total number of TCR samples across units occurred in 2023, demonstrating a **downward trend in water quality** (Figure 2). Furthermore, it is worth noting that all 6 units with positive coliform samples used a groundwater system, specifically from wells. In terms of the human impact of this contamination, an estimated 18,552 incarcerated people are currently serviced across these 6 units that contained coliform contamination during the time period.

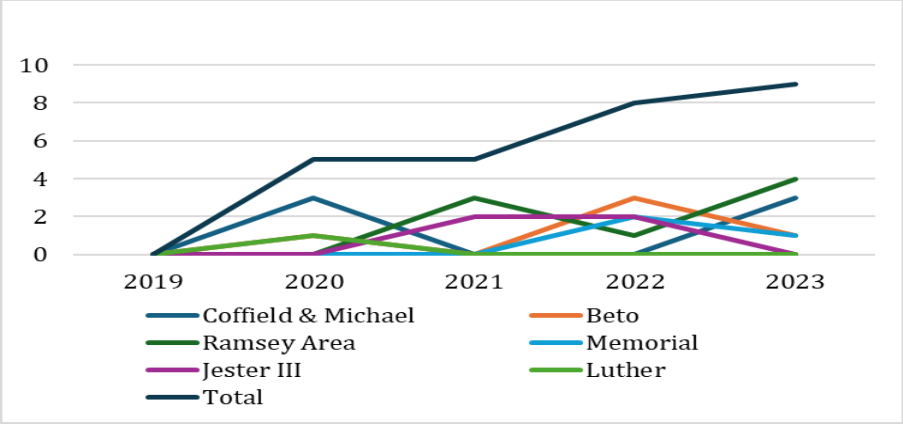
[9] Among these units was Water Hauler-R IV, which had acceptable results during the past 5 years but did show a positive coliform sample result from 2024. When brought up to a TCEQ employee, the individual asserted that E. Coli could have been present from the hands of the water sampler; however, repeat samples with E. Coli present may signal more of a structural, systemic issue.

Table 3. Number of TCR Sample Results (2019-2023)

Sampled Location	Primary Active Water Source	Coliform	E. coli
Coffield & Michael	Groundwater	6	0
Beto	Groundwater	5	0
Ramsey Area	Groundwater	8	4
Memorial	Groundwater	3	0
Jester III	Groundwater	4	0
Luther*	Groundwater	1	0
Average (SD)	NA	4.5 (2.43)	0.67 (1.63)

Abbreviations: SD: Standard deviation
*Luther unit has a 2024 coliform violation as well

Figure 2. Positive Coliform Samples in Contaminated Locations over Time (2019- 2023)



Survey and Letter Responses

As community advocates and researchers, we have had our attention called to the damaging effects of *H Pylori* infection, as well as the inadequate treatment offered (e.g., Pepto-Bismol and antibiotics [Bernd]) and the susceptibility incarcerated persons suffer toward contracting other illnesses such as COVID-19 (Shafer). For instance, over a dozen incarcerated persons at the Wainwright unit, formerly Eastham, have allegedly developed stomach problems from *H Pylori* in the water, though TDCJ denies testing or diagnosing for this bacterial contamination (Bernd; Washington, 2017). As ***H. pylori*** was not tested for in the TCEQ water results, survey questions were administered to assess such experiences. The limited survey results (N=7) did not uncover any cases of *H. pylori* because folks either indicated negatively or were unsure of their loved one's or own diagnosis.

However, when responding to symptoms from water contamination, all (6/6) **folks on the outside** who took the survey reported their loved ones had experienced **gastrointestinal issues** (e.g., frequent burping/gas, nausea, vomiting, diarrhea, bloating, or abdominal pains) after drinking the unit's water. The one incarcerated person who responded indicated flu-like symptoms which was also reported by 3 others on the outside. The one incarcerated person and 2 loved ones indicated neurological issues (e.g., dizziness, confusion, numbness). Two folks on the outside reported respiratory issues (e.g., coughing, difficulty

breathing), and a single loved one reported skin issues (e.g., rash or lesions). It is worth mentioning that some of these symptoms could be a result of bacterial or other contamination, or unrelated to water quality entirely. All but one respondent indicated seeking medical treatment while incarcerated. Two respondents in the free world reported that their loved one had been denied treatment.

> ***"We are drinking contaminated water (Toxic) and I'm proof of this; I now have H. Pylori from this drinking water & food... they killing us... I tested positive about 2 1/2 weeks ago. They are trying to cover up this H. Pylori..." (Coffield Unit, December 2019).***

Through letter responses, several incarcerated vocalized concerns about *H. pylori* in their unit. Interestingly, most complaints were alleged at **Coffield Unit**, followed by McConnell, Hobby, and Carole Vance. This is unsurprising as the Warden Coffield Unit and other agents have been sued over the alleged conditions of *H. pylori* (Garza v. Davis). As one individual shared, *"The Administration provides all residents here with water and ice every day, but the water has Helicobacter Pylori, and high levels of E.Coli Bacteria a thing that is harmful to our health"* (McConnell Unit, August 2019). Another person at McConnell stated, *"The water here is contaminated, some inmates getting sick with H-Pylori-bacterial disease. All officers do not drink the water, they bring their water or buy their water from the commissary" (*McConnell Unit, October 2021). Here, this person points out an important distinction between incarcerated persons and officers subjected to the same water quality—whereas officers have the autonomy to supplement with water from home, incarcerated people do not. One *H. pylori*-positive man shared his story: *"We are drinking contaminated water (Toxic), and I am proof of this; I* ***now have H Pylori from this drinking water*** *& food... they are killing us... H Pylori causes different cancers. I tested positive about 2 1/2 weeks ago. They are trying to cover up this H Pylori... people are finding out they have it, it is no cure for this"* (Coffield Unit, December 2019).

One incarcerated Texan at Hobby Unit wrote to TPCA in June 2022 also alleging the water source contained H-Pylori. She went on to describe a "*baby blue"* hue to the drinking water. While baby blue tinges can be caused by copper, it comes as no surprise the city of Marlin had **20 samples exceed action levels for copper** as of the last testing in 2021 (TCEQ Water System Search), thus highlighting an issue of prisons that get their water from substandard city systems. Although such claims of copper and *H. pylori* cannot be confirmed with TCEQ data, the water system search database does show Marlin having potentially unsafe levels of **cyanide** (.1 mg/L), at only half of the EPA's MCL, as recently as 2023. However, the Environmental Working Group has deemed that in 2021, Marlin was in serious violation of several federal drinking water standards (EWG Tap Water Database). Several citizens in Marlin have spoken out against what they claim are unsafe water conditions (Myers), though in the words of this citizen at Hobby, *"as incarcerated individuals are given the same water source we have* ***no voice****."* This instance shows that

without the proper tools, incarcerated folks' concerns may not always be scientifically precise, but they often point to underlying issues that are undeniable. While most bacterial complaints involved *H. pylori*, somebody at Carole Vance vocalized concerns about the unsanitary conditions around providing water at his unit in 2022 as well as the spread of hepatitis B amongst those incarcerated. He further alleges Pfiesteria as well as *H. pylori* in the water. Richmond, Texas, where Carole Vance is located, shows the presence of coliform as of 2024 (TCEQ Water System Search), which may suggest the presence of other contaminants.

Summary and Examining Results in Context

According to the TCEQ data, **half the locations with coliform** present (i.e., Coffield, Ramsey, and Memorial) contain **agribusiness on unit**, specifically swine finishing operations and cow/calf operations (Texas Department of Criminal Justice), thus causing vulnerability to water contamination.[10] In this way, the available TDCJ water test results demonstrate a concern that advocates and incarcerated Texans alike have been sharing for many years: bacterial contamination is of the utmost concern in TDCJ units that use groundwater systems and engage in industrial animal agriculture. It is also worth noting that several of the units (i.e., Coffield and Michael, Ramsey, Memorial, Luther) appear in system susceptibility summaries published by TCEQ (see Appendix A) rated as having a high susceptibility to drinking water contamination. Carceral accounts provided through letters to TPCA only provide further evidence of such potential contamination.

It is worth mentioning the over 90-year-old Memorial Unit (formerly Darington) (PrisonPro; Zuniga) contained coliform in its water during the timeframe analyzed (specifically, 2022 and 2023). This confirms the published accounts of people incarcerated at this unit who call upon advocates to ask the EPA to survey their water (Zuniga). The results may also provide evidence of incarcerated people's observations of elevated levels of fecal coliform at the water system that supplies Michael and Coffield Units (Bernd). While some accounts may be confirmed, the TCEQ Water System Search does not provide information for *H. pylori*, so allegations by incarcerated Texans cannot be confirmed.

In sum, TDCJ's water samples show coliform in water at a handful of units and *E Coli* at a specific location. Additionally, the survey responses from loved ones, though from a limited sample, illustrate a general trend of potential complications of water contamination such as gastrointestinal issues and seeking medical treatment. Letters and survey responses from incarcerated people illustrate water contamination and, in some instances, people becoming ill due to their unit's water.

[10] Many units engage in such industries; in fact, Clemens, Coffield, Ellis, Ferguson, Hilltop, Memorial, Pack, Ramsey, Wainwright, and Wynne units all engage in "swine finishing operation[s]," (Texas Department of Criminal Justice). Buffalo Ranch, Coffield, Ellis, Memorial, Pack, Ramsey, and Wainwright also engage in cow/calf operations (Texas Department of Criminal Justice). However, according to one TCEQ employee that the researchers spoke with, prisons must comply with rules as to how far their businesses must be from water sources.

Other Contamination Sources and Actions by Incarcerated Texans

> ***"98% cold water available, with sand and slime in the cans. Often causing lower bowel problems" (Unknown Unit, September 2021).***

Letters and surveys sent by incarcerated Texans uncovered allegations of additional contamination. Between 2019 and 2023, TPCA received 50+ responses (from surveys sent by TPCA and spontaneous accounts) detailing unclean and/or contaminated water coolers, including pest-infested coolers and ones handled in an unsanitary manner.

Firstly, the water itself is sourced in a potentially unclean manner. A few pointed out the cooler water comes straight from the mop closet faucet or from the showers without filtration. **Even more people commented on how the water coolers are not often cleaned and some noted pests such as bugs, rats, and maggots in the coolers.** The frequency of such pest contamination ranged, with some citing contamination sometimes, while some asserted it was more common: "The water has ants in it always" (Coffield Unit, August 2022). For some, unsanitary conditions had consequences. Per one individual, *"98% cold water was available, with sand and slime in the cans. Often causing lower bowel problems" (*Unknown Unit, September 2021).

Potential contamination was also detailed through staff and incarcerated persons servicing the water or ice in coolers with dirty hands, without gloves, et cetera:

"The cooler is placed in the doorway of the exit which is next to the shower. The ice bag broke & the ice went into the shower stall & all over the floor. The dorm boss [redacted] instructed the ice crew to "pick up the ice" of the prison shower floor & "put it in the cooler." (Crain Unit, August 2019)

"[We] fill our cooler with water at-will, they bring ice four, 5 times a day, often the ice machine can NOT keep up, so they freeze water in trash bags, ice bags are broken on the dirty floor and emptied." (Telford Unit, October 2022).

Table 4. Quotes Demonstrating Dirty and/or Contaminated Water Coolers

Issue	Quote
Pest-Infested Coolers	“I have found roaches, hair, and strange stuff floating in the coolers." (Alfred Hughes Unit, September 2020)
	“There have been paper towels frozen in the ice, with mosquitoes.” (Hutchins State Jail, August 2020)
	“[B]ugs/dirt inside coolers, spout covered in mold.” (Stiles Unit, July 2022)
Coolers Not Cleaned or Maintained	"The ice (igloo) coolers are not washed out, so a film of black mold grows in them - They just dump ice in there.” (Coffield Unit, July 2020)
	"The water containers have not been cleaned, sanitized, in the months since being set out. Not once." (Unknown Unit, July 2020)
	“[H]ave yet to see administration have water cooler sanitized.” (Holliday Unit, September 2021)
Coolers Contaminated by Staff or Incarcerated people	“The cooler is left uncleaned and serviced with dirty hands gloved in water.” (Powledge Unit, July 2022)
	“Our water cooler is usually dirty and handed by guards who do not change their gloves after handling garbage - then do cooler filling. (Gross).” (Carol Young Medical Facility, July 2020)
	“The method in the way the ice and water are placed in the coolers is very unsanitary, no gloves, and the plastic ice buckets are placed on the cans after each use. No hair nets/gloves, etc.” (Ramsey Unit, July 2020)

While not frequently described, a few incarcerated Texans reported water coolers or water sources being overtreated with chemicals. Someone attested to water coolers getting cleaned; however, they stated: *"Tastes like chemicals after coolers are cleaned, causes me diarrhea"* (Coffield Unit, August 2019). One man wrote to TPCA expressing he felt there were "[*a] lot of chemicals in water"* at Coffield Unit (July 2022). Another individual stated, *"The water is contaminated with bacteria and over-treated with* ***chemicals that hurt your stomach****"* (Michaels Unit, July 2022).

Someone from the McConnell Unit wrote the following:

"*I believe that it was back in January 2022, that the Beeville, Bee-Picayune Newspaper... published an article about that the city of Beeville treats its water system with a chemical that causes several distinct kinds of cancers and in some cases cause or affect the persons nervous system."* (McConnell Unit, March 2022)

Although city water systems servicing Texas prisons were not systematically analyzed, recent results do reveal treated water; as of September 2024, the city of Beeville’s water was found to have 502.000 µg/L of chlorite (TCEQ Water System Search). This level does not meet the EPA’s MCL (1000 µg/L). However, it is not even 200 µg/L shy of a level that has been linked to health complications in sensitive groups such as pregnant women (Righi et al). Additionally, the EWG has found the city of Beeville to be in serious violation of federal standards for drinking water (EWG Tap Water Database). In 2022, Beeville made local news for its water supply containing exceeding values of the chemical trihalomethanes (THMs) that can increase one's risk of developing cancer (Salinas). According to TCEQ Water System Search in 2022, Beeville had coliform present in its water along with trace levels of analytes (e.g., **cyanide** and **arsenic**). Such accounts demonstrate how incarcerated people often must rely on secondhand information to stay informed on water quality.

It is worth noting that a few incarcerated people have written to TPCA and the researchers about acting against their water conditions. For example, some who wrote to TPCA indicated they had filed grievances

over toxic water. However, several incarcerated Texans reported either fearing or experiencing retaliation for writing grievances on the various negative conditions they encountered in prison. One person shared his experience at Coffield, including it being *"short of staff"* and having "[p]oor water conditions, low chlorine, often dirty, no ice during the hottest part of the day." He went on to indicate he was not in the grievance process: "No grievance filed for **fear of retaliation**" (July 2022). Another echoed, *"Grievances do not work! They are a waste of time & make you a target"* (Terrell Unit, February 2021).

A few incarcerated people elaborated on why the grievance process, regardless of topic addressed, feels like a waste to them: *"The Alfred P Hughes Unit Grievance Department does not investigate grievances correctly; they send them back and every grievance step 1 takes more than 60 days (about 2 months) to answer"* (January 2022). Another shared that while housed in segregation at Beto, the grievance personnel never picked up grievances. For some, the ramifications seemed serious. One woman who filed complaints about her treatment explained, *"I am being menaced harassed, and threatened and being exploited because I DO grievances*" (Mountain View Unit, July 2022). Another shared that retaliation often looks like *"moving us to a violent unit or moving us to seg... [s]o at this point there usually a timidness to file any grievances"* (Coffield, July 2022). In sum, even in the face of potential contamination, incarcerated Texans are left with little information on these conditions or avenues for effectively advocating for change. The lack of justice and autonomy offered to citizens behind bars warrants further action and interference by local groups, governments, and agencies.

Notices of Violation and Enforcement

Notices of Violation

Two sources of data on notices of violation were analyzed: 1) violations from the aforementioned TCEQ Water System Search and 2) violations from the Texas Data Portal. Violations from the Water System Search come from observations and tests by local labs that submit water samples which TCEQ then publishes and, when need be, issue violations. In other words, these violations are based on more routine lab samples surrounding testing procedures and the presence of analytes (e.g., lead and copper exceedances) and other contaminates for which TCEQ issues violations. On the other hand, the Texas Data Portal violations come from data entered by TCEQ inspectors themselves (as opposed to local labs) when they visit a site, either due to a regular investigation or from a complaint. This may include site-specific issues such as storage or siphoning issues.

Water System Search

According to the TCEQ Water System Search, of the 16 active locations, **15 locations had received notes of violations** between 2019 and 2023. A single unit (i.e., Buffalo Ranch Prison Farm) had test results but no violations, indicating acceptable conditions. Therefore, the majority of active TDCJ water systems were in violation of TCEQ standards during the timeframe analyzed. It is worth once again noting that most of these units relied on groundwater systems such as wells. However, Clemens used surface water, and the unit had more violations than any other often due to violations in reporting and monitoring.

Figure 3. Percent of Active Units with Violations (2019-2023 TCEQ)

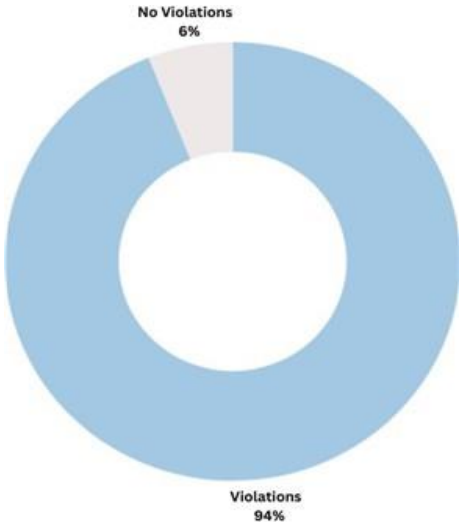


Table 5. Notices of Violation by Sampled Location (2019-2023)

Sampled Location	Primary Active Water Source	Number of Violations
Coffield & Michael*	Groundwater	6
Beto*	Groundwater	4
Chase Field*	Grou$_1$ndwater	15
Hauler- R IV Facilities Maintenance	Groundwater purchased	13
Clemens*	Surface water purchased	37
Ramsey Area	Groundwater	7
Memorial	Groundwater	9
Hauler RIII	Groundwater purchased	13
Jester III *	Groundwater	8
Baten & Jordan*	Groundwater	1
Luther**	Groundwater	6
Pack*	Groundwater	7
Wainwright[11]	Groundwater	2
Ferguson	Groundwater	7
Water Hauler R1 Facilities Maintenance	Surface water purchased	5

*The sampled location had one open violation at time of data collection

**The sample location had 2 open violations at time of data collection. Chase Field refers to the Chase Field Industrial Complex in Beeville, Texas containing Chase Field Work Camp, Garza West, the Bachelor Office Quarters for correctional officers, etc.

The most common violations were classified as 3A (appearing 48 times) and 75 (appearing 35 times). 3A pertains to the fact that, during a given compliance period, the system **failed to collect** every required **coliform sample** from the unit and therefore the quality of the drinking water at that time is not certain.

[11] Inmates at the Wainwright Unit, formerly Eastham, have documented several water issues. Prior to our timeframe of analysis, between 2003 and 2017, the unit received more notices of violation than any other state prison- a total of 235 to be exact (Bernd). Wainwright is one of the oldest prisons in Texas, operating since 1917 (Bernd; Tsolkas, 2017; Washington, 2017).

Violation 75 involves a public notice, requiring the public to be notified, often due to violations that could impact public health or the environment.

Table 6. Violation Frequency by Sampled Location (2019-2023)

Violation Type Code	Violation Name	No. of Violation Appearances
2	MCL, AVERAGE	3
2A	LEVEL 1 ASSESS, MULTIPLE TC POS (RTCR)	1
3A	MONITORING, ROUTINE, MINOR (RTCR)	48
27	MONITORING, ROUTINE (DBP), MAJOR	16
34	MONITOR GWR TRIGGERED/ADDITIONAL, MINOR	4
45	FAILURE ADDRESS DEFICIENCY (GWR)	1
51	INITIAL TAP SAMPLING (LCR)	1
52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	7
53	WATER QUALITY PARAMETER M/R (LCR)	8
57	OCCT/SOWT RECOMMENDATION/STUDY (LCR)	2
66	LEAD CONSUMER NOTICE (LCR)	7
71	CCR REPORT	1
75	PUBLIC NOTICE RULE LINKED TO VIOLATION	35
T6	FAILURE TO ADOPT/SUBMIT EPP FOR APPROVAL	6

Abbreviations: DBP: Disinfection by-products; EPP; Emergency Preparedness Plan; GWR: Groundwater Rule; LCR: Lead & Copper Rule; MCL: Maximum Contaminant Level; No: Number; OCCT/SOWT: Optimal Corrosion Control Treatment/ Safe Water Optimization Tool; RTCR: Revised Total Coliform Rule

Texas Data Portal

According to the Texas Data Portal, only 5 units with available data during the 2019-2023 period **received notices of violation**. Coffield unit received 6 violations, Beto unit received 5 violations, Jester III had 3, Estelle received 2, and Buffalo Ranch had just one.

> ***The notices of violation cover a few of the following issues: unauthorized discharge of sewage and waste into or adjacent to a body of water... clear wells and drinking water storage tanks not being tightened properly to avoid leakage... maintenance violations that allow for the possibility of rodents and other disease vectors to contaminate the water...***

The notices of violation cover a few of the following issues: unauthorized discharge of sewage and waste into or adjacent to a body of water in the state of Texas (26.121(a)(1)), clear wells and drinking water storage tanks not being tightened properly to avoid leakage (290.43(c)(6)), and maintenance violations that allow for the possibility of rodents and other disease vectors to contaminate the water (290.46(m)).

Additional violations of note involved backflow (i.e., contaminated water flowing in the wrong direction and polluting a clean water line), where water connection from a public drinking water supply exists in an establishment where "an actual or potential contamination hazard exists" without protecting the water facilities from contamination (290.44(h)(1)). Some violations involved testing equipment, such as the requirement of accurate testing measures to monitor chemical treatment or pathogen inactivation/removal (290.46(s)(1)). Looking at notices of violation over the past decade, there is a recognizable trend in notices of such violation involving issues from backflow, waste discharge, maintenance, treatment triggers and assessment requirements, monitoring, and reporting, and providing adequate and safe water supply (Appendix C).

Category B violations, though less severe than Category A, require a Notice of Violation at first occurrence, which may include minor noncompliance issues. However, enforcement is triggered when violations are not corrected by a specific date. The Category B violations issued against TDCJ spanned those based on general provisions (290.39), water distribution (290.44), unauthorized discharge (26.121), and standard permit conditions (305.125) (Appendix C).

Category C violations represent the lowest degree of severity in noncompliance, whereas 3 Category C violations in a 5-year period result in automatic enforcement. The Category C violations spanned those based on standard permit conditions (305.125), water storage (290.43), and **minimum acceptable operating practices** for public drinking water systems (290.46) (Appendix C).

Notices of Enforcement (Texas Data Portal)

Data were also collected surrounding TCEQ notices of enforcement (issued in the event of serious or continued violations) from the Texas Data Portal; however, none are applicable to this analysis as none were listed in the 5-year period. The majority were issued right before the beginning of our period (2019) in 2018. However, it is worth mentioning that of the notices of enforcement documented between 2014 and 2018, 33 were issued against Coffield Unit and 3 were against Beto Unit. The violations ranged from A to C rankings and included a failure to "maintain the foundation of the ground storage tank," "provide an elevated storage capacity of 100 gallons (about 378.54 L) per connection," "provide annual backflow prevention device testing results," "provide annual storage tank inspection reports," and "comply with permit effluent limits…" The lack of notices of enforcement in the 2019-2023 period signals improvement by these 2 units which should be celebrated; however, the data reveal that certain units do in fact grapple with histories of violations, enforcement, and noncompliance that needed recovering from.

Discussion and Recommendations

Investigation

> ***We strongly encourage the immediate investigation of all Texas prisons and jails. Investigations must become more comprehensive by expanding its tests to include common contaminants (e.g., sulfur) and potentially water-borne illnesses (e.g., H. Pylori and E. Coli).***

Based on the data uncovered in this report, much of which echoes existing incarcerated Texan's complaints, **we strongly encourage the immediate investigation of all Texas prisons water supplie**s. We propose the following recommendations:

- TCEQ investigations must become more comprehensive
    - Testing water across units is sorely needed to detect common contaminants (e.g., sulfur), water-borne illnesses (e.g., *E. coli*) and contaminants from animal manure and other industrial waste. As such, testing should be expanded to include other bacterial infections such as *H. pylori* and other potential contaminants such as *Legionella*.
    - Internal water testing should be conducted at every prison facility consistently in multiple facility areas. Though lab tests from TCEQ data do show some sample sites located inside the unit depending on the location (e.g., kitchen, bathroom), TCEQ data does not clearly suggest consistent tests are being performed inside prison walls, opening the potential for contamination from lead fixtures to go unnoticed.
    - There should be increased transparency by providing water test results to incarcerated people annually.
- For units with agribusiness, TCEQ investigations should involve ensuring that such industries are following protocol for handling waste and safeguarding water. TDCJ must implement transparent policies for the improved handling of livestock waste and the measures to safeguard the water sources at such units.
- Although outside of the scope of this report, we also encourage legislators to consider immigration and customs enforcement (ICE) detention facilities as well in ensuring that all those incarcerated in Texas have access to quality drinking water.
- We encourage further investigation of the water quality and impacts of city and county water services that service TDCJ Units.

Decarceration

What we advocate for might be referred to as decarceration, or a reduction in prisons' size and operating scope (Purdum et al.). In other words, **we recommend a decrease in the number** of units and a reduction in the prison population. Some TDCJ correctional officers have even publicly advocated for this strategy, rather than pouring money into updating prisons or replacing existing ones (Neff and Blakinger). Reducing the prison population has also been advocated from a **public health** perspective. During the peak of the ongoing COVID-19 pandemic, many health experts advocated for reducing prison populations to stop the spread of the virus (Hawks et al; Vest et al.). To the extent that many waterborne illnesses are communicable, such as *H. pylori*, measures should be followed that are like those advocated during the peak of the COVID-19 pandemic. It should be noted that Texas has a substantial incarceration rate (751 per 100,000) with over 134,000 people in prison (LBB, October 2024), higher even than the U.S national rate (614 per 100,000); for context, the incarceration in the UK is 144 per 100,000 and in New Jersey it is 270 per 100,000 (Widra). So, Texas could stand to lose its status as one of the nation- and world-wide leaders in incarceration. Additionally, Texas jails have recently been facing overcrowding for several reasons (Salhotra), which poses a further issue for Texas prisons where some incarcerate people may go on to be housed that are already operating beyond their means; around 25% of TDCJ correctional officer positions are currently unfulfilled (Salhotra).

Researchers have offered concrete solutions to achieving a sizing down on prisons. Many of these are common sense, such as "shortening sentences, expediting trials, and placing fewer people in jail" (Purdum et al.). Another method that scholars have put forth includes the development or expansion of good-time credits that enable folks to leave prison earlier for good behavior as well as diversion programs that keep people out of jails (Herzing and Piché). Another solution we offer is for the state to consider the release of incarcerated people who have been afflicted with water-borne diseases to receive free world care, which would be financially beneficial to both TDCJ and taxpayers due to the immense price tag associated with housing a single Incarcerated person during a given year as well as providing medical treatment (Henrichson et al.). This initiative would also benefit the incarcerated individual in that they may have impacts from disease or lingering chronic issues that could benefit from specialized care outside of prison.

The average age of an incarcerated person has increased over the past decades due to longer sentencing (Hawks et al.). As many older incarcerate people already suffer from pre-existing afflictions and thus are more medically vulnerable (Purdum et al.), the dramatic reduction of prison populations would particularly benefit older incarcerated individuals due to health-related issues. Also, in the context of our report, elevated levels of water toxicity may have a long-term chronic effect on all incarcerated people, but particularly older folks since they are more likely than younger folks to have a chronic illness. Therefore, this age category deserves special attention. Such initiatives to address an aging prison population have been explored, such as the First Step Act to release federal prisoners who are terminally ill or aging and pose little to no threat to public safety. To quote one incarcerated Texan who wrote to TPCA:

"TDCJ inmate population is getting older and the cost to care for them is growing. Yet they are being denied parole. We must start asking is this what a compassionate society does keep inmates/residents that are 70+… many of these inmates have age related cognitive impairment, traumatic brain injury, or organic brain disorder like dementia and Alzheimer's. These inmates are the ones that are most vulnerable to abuse and extortion." (Wallace Pack Unit, January 2023)

One could also view the release of some incarcerated people as an acknowledgment of the injustice behind ongoing contamination in some Texas prisons. Presidents such as Barack Obama and Ronald Regan have

pardoned incarcerate people affected by environmental catastrophes and contamination in prisons before (Waters). However, these men who have been pardoned where not faced with stand-alone issues; we must provide the same consideration to all incarcerated people affected by toxic prisons, especially the elderly, ill, and disabled.

Incarcerated people have pointed out that elevated levels of arsenic could build over the long term to increase TDCJ healthcare costs to address the effects of exposure (Grits for Breakfast). Along the same lines, noncompliance with water quality standards comes with a price tag as prisons across the country have incurred hefty fines from federal and state regulators under the Clean Water Act (Equal Justice Initiative). Investigating the conditions of water in prisons and replacing infrastructure such as lead pipes in units where necessary would carry a hefty price tag. Pouring funds into renovations to replace infrastructure and constructing new units are unlikely to be effective solutions.

> ***The more plausible and cost saving solution would be decarceration, or the shutting down of facilities with deteriorating infrastructure and environmental vulnerabilities...***

While Texas prisons continue to be built in rural, undeveloped areas and use **agribusiness, water quality will remain a problem**. Furthermore, renovations and new construction would be unfeasible because of the many drastic overhauls needed across units. The more plausible and cost saving solution would be decarcerating, or the shutting down of facilities with deteriorating infrastructure and environmental vulnerabilities, for example. However, we cannot assume older units are the only ones with contaminated water. Newer units that were established in the 90s and early 200s such as Batten, Jordan, Buffalo Farm Prison Ranch, and Garza West in the Chase Field area were still identified in this report as having contaminants or violations in the analyzed period. Shutting down units that have water contamination would benefit the taxpayer and incarcerated Texan as well in that those funds saved in a complete overhaul of units could be divested to improved water quality in existing units and providing incarcerated people with adequate care. In sum, decarceration is a major step toward justice because, simply put, many of these facilities are too dangerous for people to continue to live in, and the total prison population must be decreased before these toxic units can be closed.

Medical Solutions and Carceral Autonomy

We demand adequate medical care for all incarcerated Texans with a medical history of waterborne diseases or lead poisoning in addition to the consideration of their release. Specific medical recommendations are as follows:

- Incarcerated people should be tested for all water-borne communicable diseases (including *H Pylori* and *Legionella*).
    - At minimum, routine testing of incarcerated individuals should be performed at compliant units and during known water contamination incidents.
    - Individuals should be given the option to request testing when they feel it is necessary.
    - Medical staff should be required to inform individuals of the risk and impacts of contamination and provide medical assistance.
    - Wastewater-based testing of prisons may be a cost-effective way to identify outbreaks of disease, in addition to clinical testing, to slow or ideally stop further outbreaks (Hassard et al.).

Some advocates allege cases of incarcerated folks requesting blood tests being denied and, in some instances, further retaliated against (Roots Action; Washington 2015), and this should never be the case. We join incarcerated Texans' calls to have this medical and diagnostic information published to know how many prisoners at each unit are being treated for water-borne illnesses such as *H. pylori* and/or related stomach infections over a given time. Incarcerated people deserve to know what is in their drinking water and in the case of contamination. The state of Texas should analyze existing and future medical records and release anonymized data to reveal the percentage of incarcerated people suffering from such afflictions. Our demands fall in line with the assertions from other scholars that information relating to the quality of health of incarcerated people is often missing yet should be included in both federal and state data and reports (Treadwell and Formicola). It is imperative that TDCJ's Correctional Managed Health Care Division and the University of Texas Medical Branch (UTMB) step in to ensure incarcerated Texans' medical safety.

Short-Term Solutions

Due to the costs and time associated with these proposed solutions, there are a few short-term, band-aid solutions that could be applied as a first line of attack. The first involves the grievance process. The processes incarcerated people are provided to effect change, such as the grievance process, fall short. Literature on the grievance process illustrates how incarcerated people often end up with denied requests for change (Calavita and Jenness 2017). The current grievance process is not a viable option for Texas incarcerated people, many of whom feel their complaints are not being heard or addressed. Incarcerated Texans have and will continue to become frustrated at the ineffective grievance process**. We recommend a complete overhaul of the current system to include effective representation of incarcerated persons and independent oversight**: namely, that the department be independent of TDCJ to ensure fairness, regulation, and unbiased investigation. Another short-term solution ties to reducing the **non-systematic contamination**. First, while a waterline may be compliant (e.g., a well with clean water outside the facility), it is possible that lead fixtures inside the unit could introduce contamination to the water. In the case units with lead present refuse to shut down, all lead fixtures should be immediately replaced as a form of harm reduction to mitigate exposure. Second, existing or novel protocols should be leveraged to ensure that water and ice provided in coolers are clean, filtered, and handled with gloves and that coolers be safely sanitized daily. Any water fountains should be inspected periodically and ensured they are operating to maximize access to water. Water provided in areas such as the dayrooms and chow halls should

be ensured for filtration. Should the safety of such tools be evaluated to not violate any contraband measures, small, portable water filters could be provided to all incarcerated people or, at the very least, provided as an option to buy in the commissary. Furthermore, the agency should be required to provide free bottles of water rather than passing that cost onto incarcerated persons and their family members.

We understand from inside correspondence incarcerated Texans' concerns around times of boil water notices. Firstly, an affordable, common-sense, readily accessible solution is to ensure that boil-water advisories are always extended to incarcerated Texans; we have heard testimonies from folks who allege that such advisories do not always reach incarcerated people. This effort must be intentional so there is never any question as to whether their water is safe to drink or not. At times of boiling water notices (for any reason ranging from a plumbing issue to a hurricane), TDCJ must be required to provide clean water to incarcerated people, as codified by protocol. Given that boil water notices often accompany natural disasters, emergency preparedness/action plans should be in place to ensure that incarcerated Texans are provided a high standard of quality and quantity water as they are locked down in their cells. This is a right that some incarcerated Texans have expressed through letters as being denied in not having water distributed at all or enough during lockdowns.

We also acknowledge that as expressed through letters, some Texas incarcerated people have sought to devise their emergency plans. We join these folks' calls to enable emergency rations at times of boil water notices past what they can store in their small lockers for limited personal items, rather than being penalized for having to store extra bottled water in their cells/under their beds. Without any of these current options, we believe it is not right to deny incarcerated Texans access to boiling water, whether it be in the form of extra kitchen hours to boil water in preparation for a storm or access to electric tea makers that have no dangerous exposed heat source but can boil water. We understand safety is a concern for many lawmakers, but innovative and practical solutions exist and must be sought after to ensure the state's incarcerated citizens the right to safe and adequate water. While we may suggest these band-aid solutions for their potential immediate implementation, we should emphasize the state's **responsibility** along with the problem of leaving incarcerated people financially responsible for their water quality, leaving poor or indigent incarcerated people vulnerable to substandard water quality. We would like to disrupt the cycle where "the system… does not provide [incarcerated people] with protection or relief, so the burden falls on the individuals" (Purdum et al.).

Conclusion

This report aimed to shed light on the current state of water quality in Texas prisons, One limitation to this report is the quantity of available data. For instance, due to budgetary and time restraints, a larger data set was not able to be procured by public information request. As a result, the limited number of sampled locations with data available, which seemed to fall between the greater Houston and Dallas area, may have contributed to a loss of geographic representation of units in the data. Also, as the researchers only looked at prison locations using TDCJ's own water systems, further research is recommended into the quality of water in prisons using city systems. It is worth noting that this report thus provides just a glimpse into the water quality in TDCJ. Furthermore, our datasets could not provide information on bacterial analytes outside of coliform. Therefore, incarcerated individuals' anecdotal accounts could not be confirmed nor denied, meaning that it is possible that such contamination occurs in Texas prisons without our knowing or having proof. The quantity of survey data was also limited as it stands to reflect preliminary findings in ongoing polling.

In providing several solutions, we would like to reiterate that it is not just the individual prisons' **responsibility**, but the responsibility of the Governor of Texas and the Texas State **Legislature** to address these environmental and, in turn, human rights issues inside their prisons. Furthermore, regulatory institutions such as the **TCEQ** and **EPA** must include incarcerated people in their environmental justice policies and provide oversight to correctional facilities. Organizations such as the American Correctional Association must focus on water-related issues in Texas prisons and beyond. We hope that this report eventually contributes to a policy surrounding water standards in Texas prisons so that mandated testing at regularly occurring intervals is no longer a suggestion but becomes codified by law. Incarcerated people should not be forgotten as citizens of the state, as their health outcomes are the state's direct responsibility while they are confined. Environmental injustice within prisons must be addressed through meaningful policy changes, and if substandard water conditions persist, continued legal action against the state should be expected. Leveling the legal playing field is crucial to ensuring that incarcerated individuals have the means to seek justice and hold the state accountable for their health and well-being.

Lawsuits are costly for TDCJ, and should the state continue to keep substandard water quality in some or all units, then it should be expected that incarcerated people will continue to go against the state in court. As some incarcerated activists pointed out, if TDCJ can use their expert witnesses to testify in court that the water is safe, indigent incarcerated people should be provided with a means for their expert witness. Evening the playing field between the state and its incarcerated population is vital in ensuring that Texas incarcerated people can pursue legal justice for themselves. In sum, we demand several solutions be implemented to benefit the health of those who do not have the autonomy to dictate their environment and respond to environmental injustice.

References

"Abandoned & Abused: Complete Report." American Civil Liberties Union, 9 August 2006, https://www.aclu.org/publications/abandoned-abused-complete-report. Accessed 21 January 2024.

Abdul, Khaja Shameem Mohammed, et al. "Arsenic and human health effects: A review." *Environ Toxicol Pharmacol.*, vol. 40, no. 3, 2015, pp. 828-46. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/26476885/. Accessed 21 January 2024.

Abraham, Leola A., et al. "How COVID-19's Disruption of the U.S. Correctional System Provides an Opportunity for Decarceration." *American Journal of Criminal Justice*, 2020, pp. 1-13.

Aday, Ronald, and Lori Farney. "Malign Neglect: Assessing Older Women's Health Care Experiences in Prison." *Journal of Bioethical Inquiry*, vol. 11, no. 3, 2014, pp. 359-372. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/24990453/. Accessed 06 January 2024.

Agency for Toxic Substances and Disease Registry. "Barium | Public Health Statement | ATSDR." *CDC*, 18 September 2020, https://wwwn.cdc.gov/TSP/PHS/PHS.aspx?phsid=325&toxid=57. Accessed 21 July 2024.

Arroyo, Bryant. "Frackville Prison's Systemic Water Crisis – Fight Toxic Prisons." Fight Toxic Prisons, 5 November 2017, https://fighttoxicprisons.wordpress.com/2017/11/05/frackville-prisons-systemic-water-crisis/. Accessed 2 February 2024.

Austin, Michaela A. "A History of the Lorton Prison Complex." *Exposing Deliberate Indifference: The Struggle for Social and Environmental Justice in America's Prisons, Jails, and Concentration Camps*, UCSB's Prison Environmental Justice Project, October 2017, https://gejp.es.ucsb.edu/sites/secure.lsit.ucsb.edu.envs.d7_gejp-2/files/sitefiles/publication/Exposing%20deliberate%20indifference%20.pdf. Accessed 21 January 2024.

Austin, Michaela A. "Women in Prison: Multiple Health and Environmental Risks." *Exposing Deliberate Indifference: The Struggle for Social and Environmental Justice in America's Prisons, Jails, Detention Centers, and Concentration Camps*, UCSB's Prison Environmental Justice Project, October 2017, https://gejp.es.ucsb.edu/sites/secure.lsit.ucsb.edu.envs.d7_gejp-2/files/sitefiles/publication/Exposing%20deliberate%20indifference%20.pdf. Accessed 21 January 2024.

Banks, Gabrielle. "Federal judge: State must provide water without arsenic to..." *Houston Chronicle*, 22 June 2016, https://www.houstonchronicle.com/news/houston-texas/houston/article/Federal-judge-State-must-provide-water-without-8316481.php. Accessed 12 January 2024.

Baptiste, Nathalie, et al. ""We did not have to suffer like that": Inside a Texas prison during Hurricane Harvey." *Mother Jones*, 9 November 2017, https://www.motherjones.com/criminal-justice/2017/11/we-didnt-have-to-suffer-like-that-inside-a-texas-prison-during-hurricane-harvey/. Accessed 7 January 2024.

Bell, Jeff, and Alex Delcid. "State to reopen Williamson County prison as inmate population grows in Texas." *KVUE*, 29 June 2024, https://www.kvue.com/article/news/local/williamson-county/bartlett-unit-prision-reopening/269-4da600b7-b7c6-4431-a760-b6b3142c508e. Accessed 30 June 2024.

Bernd, Candice. "'Cruel and Unusual': Texas Prisoners Face Deadly Heat and Contaminated Water." *Earth Island Institute*, 8 August 2017, https://www.earthisland.org/journal/index.php/articles/entry/cruel_unusual_texas_prisoners_face_deadly_heat_contaminated_water/. Accessed 25 January 2024.

Bernd, Candice, et al. "America's Toxic Prisons: The Environmental Injustices of Mass Incarceration." *Truthout*, 1 June 2017, https://truthout.org/articles/america-s-toxic-prisons-the-environmental-injustices-of-mass-incarceration/. Accessed 22 January 2024.

Biggers, Alana. "Copper toxicity: Symptoms and treatment." *MedicalNewsToday*, 30 November 2020, https://www.medicalnewstoday.com/articles/copper-toxicity#copper-in-water. Accessed 13 July 2024.

Blakinger, Keri. "Inside Frigid Texas Prisons: Broken Toilets, Disgusting Food, Few Blankets." The Marshall Project, 19 February 2021, https://www.themarshallproject.org/2021/02/19/inside-frigid-texas-prisons-broken-toilets-disgusting-food-few-blankets. Accessed 25 January 2024.

Bradshaw, Elizabeth A. "Tombstone Towns and Toxic Prisons: Prison Ecology and the Necessity of an Anti-Prison Environmental Movement." *Critical Criminology*, vol. 26, 2018, pp. 407-422.

Caballero, Fabián, et al. "Prisons and the Deluge." *The Marshall Project*, 20 October 2017, https://www.themarshallproject.org/2017/10/20/prisons-and-the-deluge. Accessed 28 January 2024.

Chu, Chiheng, et al. "Water Disinfection in Rural Areas Demands Unconventional Solar Technologies." *Accounts of Chemical Researc*, vol. 52, no. 5, 2019, pp. 1187–1195. ACS Publications, https://pubs.acs.org/doi/abs/10.1021/acs.accounts.8b00578. Accessed 06 January 2024.

Clarke, Matthew, and Christopher Zoukis. "Litigation Heats Up Over Extreme Temperatures in Prisons, Jails." *Prison Legal News*, 29 June 2018, https://www.prisonlegalnews.org/news/2018/jun/29/litigation-heats-over-extreme-temperatures-prisons-jails/. Accessed 28 January 2024.

"Copper - Consumer." NIH Office of Dietary Supplements, 18 October 2022, https://ods.od.nih.gov/factsheets/Copper-Consumer/. Accessed 4 February 2024.

"Correction officers' suit says Rikers Island prison is built on 'toxic' landfill, causing cancer." *New York Daily News*, 10 January 2011, https://www.nydailynews.com/2011/01/10/correction-officers-suit-says-rikers-island-prison-is-built-on-toxic-landfill-causing-cancer/. Accessed 22 January 2024.

Cunniff, Abby, et al. "This Prison in California Forced Incarcerated People to Drink Arsenic for Years." *Truthout*, 13 February 2022, https://truthout.org/articles/this-prison-in-california-forced-incarcerated-people-to-drink-arsenic-for-years/. Accessed 30 December 2023.

Dannenberg, John. "Prison Drinking Water and Wastewater Pollution Threaten Environmental Safety Nationwide." *Prison Legal News*, 15 November 2007, https://www.prisonlegalnews.org/news/2007/nov/15/prison-drinking-water-and-wastewater-pollution-threaten-environmental-safety-nationwide/. Accessed 3 February 2024.

"Darrington Unit - Rosharon." *PrisonPro*, https://www.prisonpro.com/content/darrington-unit. Accessed 25 January 2024.

Democracy Now. “Texas Prisoners Are Facing Horrid Conditions after Hurricane Harvey & Retaliation for Reporting Them.” *Democracy Now!* 8 Sept. 2017, www.democracynow.org/2017/9/8/texas_prisoners_are_facing_horrid_conditions. Accessed 3 October 2024.

Eaton-Robb, Pat. “Inmates say drinking water is contaminated with sewage.” *AP News*, 13 September 2019, https://apnews.com/general-news-8cd30a75343c430194df0eb31203ef6c. Accessed 3 February 2024.

Ehlers, Anthony. “Drinking water in Illinois prisons is a crapshoot.” *Chicago Reader*, 20 July 2022, https://chicagoreader.com/columns-opinion/on-prisons/drinking-water-in-illinois-prisons-is-a-crapshoot/. Accessed 30 December 2023.

EPA. *What Climate Change Means for Texas*. August 2016, https://www.epa.gov/sites/default/files/2016-09/documents/climate-change-tx.pdf. Accessed 28 January 2024.

EWG Tap Water Database. City of Beeville. 2021. *EWG.org*, https://www.ewg.org/tapwater/system.php?pws=TX0130001#:~:text=Nitrate,%20a%20fertilizer%20chemical,%20frequently%20contaminates%20drinking%20water%20due%20to. Accessed 29 September 2024.

EWG Tap Water Database. City of Marlin. 2021. *EWG.org*, https://www.ewg.org/tapwater/system.php?pws=TX0730002. Accessed 28 September 2024.

Feltz, Renee. “Texas Prisoners Are Facing Horrid Conditions After Hurricane Harvey & Retaliation for Reporting Them.” *Democracy Now!* 8 September 2017, https://www.democracynow.org/2017/9/8/texas_prisoners_are_facing_horrid_conditions. Accessed 28 January 2024.

Fimrite, Peter, and Vince Maggiora. “Is San Quentin's Time Up? / Marin looks at crumbling prison...” *SFGATE*, 18 December 2000, https://www.sfgate.com/bayarea/article/Is-San-Quentin-s-Time-Up-Marin-looks-at-3302231.php. Accessed 2 February 2024.

Fisher, Austin. “People held in NM women’s prison never notified about bacteria found in drinking water.” Source New Mexico, 28 July 2023, https://sourcenm.com/2023/07/28/nm-prison-officials-quiet-about-response-to-bacteria-found-in-drinking-water-springer-correctional-center/. Accessed 3 February 2024.

Gilna, Derek. “Federal Judge Orders Texas Department of Criminal Justice to Provide Safe Water to Prisoners.” *Prison Legal News*, 7 November 2016, https://www.prisonlegalnews.org/news/2016/nov/7/federal-judge-orders-texas-department-criminal-justice-provide-safe-water-prisoners/. Accessed 12 January 2024.

Halstead, Richard. “San Quentin inmates lack water after pipe failure.” *Marin Independent Journal*, 20 June 2023, https://www.marinij.com/2023/06/20/san-quentin-inmates-lack-water-after-pipe-failure/. Accessed 6 February 2024.

Hassard, Francis, et al. “Wastewater surveillance for rapid identification of infectious diseases in prisons.” *The Lancet Microbe*, vol. 3, no. 8, 2022, pp. E556-E557. The

Lancet, https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(22)00154-9/fulltext. Accessed 27 May 2024.

Haupt, Shannon, and Phil Miller. "Cruel and Usual: Contaminated Water in New York State Prisons." *City University of New York Law Review*, vol. 25, no. 2, 2022, https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1549&context=clr.

Hawks, Laura, et al. "COVID-19 in Prisons and Jails in the United States." *JAMA Integral Medicine*, vol. 180, 2020, pp. 1041-1042.

"Health Effects of Lead Exposure | Lead | CDC." Centers for Disease Control and Prevention, https://www.cdc.gov/nceh/lead/prevention/health-effects.htm. Accessed 4 February 2024.

Henrichson, Christian, et al. *The Price of Jails: Measuring the Taxpayer Cost of Local Incarceration*. May 2015. Safety and Justice Challenge, Vera Institute of Justice, https://www.safetyandjusticechallenge.org/wp-content/uploads/2015/05/The-Price-of-Jails-report.pdf. Accessed 27 May 2024.

Hernandez, Benny. YouTube: Home, 9 November 2017, https://prisonwriters.com/heat-in-texas-prisons/?gclid=CjwKCAiAk9itBhASEiwA1my_685EEvOcaszgf7TqWdCQotk-8gAdZaAvS_PwwtiVUJR1oYjL3b2hPhoCb60QAvD_BwE. Accessed 1 February 2024.

Herring, Tiana. "COVID looks like it may stay. That means prison medical copays must go." Prison Policy Initiative, 1 February 2022, https://www.prisonpolicy.org/blog/2022/02/01/pandemic_copays/. Accessed 22 January 2024.

Herzing, Rachel, and Justin Piche. *How to Abolish Prisons: Lessons from the Movement Against Imprisonment*. Verso Books, 2023.

How Is Uranium Mined in Texas? Texas Groundwater Protection Committee FAQs. 20 March 2024. *Tgpc.texas.gov*, https://www.tgpc.texas.gov/POE/FAQs/Umined_FAQ.pdf. Accessed 30 September 2024.

Hribar, Carrie. "Understanding Concentrated Animal Feeding Operations and Their Impact on Communities." Centers for Disease Control and Prevention, 2010, https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf. Accessed 1 February 2024.

Hsu, Ling-I, et al. "Effects of Arsenic in Drinking Water on Risk of Hepatitis or Cirrhosis in Persons with and Without Chronic Viral Hepatitis." *Clin Gastroenterol Hepatol.*, vol. 14, no. 9, 2016, 1347-1355.e4. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/27060428/. Accessed 21 January 2024.

Human Rights Clinic of the University of Texas School of Law. *Deadly Heat in Texas Prisons*. April 2014. U.S. Department of Justice, https://www.ojp.gov/ncjrs/virtual-library/abstracts/deadly-heat-texas-prisons#:~:text=After%20documenting%20that%20inmates%20under,Texas%20by%20exposing%20them%20to. Accessed 01 February 2024.

"Investigation Reveals Environmental Dangers in America's Toxic Prisons." Equal Justice Initiative, 16 June 2017, https://eji.org/news/investigation-reveals-environmental-dangers-in-toxic-prisons/. Accessed 21 January 2024.

Johnson, Peak. “Inmates Forced to Drink Arsenic-Laden Water Win Lawsuit.” *Water Online*, 7 July 2016, https://www.wateronline.com/doc/inmates-forced-to-drink-arsenic-laden-water-win-lawsuit-0001. Accessed 21 January 2024.

Kadlubar, Ally. “Marlin makes progress on $10 million grant to improve water and drainage systems.” KWTX, 26 January 2023, https://www.kwtx.com/2023/01/26/marlin-makes-progress-10-million-grant-improve-water-drainage-systems/. Accessed 22 January 2024.

Kopinski, Hannah, et al. “Incidence and prevalence of hepatitis C in prisons and other closed settings: Results of a systematic review and meta-analysis.” *Hepatology*, vol. 58, no. 4, 2013. AASLD, https://doi.org/10.1002/hep.26387. Accessed 02 February 2024.

Kozlowska, Hanna. “What happens to prison inmates when natural disaster strikes?” *Quartz*, 30 August 2017, https://qz.com/1066036/hurricane-harvey-in-texas-what-happens-to-prison-inmates-when-natural-disaster-strikes. Accessed 21 January 2024.

LOZANO, JUAN A. “Texas heat wave has inmates' families worried about lack of air conditioning in state's prisons.” *AP News*, 18 July 2023, https://apnews.com/article/texas-prison-air-conditioning-families-rally-bdd5f3d46462d804cc1d8c7116af5d1d. Accessed 29 August 2024.

Leon-Corwin, Maggie, et al. “Polluting Our Prisons? An Examination of Oklahoma Prison Locations and Toxic Releases, 2011-2017.” *Punishment & Society*, vol. 22, 2020, pp. 413-438. Sage Journals, https://doi.org/10.1177/1462474519899949. Accessed 08 January 2024.

Levine, Nathaniel, et al. “Toxic drinking water in California prisons costs taxpayers millions.” *Sacramento Bee*, 3 May 2019, https://www.sacbee.com/news/politics-government/capitol-alert/article229294374.html. Accessed 4 February 2024.

Lybarger, Jeffrey A., et al. “Medical Costs and Lost Productivity from Health Conditions at Volatile Organic Compound-Contaminated Superfund Sites.” *Environmental Research*, vol. 79, no. 1, 1998, pp. 9-19. Science Direct, https://www.sciencedirect.com/science/article/abs/pii/S0013935198938452. Accessed 22 January 2024.

M., Jamani. “RootsAction.” *RootsAction*, 12 July 2017, https://diy.rootsaction.org/petitions/contaminated-water-causes-cancer-in-texas-prisons-officials-ignore-complaints-and-avoid-clean-up/comments/1068820. Accessed 25 January 2024.

Malfertheiner, Peter, et al. “Helicobacter pylori infection.” *Nat Rev Dis Primers*, vol. 9, no. 1, 2023, p. 19. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/37081005/.

“Manufacturing, Agribusiness and Logistics Division.” Texas Department of Criminal Justice, https://www.tdcj.texas.gov/divisions/mal/fac_oper.html. Accessed 26 May 2024.

Maslin, Sarah. “San Quentin Prison Scrambles After Outbreak of Legionnaires' Disease (Published 2015).” *The New York Times*, 2 September 2015, https://www.nytimes.com/2015/09/03/us/san-quentin-prison-scrambles-after-outbreak-of-legionnaires-disease.html. Accessed 3 February 2024.

MCDOWELL, ROBIN, and MARGIE MASON. “Hidden prison labor web linked to foods from Target, Walmart.” *AP News*, 29 January 2024, https://apnews.com/article/prison-to-plate-inmate-labor-investigation-c6f0eb4747963283316e494eadf08c4e. Accessed 6 July 2024.

Michigan Department of Health and Human Services, and Michigan Department of Environment, Great Lakes, and Energy. *Coliform Bacteria in Drinking Water for Well Owners*. Accessed 04 February 2024.

Moreland, Joe A. "Drought and Groundwater Levels | U.S. Geological Survey." *USGS.gov*, 6 June 2018, https://www.usgs.gov/special-topics/water-science-school/science/drought-and-groundwater-levels. Accessed 18 February 2024.

Moritz, John. "Lawsuit: CT prison had 'brown, cloudy' water years before Legionnaires cases." *CT Insider*, 4 November 2021, https://www.ctinsider.com/news/article/Lawsuit-CT-prison-had-brown-cloudy-water-16593261.php. Accessed 3 February 2024.

Myers, Madison. "Residents in Marlin are frustrated as water issues continue to resurface." *KXXV*, 23 April 2024, https://www.kxxv.com/news/local-news/in-your-neighborhood/falls-county/marlin/residents-in-marlin-are-frustrated-as-water-issues-continue-to-resurface. Accessed 28 September 2024.

Neff, Joseph, and Keri Blakinger. "Prisons: First Came COVID-19, Then the Raw Sewage." *The Marshall Project*, 30 May 2020, https://www.themarshallproject.org/2020/05/30/first-came-the-pandemic-then-came-the-raw-sewage. Accessed 25 January 2024.

News Desk. "Apparent E. Coli Outbreak at Saginaw Prison Sickens 96." *Food Safety News*, 6 Sept. 2012, https://www.foodsafetynews.com/2012/09/apparent-e-coli-outbreak-at-saginaw-prison-sickens-96/. Accessed 4 Feb. 2024.

Nicole, Wendee. "CAFOs and Environmental Justice: The Case of North Carolina." *Environ Health Perspect*, vol. 121, no. 6, a182–a189. *PubMed*, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3672924/. Accessed 1 Feb. 2024.

Nigra, Anne E., and Anna Navas-Acien. "Arsenic in US correctional facility drinking water, 2006–2011." *Environmental Research*, vol. 188, 2020. *Science Direct*, https://www.sciencedirect.com/science/article/pii/S0013935120306617. Accessed 30 Dec. 2023.

O'Connell, Kit. "Texas Prison Objects to Ruling That It Must Provide Arsenic-Free Water to Prisoners Amidst Deadly Heat." *MintPress News*, 5 July 2016, https://www.mintpressnews.com/texas-prison-objects-ruling-must-provide-arsenic-free-water-prisoners-amidst-deadly-heat/218088/. Accessed 12 Jan. 2024.

Pathak, Raj Kumar, and Anil Kumar Dikshit. "Atrazine and Human Health." *International Journal of Ecosystem*, vol. 1, no. 1, 2011, pp. 14-23.

Phillips, Aleks. "Texas Residents Warned After Over 100,000 Gallons of Wastewater Spilled." *Newsweek*, https://www.msn.com/en-us/news/us/texas-residents-warned-after-over-100-000-gallons-of-wastewater-spilled/ar-BB1igd8o?rc=1&ocid=winp1taskbar&cvid=dfc0b8078e1847eaaabc13020726fd42&ei=22. Accessed 18 Feb. 2024.

Price, Robert S. "Inmates Complain About Prison Water Problems." *YouTube*, 2 Aug. 2013, https://www.youtube.com/watch?v=-UYfNnyVkIQ. Accessed 22 Jan. 2024.

Pritzker Law Firm. “Lovelock Correctional Center E. Coli Poisoning.” 31 July 2015, https://www.pritzkerlaw.com/personal-injury/2015/lovelock-correctional-center-e-coli-poisoning/. Accessed 4 Feb. 2024.

Purdum, Carlee, et al. “No Justice, No Resilience: Prison Abolition as Disaster Mitigation in an Era of Climate Change.” *Environmental Justice*, vol. 00, no. 00, 2021.

Rakia, Raven, and Melissa Cronin. “A sinking jail: The environmental disaster that is Rikers Island.” *Grist Magazine*, 15 Mar. 2016, https://grist.org/justice/a-sinking-jail-the-environmental-disaster-that-is-rikers-island/. Accessed 22 Jan. 2024.

Feltz, Renee. “Texas Prisoners Are Facing Horrid Conditions After Hurricane Harvey & Retaliation for Reporting Them.” *Democracy Now!*, 8 Sept. 2017, https://www.democracynow.org/2017/9/8/texas_prisoners_are_facing_horrid_conditions. Accessed 28 Jan. 2024.

Righi, Elena, et al. “Trihalomethanes, chlorite, chlorate in drinking water and risk of congenital anomalies: A population-based case-control study in Northern Italy.” *Environmental Research*, vol. 116, 2012, pp. 66-73. *ScienceDirect*, https://www.sciencedirect.com/science/article/abs/pii/S0013935112001417#:~:text=W omen%20exposed%20to%20chlorite%20level,risk%20of%20newborns%20with%20obst ructive. Accessed 12 Dec. 2024.

Rogers, Shane. Expert Report - Shane Rogers. 20 Jan. 2017, https://ncnewsline.com/wp-content/uploads/2017/05/brief-exhibit-dr-rogers-report.pdf. Accessed 1 Feb. 2024.

Rosenblatt, Kalhan. “Harvey Prompts 5 Texas Prisons to Evacuate Nearly 6,000 Inmates.” *NBC News*, 29 Aug. 2017, https://www.nbcnews.com/storyline/hurricane-harvey/harvey-prompts-5-texas-prisons-evacuate-nearly-6-000-inmates-n797086. Accessed 21 Jan. 2024.

Rothfeld, Michael. “Drink up -- assuming you like arsenic, that is.” *Los Angeles Times*, 29 Dec. 2008, https://www.latimes.com/archives/la-xpm-2008-dec-29-me-arsenic29-story.html. Accessed 30 Dec. 2023.

Roudebush, Akari. “Prisoners and the Threat of Hurricanes.” *Exposing Deliberate Indifference: The Struggle for Social and Environmental Justice in America's Prisons, Jails, Detention Centers, and Concentration Camps*, UCSB's Prison Environmental Justice Project, Oct. 2017, https://gejp.es.ucsb.edu/sites/secure.lsit.ucsb.edu.envs.d7_gejp-2/files/sitefiles/publication/Exposing%20deliberate%20indifference%20.pdf. Accessed 21 Jan. 2024.

Rucker, Lola S. *An Intersectional Look at Black Women's Experiences in Texas Prisons*. Master's Thesis, University of Houston, 2022.

Russell, Kelsey D. “"Cruel and Unusual Construction: The Eight Amendment as a Limit on Building Prisons on Toxic Waste Sites Comments.” *University of Pennsylvania Law Review*, vol. 165, 2017, [i]-784.

Salhotra, Pooja. “Texas’ overcrowded and understaffed jails send people awaiting trial to other counties and states.” *Texas Tribune*, 13 Aug. 2024, https://www.texastribune.org/2024/08/13/texas-jails-overcrowding-inmates/. Accessed 8 Sept. 2024.

Salhotra, Pooja. “Texas’ prison guard shortfall makes it harder for inmates to get reprieve from extreme indoor heat, critics say.” *Texas Tribune*, 11 Sept. 2024, https://www.texastribune.org/2024/09/11/texas-prisons-staffing-shortages-heat/. Accessed 11 Sept. 2024.

Salinas, Madeline. “2022 Beeville drinking water report reveals contaminant level violation.” *KIII*, 20 July 2023, https://www.kiiitv.com/article/news/local/2022-beeville-drinking-water-report-reveals-contaminant-level/503-66476cd3-0b20-4d52-9c04-2fb92aa3bfe8. Accessed 29 Sept. 2024.

Schulte, Grant. “Water service outage at Nebraska prison raises new concerns.” *AP News*, 28 Oct. 2021, https://apnews.com/article/business-prisons-nebraska-omaha-service-outages-bb17c626595efa858f0cf475aaa42aae. Accessed 6 Feb. 2024.

Shafer, Richard. “Dispatch From a Texas Prison — Prison Journalism Project.” *Prison Journalism Project*, 4 Aug. 2020, https://prisonjournalismproject.org/2020/08/04/dispatch-from-a-texas-prison/. Accessed 30 Dec. 2023.

Shen Yue. “The Dusty Threat: The Proposed Mira Loma Women's Detention Center.” *Exposing Deliberate Indifference: The Struggle for Social and Environmental Justice in America's Prisons, Jails, and Concentration Camps*, UCSB's Prison Environmental Justice Project, Oct. 2017, https://gejp.es.ucsb.edu/sites/secure.lsit.ucsb.edu.envs.d7_gejp-2/files/sitefiles/publication/Exposing%20deliberate%20indifference%20.pdf. Accessed 21 Jan. 2024.

Simpson, Paul L., et al. “Prison cell spatial density and infectious and communicable diseases: a systematic review.” *BMJ Open*, vol. 9, no. 7, 2019. *National Library of Medicine*, https://pubmed.ncbi.nlm.nih.gov/31340959/. Accessed 7 Jan. 2024.

Skarha, Julianne, et al. “Provision of Air Conditioning and Heat-Related Mortality in Texas Prisons.” vol. 5, no. 11, 2022. *JAMA Network*, https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2798097. Accessed 7 Feb. 2024.

Stroh, Katie, et al. “Texas Prison's Water Problems Attract National Attention.” *Texas Monthly*, 21 Jan. 2013, https://www.texasmonthly.com/articles/texas-prisons-water-problems-attract-national-attention/. Accessed 12 Jan. 2024.

“Study: Fecal Bacteria from N.C. Hog Farms Infects Nearby Homes.” *Environmental Working Group*, 11 May 2017, https://www.ewg.org/news-insights/news-release/2017/05/study-fecal-bacteria-nc-hog-farms-infects-nearby-homes. Accessed 1 Feb. 2024.

Texas Commission on Environmental Quality. 30 Oct. 2023, https://dww2.tceq.texas.gov/DWW/JSP/SearchDispatch?number=&name=&ActivityStatus CD =All&county=All&WaterSystemType=All&SourceWaterType=All&SampleType=null&beg in_date=10%2F23%2F2021&end_date=10%2F23%2F2023&action=Search+For+Water+Sy stems. Accessed 30 Dec. 2023.

“Texas Commission on Environmental Quality - Notices Of Violation (NOV).” *data.texas.gov*, Texas Open Data Portal, https://data.texas.gov/dataset/Texas-Commission-on-Environmental- Quality-Notices-/mwzi- gyw7/data_preview. Accessed 24 Nov. 2024.

“Texas Department of Criminal Justice High Value Dataset.” *Texas Department of Criminal Justice*, https://www.tdcj.texas.gov/kss_inside.html. Accessed 26 Jan. 2025.

TCEQ Water Supply Division. *Guidance for Public Water System Water Haulers*. TCEQ Regulatory Guidance, July 2023. tceq.texas.gov, https://www.tceq.texas.gov/downloads/drinking- water/preparedness-resources/rg-590.pdf. Accessed 30 June 2024.

Tchounwou, Paul B., et al. "Carcinogenic and systemic health effects associated with arsenic exposure--a critical review." *Toxicol. Pathol.*, vol. 31, no. 6, 2003, pp. 575-88. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/14585726/.

The White House. FACT SHEET: Biden-Harris Administration Announces $3 Billion to Replace Toxic Lead Pipes and Deliver Clean Drinking Water to Communities Across the Country. 02 May 2024. *WhiteHouse.gov*, https://www.whitehouse.gov/briefing-room/statements- releases/2024/05/02/fact-sheet-biden-harris-administration-announces-3-billion-to-replace-toxic-lead-pipes-and-deliver-clean-drinking-water-to-communities-across-the- country/. Accessed 30 June 2024.

Thompson, Ki'Amber. "Prisons, Policing, and Pollution: Toward an Abolitionist Framework within Environmental Justice." Pomona Senior Theses, vol. 185, 2018, https://scholarship.claremont.edu/pomona_theses/185. Accessed 30 Dec. 2023.

Thorne, Peter S. "Environmental health impacts of concentrated animal feeding operations: anticipating hazards—searching for solutions." *Environ Health Perspect*, 2007. *PubMed*, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3672924/#r10. Accessed 1 Feb. 2024.

Tikkanen, Amy. "San Quentin State Prison | History & Facts." *Britannica*, 22 Jan. 2024, https://www.britannica.com/topic/San-Quentin-State-Prison. Accessed 2 Feb. 2024.

"Torrent Laboratory Inc." *Torrent Laboratory*, 29 June 2021, torrentlab.com/is-water-safe-to-drink-lets-find-out/. Accessed 3 Oct. 2024.

Townsend-Lerdo, Elena, and India Claudy. "5 Stories About Unhealthy Water Inside Prisons." 2023. *Prison Journalism Project*, https://prisonjournalismproject.org/2023/10/11/five-stories-unsafe-drinking-water-prisons/. Accessed 4 Jan. 2024.

Treadwell, Henrie M., and Allan J. Formicola. "Improving the Oral Health of Prisoners to Improve Overall Health and Well-Being." *AM J Public Health*, vol. 98, no. Supp 1, 2008, pp. S171–S172. *National Library of Medicine*, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2518594/. Accessed 7 Jan. 2024.

Tsai, Lily Chi-Fang. *Substandard Medical Care in U.S. Prisons: Improvement through Civil Liability Actions*. El Paso, Texas, LFB Scholarly Publishing, 2014.

Tsolkas, Panagioti. "Is Texas Poisoning Prisoners with Contaminated Water?" *Prison Legal News*, 31 Aug. 2015, https://www.prisonlegalnews.org/news/2015/aug/31/texas-poisoning-prisoners-contaminated-water/. Accessed 25 Jan. 2024.

Tsolkas, Panagioti. "Texas: Complaint Filed Over Contaminated Water, Conditions at Eastham Unit." *Prison Legal News*, 10 Jan. 2017, https://www.prisonlegalnews.org/news/2017/jan/10/texas-complaint-filed-over- contaminated-water-conditions-eastham-unit/. Accessed 23 Jan. 2024.

United States Government Accountability Office. "Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern." *Government Accountability Office*, 4 Sept. 2008, https://www.gao.gov/products/gao-08-944. Accessed 1 Feb. 2024.

"Use of Lead-Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water | US EPA." *Environmental Protection Agency (EPA)*, 11 Apr. 2023, https://www.epa.gov/sdwa/use-lead-free-pipes-fittings-fixtures-solder-and-flux-drinking-water. Accessed 28 Jan. 2024.

Vance, Unique. "Texas Prisons and Human Rights in the Wake of Climate Change." *Exposing Deliberate Indifference: The Struggle for Social and Environmental Justice in America's Prisons, Jails, and Concentration Camps*, UCSB's Prison Environmental Justice Project, Oct. 2017, https://gejp.es.ucsb.edu/sites/secure.lsit.ucsb.edu.envs.d7_gejp-2/files/sitefiles/publication/Exposing%20deliberate%20indifference%20.pdf. Accessed 25 Jan. 2024.

Verniero, Madeline, et al. "The Truth About Toxic Prisons." *The Regulatory Review*, 5 Oct. 2021, https://www.theregreview.org/2021/10/05/verniero-truth-toxic-prisons/. Accessed 21 Jan. 2024.

Vest, Noel, et al. "Prison Population Reductions and COVID-19: A Latent Profile Analysis Synthesizing Recent Evidence from the Texas State Prison System." *Journal of Urban Health*, 2021, 53'58.

Wang, Leah. "Prisons are a daily environmental injustice." *Prison Policy Initiative*, 20 Apr. 2022, https://www.prisonpolicy.org/blog/2022/04/20/environmental_injustice/. Accessed 22 Jan. 2024.

Washington, Keith 'Malik'. "Hog farms, toxic water and more toxic prisons in Texas and beyond." *San Francisco Bay View*, 29 May 2018, https://sfbayview.com/2018/05/hog-farms-toxic-water-and-more-toxic-prisons-in-texas-and-beyond/. Accessed 25 Jan. 2024.

Washington, Keith 'Malik'. "Eastham water supply shut completely OFF; stench of human waste pervades old, decaying prison." *San Francisco Bay View*, 1 Dec. 2017, https://sfbayview.com/2017/12/eastham-water-supply-shut-completely-off-stench-of- human-waste-pervades-old-decaying-prison/. Accessed 25 Jan. 2024.

Washington, Keith 'Malik'. "Prison officials, ACA inspectors ignore contaminated water in Texas prisons." *San Francisco Bay View*, 21 Oct. 2015, https://sfbayview.com/2015/10/prison-officials-aca-inspectors-ignore-contaminated- water-in-texas-prisons/. Accessed 25 Jan. 2024.

"Water System Search." *Tceq.texas.gov*, Texas Commission on Environmental Quality, dww2.tceq.texas.gov/DWW/JSP/SearchDispatch?number=&name=&ActivityStatusCD=All&county=All&WaterSystemType=All&SourceWaterType=All&SampleType=null&begin_date=5%2F31%2F2022&end_date=5%2F31%2F2024&action=Search+For+Water+Systems. Accessed 3 Oct. 2024.

Waters, Michael. "How prisons are poisoning their inmates." *The Outline*, 23 July 2018, https://theoutline.com/post/5410/toxic-prisons-fayette-tacoma-contaminated. Accessed 22 Jan. 2024.

Weill, Elizabeth, et al. "Illinois Prison Water Contaminated with Bacteria That Causes Legionnaires' Disease." *The Appeal*, 15 Mar. 2022, https://theappeal.org/illinois-prisons-legionnaries- disease/. Accessed 22 Jan. 2024.

Weill, Elizabeth, et al. “Illinois Prison Water Contamination Keeps Getting Worse.” *The Appeal*, 28 July 2022, https://theappeal.org/illinois-prisons-legionnaires-disease-water-new-testing/. Accessed 3 Feb. 2024.

“Well water contaminated with arsenic at TDCJ's Wallace Pack unit.” *Grits for Breakfast*, 25 Sept. 2014, https://gritsforbreakfast.blogspot.com/2014/09/well-water-contaminated-with-arsenic-at.html. Accessed 25 Jan. 2024.

Whitfield, Dexter. *Economic Impact of Prisons in Rural Areas: A Review of the Issues*. Sept. 2008. European Services Strategy Unit, Adelaide, European Services Strategy Unit, https://european-services-strategy.org.uk.archived.website/outsourcing-ppp-library/pfi- ppp/economic-impact-of-prisons-in-rural-areas-a-re/prison-impact-review-2.pdf. Accessed 6 Jan. 2024.

Widra, Emily. “States of Incarceration: The Global Context 2024.” *Prison Policy Initiative*, June 2024, https://www.prisonpolicy.org/global/2024.html. Accessed 8 Sept. 2024.

Wilper, Andrew P., et al. “The Health and Health Care of US Prisoners: Results of a Nationwide Survey.” *American Journal of Public Health*, vol. 99, no. 4, 2009, pp. 666-672. *American Journal of Public Health*, https://doi.org/10.2105/AJPH.2008.144279. Accessed 5 Feb. 2024.

Wing, Steve, et al. “Integrating epidemiology, education, and organizing for environmental justice: community health effects of industrial hog operations.” *Am J Public Health*, vol. 98, no. 8, 2008, pp. 1390-7. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/18556620/. Accessed 1 Feb. 2024.

Wren, Ronald. “Lead Poisoning.” *Prison Legal News*, 15 Dec. 1993, https://www.prisonlegalnews.org/news/1993/dec/15/lead-poisoning/. Accessed 4 Jan. 2024.

Young, D.S. “Women's perceptions of health care in prison.” *Health Care for Women International*, vol. 21, no. 3, 2000, pp. 219-234. *PubMed*, https://pubmed.ncbi.nlm.nih.gov/11111467/. Accessed 6 Jan. 2024.

Zuniga, Julio A. “Contaminated Water at TDCJ Memorial Unit – Call for Solidarity from Comrade Z.” *Mongoose Distro*, 28 Jan. 2022, https://mongoosedistro.com/2022/01/28/contaminated-water-at-tdcj-memorial-unit- call-for-solidarity-from-comrade-z/. Accessed 25 Jan. 2024.

Appendix A: System Susceptibility

The TCEQ Water System search publishes "Source Water Assessment Results," including a System Susceptibility Summary. The results do not indicate immediate health risks but rather susceptibility to risks. For example, susceptibility considers the way a well is constructed or the natural system of an aquifer. Although TCEQ also supplies more detailed entry point susceptibility, we collected system susceptibility, which considers all entry points. According to a TCEQ employee, these summaries were based on data collected on or around 2006. While this falls far outside of our primary period of analysis (i.e., 2019-2023), we have chosen to present the data because: 1) these analyses may be rerun at the end of this year and it will be helpful to have data to compare to, 2) these analyses are based on the location of the water source relative to its surroundings which, though subject to change, may be relatively stable, and 3) it provides a historical context for what units are at the most risk of contamination.

Of the 16 active locations, 13 showed results while 3 did not. The results are summarized below, reflecting either high susceptibility (H), meaning "there are activities near the source water and the natural conditions of the aquifer or watershed make it very likely that chemical constituents may come into contact with the source water," medium (M) meaning somewhat likely, or low susceptibility (L) meaning unlikely contact. Dash marks indicate there is no specific recorded data or analytes to back up a rating. As illustrated in the table below, drinking water contamination and metal contamination pose a substantial risk in a small, cross-sectional subsample of TDCJ units.

System Susceptibility Summaries

Sampled Location	Asb.	CN	Met.	Micr.	Min.	RC	SOC	DB	VOC	DWC	Oth.
Coffield & Michael Units	--	--	H	--	H	--	L	--	M	H	L
Beto Units	--	--	M	--	L	--	L	--	M	--	L
Chase Field	--	--	H	--	H	--	M	--	H	H	M
Clemens Unit	--	L	H	M	H	--	M	L	H	H	--
Ramsey Area	--	L	H	M	H	--	M	L	M	H	L
Memorial Unit	--	L	H	L	L	--	L	L	L	H	L
Buffalo Ranch Prison Farm	--	--	H	--	H	--	M	--	H	--	M
Jester III Unit	L	L	L	L	L	L	L	L	L	L	L
Baten & Jordan Unit	--	M	H	M	H	M	M	M	M	H	M
Luther Unit	--	--	--	--	--	--	--	--	--	H	--
Pack Unit	--	L	H	L	M	L	L	L	L	M	L
Wainwright Unit	--	--	H	--	M	--	M	--	H	H	M
Ferguson Unit	--	--	H	--	--	--	--	--	--	--	--

Abbreviations: Asb: Asbestos; CN: Cyanide; DB: Disinfection Byproduct; DWC: Drinking Water Contaminant Candidate; Met: Metals; Micr.: Microbials; Min.: Minerals; Oth: Other; RC: Radiochemical; SOC: Synthetic Organic Chemicals; VOC: Volatile Organic Chemicals

Appendix B: Estimated Number Affected

Number of Incarcerated Persons by TDCJ Unit Water Systems Analyzed (N=16)

Water System	Estimated No. People Served*
Coffield and Michael Units	6,806
Beto Unit	3,400
Chase Field (Garza East and West)	4,152
Water Hauler-R IV	Not applicable or available
Clemens	1,089
Ramsey Area (Ramsey, Stringfellow, Terrell)	4,236
Memorial	1,864
Water Hauler RIII	Not applicable or available
Buffalo Ranch	Not applicable or available
Jester III	1,083
Baten and Jordan	1,115
Luther	1,163
Pack	1,290
Wainwright	2,370
Ferguson	2,356
Water Hauler RI	Not applicable or available
Total (minus non-housing systems)	**30,924**

Based on data from TDCJ's most recent High Value Dataset as of January 2025

Appendix C: Violations by Category

Sampled Locations with Notices of Violations, Category B (2019-2023)

Sampled Location	Violation #1	Violation #2
Coffield Unit	290.39(j)(2)(A)	290.44(h)(1)
Estelle Unit	26.121(a)(1); 305.125(4);	--
Jester III Unit	26.121(a)(1); 305.125(4); 305.125(5)	--

Sampled Locations with Notices of Violations, Category C (2019-2023)

Sampled Location	Violation #1	Violation #2	Violation #3	Violation #4	Violation #5
Beto Unit	305.125(5)	290.43(c)(6)	290.46(f)(2)	290.46(m)	290.46(s)(1)
Buffalo Ranch Prison Farm	290.46(s)(1)	--	--	--	--
Coffield Unit	290.46(f)(2)	290.46(m)	290.46(s)(1)	290.46(s)(2)(C)	--
Estelle Unit	305.125(1); 305.125(5)	--	--	--	--

TEXAS PRISONS COMMUNITY ADVOCATES

TPCA©

A life source & a light center

TPCAdvocates.org

published March, 2025