REPORT OF COMPLIANCE EVALUATION INSPECTION

AT
Leon Water Supply
104 West 1st Street
Leon, Iowa 50144
Public Water Supply ID: IA2742076

August 19, 2025

BY
U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

I conducted a Public Water Supply Compliance Evaluation Inspection at the Leon Water Supply (PWS or system) to assess the system's compliance with the Safe Drinking Water Act (SDWA). The inspection was conducted under the authority of SDWA Section 1445 and as part of the EPA's National Enforcement and Compliance Initiative. This report presents the results of the inspection.

PARTICIPANTS

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SYSTEM DESCRIPTION AND HISTORY

The Leon Water Supply is classified as a community water system that is owned and operated by the City of Leon. The system directly serves an estimated 1,830 people through approximately 825 active service connections. The system also sells water to the Southern Iowa Rural Water Association (SIRWA) #3 system, which supplies water to approximately 1,373 people. Therefore, the total population served by water originating from the Leon Water Supply is estimated to be 3,209 people.

The system operates a conventional surface water treatment plant consisting of chemical coagulation, flocculation, sedimentation, filtration, and disinfection. The system's source water is drawn from one surface water source named Little River Lake using two 300 gallon per minute (GPM) pumps and one 600 GPM pump. Sodium permanganate is injected year-round into the raw water flow immediately after the raw water pumps for taste, odor, and manganese control. Water then travels an estimated 0.25 mile for about 30 minutes to the water treatment plant (WTP).

Coagulant is mixed into the flow immediately upon entering the plant through a flash mixer. The flow then enters two 300 GPM clarifiers. In the center chamber of each clarifier, sodium hydroxide, cationic polymer, and anionic polymer are injected. Following clarification, the flow is gravity filtered through four mixed media filters. The filters contain 18 inches of granulated activated carbon on top of 24 inches of filter sand.

Following filtration, hydrofluosilicic acid and sodium hypochlorite are injected. Finished water is stored in a 300,000-gallon clearwell located outside of the WTP, and a 100,000-gallon clearwell located inside the WTP. Two 300 GPM and one 600 GPM vertical turbine pumps pump finished water to two elevated storage towers, one 75,000-gallon cone top tower and one 200,000-gallon spheroid pedestal tower. The system has approximately one day of finished water storage.

The system has four operators certified at various levels and Mr. Sheetz is the operator in charge. The IDNR requires the system to have a certified operator in direct responsible charge of its treatment and distribution systems holding at least a Grade 3 water treatment system certification and a Grade 2 water distribution system certification. Therefore, the system meets the operator certifications requirements of the IDNR.

Violation History

In the five-year period between August 19, 2020, to August 19, 2025, the system received 16 violations, including multiple Maximum Contaminant Level (MCL) exceedances and Treatment Technique (TT) violations, according to Safe Drinking Water Information System (SDWIS) data (Attachment 4), as follows:

Violation Name	Violation Category	Analyte Name	Compliance Begin Date
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	04/01/2025
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	04/01/2025
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	01/01/2025
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	01/01/2025
Public Notice (PN) Rule Linked to Violation	PN	Public Notice Rule	03/19/2025

MCL, Average	MCL	Total Haloacetic Acids (HAA5)	10/01/2024
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	10/01/2024
Public Notice Rule Linked to Violation	PN	Public Notice Rule	12/18/2024
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	07/01/2024
Single Comb Filter Effluent (Surface Water Treatment Rule)	TT	Turbidity	07/01/2023
MCL, Average	MCL	Total Trihalomethanes (TTHM)	07/01/2022
Single Comb Filter Effluent (SWTR)	TT	Turbidity	09/01/2022
Single Comb Filter Effluent (SWTR)	TT	Turbidity	08/01/2022
Monitoring (Disinfection By Products – (DBP), Routine Major	MON	Total Trihalomethanes (TTHM)	02/01/2022
Monitoring (DBP), Routine Major	MON	Total Haloacetic Acids (HAA5)	02/01/2022
MCL, Average	MCL	Total Haloacetic Acids (HAA5)	10/01/2021

Compliance Monitoring History
In the five-year period between August 19, 2020, to August 19, 2025, the system was evaluated by IDNR sanitary surveys (SS), on October 5, 2020, and August 2, 2023.

I asked Mr. Sheetz for information documenting actions taken to address the minor deficiencies, requirements, and recommendations from the 2023 sanitary survey. Mr. Sheetz stated that he did not provide IDNR with written responses to the last sanitary survey. IDNR's 2023 sanitary survey is accessible in the water facility site files (Attachment 5). The survey did not identify any significant deficiencies; however, six (6) minor deficiencies, five (5) requirements, and 28 recommendations were identified as a result of the state's sanitary survey. The requirements and minor deficiencies are listed below. During the inspection, I asked Mr. Sheetz what the status was of each of the IDNR's 2023 findings below. Asterisks indicate items that remained unaddressed as of EPA's August 2025 inspection.

Summary of Minor Deficiencies
*1. Properly plug the Jordan well since it is no longer in use or maintained and submit the well plugging record. [567 Iowa Administrative Code 39]
*2. Provide the annual certification to the Iowa DNR that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed levels specified in 567 IAC 41.5(1)"b"(3).

3. Prepare the Disinfection Byproducts Rule monitoring plan and ensure its availability during sanitary surveys. [567 IAC 41.6(3)]
4. Review the written disinfection byproduct rule monitoring plan every three years and update it as system conditions change (such as changes in water quality or hydraulics, etc.). [567 IAC 41.6(3)"b"]
*5. Measure chlorine residuals immediately upon sample collection. [Standard Methods for the Examination of Water & Wastewater and Recommended Standards for Water Works 2.8.1]
*6. Develop a lead and copper sampling plan indicating where tap water samples are to be taken and the correct number to be taken during each monitoring period. The completed materials evaluation of the distribution system should be part of this plan in order to identify a pool of sampling sites that meets the requirements of the Lead and Copper Rule. [567 IAC 41.4(1) "c"(1)]

Summary of Requirements
1. Develop a map of the distribution system served by the system and include this in the bacteria sampling plan. [567 IAC 41.2(1)”c”]
2. Ensure that the chemical offloading area labels are clearly visible to prevent accidental cross contamination. [Recommended Standards for Water Works 5.1.9]

NOTICE OF INSPECTION

State Notice
On July 12, 2024, Corey McCoid with the IDNR was notified, in writing, of the EPA’s intention to inspect the Leon Water Supply. This notification was conducted pursuant to Section 1445(b)(2) of SDWA, 42 U.S.C. § 300j-4(b)(2).

Public Water System Notice
On July 18, 2025, I notified Kyle Sheetz, Water and Sewer Superintendent and Chief Operator of the Leon Water Supply, by telephone and email (Attachment 6), of the EPA’s intention to conduct the inspection of the system. This notification was conducted pursuant to Section 1445(b)(1) of the SDWA, 42 U.S.C. § 300j-4(b)(1).

INSPECTION PROCEDURES

Opening Conference
I arrived with Adam Hendrickson, Morgan Hartwig, and Janet Gastineau at Leon City Hall at 9:00 AM and met with Kyle Sheetz. I introduced myself, presented my EPA credentials, and explained the purpose and scope of the inspection.

FINDINGS AND OBSERVATIONS

The inspection began with a discussion of the system’s records. As part of the inspection, we visually observed the system’s facilities and components, including the raw water intake, the water treatment plant, finished water storage structures, and the consecutive connection meter location with the SIRWA #3 system. During the inspection, I took 26 photographs (Attachment 1). The following findings were noted during the inspection, discussed with the system during the August 19, 2025, closing conference, and provided to the system in the Notice of Preliminary Findings (NOPF) the same day (Attachment 2).

Records Management
As part of the inspection notification, I requested multiple records in order to conduct and prepare for the inspection. On July 18, 2025, I emailed Mr. Sheetz requesting the following information: cross connection program records, valve exercise program records, flushing program documents, chlorine residual logs, system maps and schematics, lead service line inventory, lead and copper sampling pool, DBP sampling plan, contact time calculation records, chemicals used and application points, financial information for the system, water loss data, finished water storage structure inspection reports, last 2 sanitary surveys and any follow-up responses, actions taken to correct violations of primary drinking water regulations in the past 3 years, a completed cybersecurity checklist, and any emergency plans or procedures utilized by the system.

I was provided with most of the information requested prior to the inspection. However, I was not provided with flushing, valve exercise, or cross connection program documentation. I was also not provided with documentation of violations in the past 3 years and their status, or documentation of any corrective actions to address violations or findings from the last sanitary survey, water loss documentation, or emergency plans or procedures. According to Mr. Sheetz, the system did not provide IDNR with documentation of corrective actions from the last sanitary survey, and does not have a written flushing, valve exercise, or cross connection program. Prior to and during the inspection, I asked Mr. Sheetz for documentation of all violations of primary drinking water regulations violations and corrective actions in the past 3 years, and Mr. Sheetz was unable to produce this information (**NOPF 1**). 40 CFR 141.33 requires all PWSs to keep records of actions taken to correct violations of primary drinking water regulations for at least 3 years.

America's Water Infrastructure Act
According to the Iowa Drinking Water Data Portal website and Mr. Sheetz, the system serves a total of 3,209 people, which includes the consecutive connection of the SIRWA #3 PWS. I asked Mr. Sheetz if there were any projected trends in population served by the system, and he stated the population may slightly increase in the future. I explained to Mr. Sheetz as a reminder only that compliance with Section 1433 of the SDWA would be required if the total population served reached 3,300 (**NOPF 2**). I explained the AWIA requirements would include the development of a Risk Resiliency Assessment and an Emergency Response Plan (ERP). Although the system did not meet the AWIA population threshold, additional information on the SDWA 1433 AWIA can be found at: https://www.epa.gov/waterresilience/awia-section-2013.

Source
Prior to 2008, the system operated a ground water treatment system. In 2008, the system constructed and began operating the current surface water treatment plant. The system has an abandoned well named Well #4 that Mr. Sheetz said drew water from the Jordan Aquifer until it was abandoned in 2008. According to the IDNR's 2023 SS, photographs taken during the inspection by Ms. Gastineau, and discussion with Mr. Sheetz, the well was not properly abandoned and remains unplugged (**NOPF 3**). Based on the photographs provided by Ms. Gastineau during the inspection, the abandoned well appears to be accessible to the public. There is a casing, but it is not plugged. IAC Chapter 567—39.3(455B) requires that "All classes of wells that are abandoned must be properly plugged within 90 days of the date of abandonment."

Mr. Sheetz explained that currently, the system only draws surface water, and the well is no longer in use.

During the inspection, I observed the system's raw water pump station, where the system injects sodium permanganate for manganese control, taste, and odor. I observed the sodium permanganate feed, and it appeared to be in working order and free of excess buildup. I observed three manually operated valves that Mr. Sheetz explained can be used to draw water from multiple levels in the lake (photo 25). I did not observe algae on the surface of the lake (photo 26).

Mr. Sheetz explained that in the summer manganese becomes problematic and is what caused the system's two turbidity MCL exceedances, listed in the 5-year compliance history. He speculated there may be a biological link to increased algal activity and increases of manganese in the raw water. I asked if the source water had harmful algal blooms, and he explained that they technically do, as confirmed by cyanobacteria detections. However, he said that it has not become excessive or too problematic and is monitored. Mr. Sheetz said that raw water turbidity tends to be around 10-15 Nephelometric Turbidity Units (NTU) in the summer and 2-3 NTU in the winter. He said there were no known zebra mussel issues in the lake. Mr. Sheetz said that he had last observed two out of the three intakes in 2011 when the lake was drained for a rehabilitation project. Mr. Sheetz explained that the intakes had not been inspected since that time, and he had never seen the third intake. Therefore, the system's intakes have not been observed or inspected since 2011, and the condition of the intakes is unknown (**NOPF 4**). Periodic maintenance and visual inspections of intakes allows for the removal of debris and assessment of screen integrity. This allows systems to take action to prevent damage to piping valves and pumps, which is especially important during winter if there is a possibility of ice buildup.

Treatment

The interior of the water treatment plant generally appeared clean, well maintained, and in good operating condition. Mr. Sheetz stated that there was regular mopping of the facilities. He explained that raw water samples are drawn daily from the flow immediately upon entering the WTP for laboratory analysis (photo 10). He said that raw water tests include pH, turbidity, managese, color, natural fluoride, hardness, and alkalinity, and that coagulant and other chemical feeding can be adjusted based on results if needed. He stated that the lab was not certified, but the analyis is used for operational monitoring purposes to adjust treatment as necessary. There were no issues were noted with the sample station, lab, or rapid mixer where polyaluminum chloride is added for coagulation.

According to IDNR's 2023 SS, the coagulants used at the system contain acrylamide and epichlorohydrin and the system had not certified whether the appropriate dose of these chemicals was being administered for that year. I asked Mr. Sheetz if the system had certified they were using the appropriate dose in the last certification cycle, and he said no (**NOPF 5**). Mr. Sheetz said he did not think he had provided certification to IDNR for the 2023 certification cycle to address IDNR's finding. 40 CFR 141.111 requires that each public water system must certify annually in writing to the State that when acrylamide and epichlorohydrin are used in drinking

water systems, the combination of dose and monomer level does not exceed the levels specified as follows:
Acrylamide = 0.05% dosed at 1 ppm.
Epichlorohydrin = 0.01% dosed at 20 ppm.

I observed the two 300 GPM clarifiers, which appeared to be free of excess corrosion or buildup (photos 17 and 18). I did not observe any structural issues with the clarifiers, and the weirs appeared to be level. I then observed the 4 filter beds, which Mr. Sheetz said were dual-media gravity filters. Mr. Sheetz explained that they contain granulated activated carbon, gravel, and sand (photo 19). According to IDNR's 2023 SS, the carbon had been replaced on all four filters and the sand and gravel was replaced on two of the filters in 2022. IDNR's 2023 SS also indicates that before 2022, the previous carbon was replaced in 2018. According to the 2023 IDNR SS, Mr. Sheetz explained at that time that he thought that the media should be replaced or replenished more frequently than every 4 years. During the inspection, Mr. Sheetz explained that based on his observations, that the GAC accumulates more manganese after it has been in use for a couple years. However, the system may be due for regular replacement of the GAC based on past replacement history and statements from the 2023 SS. The system did not have a written procedure on when inspections and replacements of filter media should occur (**NOPF 6**). Filter media can be lost over time and mineral deposits and biofouling can cause media to lose its treatment effectiveness. A written procedure can help identify when media concerns need to be evaluated and addressed.

The system has filter to waste capability. Mr. Sheetz said that upon plant startup, turbidity spikes. He said he did not know if the spikes were caused by readings from the equipment or actual turbidity. Later, Mr. Sheetz said turbidity spikes upon plant startup has led to two turbidity MCL violations in the past five years. I asked what the cause of the turbidity spikes were, and he explained they were both caused by manganese. IDNR provided me with documentation of the turbidity exceedances. Mr. Sheetz explained that he did not know if filter to waste occurs on plant startup (**NOPF 7**). Since there are higher levels of turbidity upon plant startup, filter to waste upon plant startup could reduce the risk of turbid water leaving the treatment plant and could potentially reduce DBP generation. I asked Mr. Sheetz questions about the system's SCADA system. There were operational technology concerns with the system's SCADA that I discussed with Mr. Sheetz (**NOPF 8**).

Mr. Scheetz explained that the system has an ammonia injection point that is not in use (photo 20). He said that the pit capable of injecting ammonia has a redwood bottom that needed to be removed and replaced with concrete before an ammonia injection site would be functional for chloramines. He explained that prior to entering the 300,000-gallon clearwell, sodium hypochlorite is added to the flow for disinfection in addition to fluoride.

Outside the WTP building, the system has a bulk fill station with sodium hypochlorite, caustic soda, cationic polymer, fluoride, and coagulant available for trucks to refill treatment chemicals (photo 23**)**. Each of the connections were unlocked and led directly into the WTP chemical storage/dosage tanks. Mr. Sheetz explained that the company who fills the bulk chemicals will typically call ahead before arriving, but a staff member from the system does not regularly accompany them during chemical filling. The bulk fill stations did not have physical access

restrictions such as locks and were not in a fenced area (photo 23**).** I noted that the bulk chemical fill station protections and procedures are inadequate to protect against mishandling or tampering (**NOPF 9**). If chemicals were filled into the wrong chemical storage, there would be significant risk for the system's treatment ability to be disrupted. Bulk fill access restrictions, such as locks with keys held by system personell, can help ensure bulk chemical providers are only able to fill the correct chemical storage.

Bilateral Compliance Agreement

I asked Mr. Sheetz what the system planned to do to address ongoing DBP violations. He explained that the system was currently under a Bilateral Compliance Agreement with the IDNR (Attachment 7). Mr. Sheetz said that to meet part of the requirements of the BCA, the system planned to begin using chloramines to mitigate DBP generation. According to the BCA, a compliance schedule was established as a result of ongoing HAA5 violations and in accordance with part 567 of the Iowa Administrative Code (IAC) Chapters 40-43. The BCA, available in the system's operation permit, provides a schedule to control DBP formation and install a chloramine disinfection system, summarized as follows:

Preliminary Engineering Report

The system is required to submit a preliminary engineering report prepared by a registered engineer to IDNR for review by August 15, 2025. The report must contain:

- An evaluation of alternate water sources including connection to another water supply.
- An evaluation of treatment technologies to remove HAA5 from drinking water.
- A detailed cost analysis of implementing alternate water sources and treatment technologies.
- Recommendations for complying with the HAA5 standard.
- A proposed time schedule for implementation of the various alternatives offered in the report.
- A plan for disposal of wastewater generated by the treatment technologies identified in the preliminary engineering report. Disposal must comply with the Wastewater and National Pollution Discharge Elimination System (NPDES) Rules.

In addition, the system is required to conduct a viability self-assessment and submit the completed self-assessment to IDNR for review by March 31, 2025. After the preliminary engineering report and viability self-assessment have been approved by the IDNR, an operation permit with a compliance schedule for implementation will be issued. The plans and specifications for any proposed water supply construction project must be prepared by a registered engineer and submitted to the IDNR for review and issuance of a construction permit prior to construction of such facilities. A construction permit must be obtained prior to starting installation.

Finished Water Storage

I reviewed the latest finished water storage inspection reports for the system's two elevated water storage towers. The system's two water towers both had interior and exterior inspections within the last 5 years. Mr. Sheetz explained the system had a contract with Maguire Iron, Inc. to visually inspect the exterior two towers every year and conduct full interior and exterior

inspections every 5 years. However, the contract did not include inspections of clearwells and the clearwells were not regularly inspected. Mr. Sheetz said there was no schedule for inspecting the clearwells (**NOPF 10**). The American Water Works Association (2013) recommends that an inspection of all finished water storage structures, including clearwells, should be conducted every 3-5 years (Attachment 8). A schedule for inspecting clearwells can help remind systems to conduct inspections to identify and correct issues with finished water storage conditions.

The chart below outlines the names, capacities, and last date each finished water storage structure was inspected:

Storage Facility Name	Capacity (gallons)	Last Inspection Date
Clearwell	300,000	Uknown, estimated 15 years ago
Clearwell	100,000	Unknown
Cone Tower	75,000	10/19/2023
Sphere Tower	200,000	8/27/2024

300,000-gallon Clearwell

The 300,000-gallon clearwell was constructed of concrete and located immediately outside of the WTP (photo 21). Mr. Sheetz stated that the clearwell is used for chlorine contact time. I asked for the last inspection report for this clearwell, and Mr. Sheetz said there were not any available. I asked Mr. Sheetz if he could estimate the last time it had been inspected, and he gave an estimate of about 15 years ago (**NOPF 11**). I observed superficial cracks along the rim of the clearwell, but none on the top. I did not observe any signs of water leaking or burrows in the soil surrounding the clearwell. The clearwell's vent and overflow were both downturned and screened with 24 mesh. Mr. Sheetz opened the access hatch, revealing there was not a gasket or watertight seal (**NOPF 12**; photo 21). Watertight seals help keep contaminants such as vectors from entering the finished water supply.

100,000-gallon Clearwell

I observed one of the sides of the 100,000-gallon clearwell, which was built into and located inside the WTP. I asked for the last inspection report for the clearwell, and Mr. Sheetz said he was not aware of when the last time it had been inspected (**NOPF 11**). Because the clearwell was built into the plant, I was unable to observe the exterior of the entire clearwell. The wall that I observed appeared in good condition, and I did not observe any cracks. However, I was unable to observe the clearwell's overflow or vent and Mr. Sheetz stated he was not sure if the overflow or vent were screened (**NOPF 13**). The system should investigate the locations of these clearwell components to ensure they meet installation guidelines.

75,000-Gallon Cone Tower

The 75,000-gallon Cone Tower was not located inside an area with security fencing (**NOPF 14**). Mr. Sheetz explained that the tower had been painted within the last couple years due to vandalism (photo 2). Security at water towers such as fencing or cameras can help protect water supplies by reducing risk of unauthorizes access. I observed the concrete bases of each support leg of the tower and noted one base had deterioration of the concrete base (photo 4). Damage to the tower's foundation can lead to reduced foundational integrity over time. A water tank inspection report conducted on October 19, 2023, identified that the tower is not equipped with a roof vent and vents through air gaps where the roof meets the sidewall of the tower shell. The

report included a picture taken from inside the tank looking up at the roof that documents large gaps with daylight visible along the perimeter of the tower roof, which Mr. Sheetz confirmed was not screened (**NOPF 15**). I discussed this finding with Mr. Sheetz during the inspection and closing conference on August 19, 2025. I asked when he would be able to get this fixed, and he stated it would likely be fixed in a year when the contracted company, Maguire, was expected to visit the tower.

Following the inspection and after discussions with EPA staff, I explained to Mr. Sheetz via phone call and email on August 25, 2025, August 26, 2025, and August 27, 2025, that the unprotected openings of the tower posed a significant issue and needed to be addressed as soon as possible to minimize the potential risk of contamination of water supplied to consumers. On September 2, 2025, Mr. Sheetz provided me with a written plan and schedule to address this finding (Attachment 9). His response specified that measures to address the unprotected openings were expected to be implemented no later than September 30, 2025. The planned measures include using a sealant to close the gaps between the tower walls and the tower roof and adding a vent to the roof.

On September 4, 2025, after discussion of the situation with IDNR staff, the EPA transmitted a letter to Mr. Sheetz (Attachment 10). The letter summarized his plan and schedule and made an additional recommendation to conduct daily chlorine residual monitoring at the water tower. The letter explained that the purpose of the additional monitoring was to ensure an adequate disinfectant residual is maintained in the storage structure while the plan is implemented to further minimize risk of potential contamination of water supplied to consumers.

On September 30, 2025, I requested an update from Mr. Sheetz on if the approved schedule had been completed via phone call and email, and Mr. Sheetz stated it had not been completed. I asked him to request an extension with a specific date with an explanation of why an extension was being requested. On October 1st, 2025, he requested a new date of October 27, 2025 (Attachment 11).

According to the 2023 tower inspection report and Mr. Sheetz, the Cone Tower finished water access hatch did not have a watertight seal (**NOPF 16**). Watertight seals on finished water can help keep contaminants such as vectors out of the finished water supply.

<u>200,000-Gallon Sphere Tower</u>

The Sphere Tower was located nearby and was also not located inside an area with security fencing (**NOPF 14**; photo 8). According to the 2025 tower report and Mr. Sheetz, the finished water access hatch also did not have a watertight seal (**NOPF 16**). Watertight seals on finished water storage structures can help keep contaminants such as birds, insects, etc. out of the finished water supply. I observed the overflow mesh was larger than 24 mesh and not downturned **(NOPF 17**; photo 5). 24 mesh screens on finished water overflows can help keep contaminants such as vectors out of the finished water supply. This is a repeated finding from IDNR's 2023 SS. There was a garbage can immediately next to the unprotected overflow (photo 8). I observed mildew on the exterior of the tower (photo 8). Mildew growing on water storage can lead to deterioration of the protective coating and increase repair costs. Following the inspection, Mr. Sheetz stated that Maguire had visited and was beginning the process of painting the Sphere Tower.

Distribution System
During the inspection, the system's distribution system was discussed, and components were visually observed. During the discussion, Mr. Sheetz explained that he had concerns with the water age in the distribution system. He indicated that pressure and flow characteristics in the distribution system may be contributing to higher water age and DBP formation. He said there are areas with approximately 100 pounds per square inch (PSI) in the distribution, and the average PSI is approximately 50, with no areas under 20 PSI. He said the system does not have any pressure-reducing valves. He indicated that at a particular sampling location where DBP exceedances are prevalent, the water age is increased because it flows from opposite ends and meets at a looped area. The system is continuing to evaluate options to mitigate DBP formation as they work on the BCA.

We visited the system's one bulk fill station located near the water treatment plant (photo 1). The fill hose for the station was equipped with a metal cage at the end of the hose to serve as an air gap device. However, the diameter of the air gap device appeared to be small enough that it could potentially be submerged in a bulk fill tank (**NOPF 18**). A reduced pressure valve (RPZ) was not installed on the water line prior to the bulk fill hose. If the bulk fill hose was submerged into a bulk fill tank, backflow or back siphoning could occur since there was not additional backflow prevention. Mr. Sheetz stated that there was one meter pit, which connects to and is owned by the SIRWA system. We visited the meter pit, and the interior was free of standing water (photo 9).

<u>Valve Exercising Program</u>
As part of the pre-inspection records request, I asked for the system's valve exercising program documents, but was not provided with that information. During the inspection I asked if the system had a valve exercising program, and Mr. Sheetz stated that the system did not have one (**NOPF 19**). A developed valve exercise program can help ensure the system can isolate portions of the distribution system to reduce the number of customers affected when maintenance of the distribution system is needed.

<u>Flushing Program</u>
As part of the pre-inspection records request, I asked for the system's flushing program documents, but was not provided with that information. During the inspection I asked if the system had a written flushing program, and Mr. Sheetz stated that the system did not have one (**NOPF 20**). He explained that system did flush the system, but it was not tracked. Flushing programs increase capabilities to flush at appropriate locations and intervals, improving the ability to manage water age, remove sediment, and distribute treatment chemicals evenly throughout systems. EPA's How to Conduct a Sanitary Survey of Drinking Water Systems (2019) (Attachment 12) states that systems should have a "written, workable plan" available for their distribution system flushing program.

<u>Cross Connection Control Program</u>
As part of the pre-inspection records request, I asked for the system's cross connection/backflow prevention program records, including any ordinance or regulations, testing and inspections, inspection reports or certifications, and an inventory of known cross connections. However, I

was not provided with that information prior to the inspection. During the inspection I asked Mr. Sheetz to provide me this information again but he was unable to produce the requested information. I asked Mr. Sheetz if the system had a cross-connection control program, and he said no. I asked if all high hazard cross-connections were inspected annually, and Mr. Sheetz said no, and he explained that the system did not have a written cross-connection control plan (**NOPF 21**). High hazard cross-connections can pose a serious potential risk of contaminating water supplied to consumers, and the risk is significantly increased if such connections are not identified, tracked, and inspected.

According to EPA's How to Conduct a Sanitary Survey of Drinking Water Systems (2019) (Attachment 12), systems should have a cross-connection control program that has the following basic components:

- Ordinance or other authority to establish a program.
- Technical provisions to eliminate cross-connection hazards.
- Right of entry and survey of existing facilities served by the system.
- Backflow prevention assembly testing, repair and recordkeeping.
- Certification of backflow prevention assembly testing personnel.
- Review of new construction plans and new services for potential cross-connection hazards.
- Penalty provisions for violations.

Chlorine Sampling

According to IDNR's 2023 sanitary survey, the system does not measure chlorine residuals immediately upon sampling collection. I asked Mr. Sheetz how chlorine residuals were taken at the system, and he explained they are taken in the distribution system and then returned to the water treatment plant for analysis. Therefore, the system still does not measure chlorine residuals immediately upon sample collection (**NOPF 22**). Measuring residual chlorine, no later than 15 minutes of collection, increases the likelihood that the results reflect actual system conditions since chlorine residuals are unstable and decay quickly after sampling. Standard Methods for the Examination of Water and Wastewater and the Recommended Standards for Water Works 2.8.1 (Attachment 8) explain that chlorine should be measured immediately upon sample collection.

Lead and Copper

I asked Mr. Sheetz for the system's current lead and copper sampling plan. I was provided with the system's 2018 lead and copper sampling plan with results, which contained 20 sample sites as required by the reduced triennial monitoring schedule. I reviewed the sampling plan and observed that sample sites identified did not include tiering information. Mr. Sheetz explained that all of the current sample sites were tier 1 single-family residences. However, he said that at one of the residences, lead had been replaced. Therefore, the system's lead and copper plan was not fully updated to reflect recent changes in sampling locations and did not include tiering information (**NOPF 23**). The system submitted its Lead Service Line Inventory (LSLI) prior to the deadline, which identified 82 lead service lines, but Mr. Sheetz explained that 2 of the identified LSLs had been replaced already. The LSLI also identified 207 Lead Status Unknown lines, 689 Non-Lead Service Lines System, and 0 Galvanized Requiring Replacement. The system should continue to identify unknown lines. The system did not have a capital

improvement plan that included plans to identify unknown lines or replace additional LSLs. According to Mr. Sheetz, all customer notifications had been sent as required. He explained that there were no Lead/Copper Action Level Exceedances in the past 5 years. SDWIS data reviewed confirmed no ALEs have been recorded in the past 5 years.

SUMMARY

I discussed the preliminary findings with Mr. Sheetz at the closing conference on August 19, 2025. Ms. Gastineau, Ms. Hartwig, and Mr. Hendrickson were also present. The same day, I emailed Mr. Sheetz a written NOPF, which was signed and returned to me on August 20, 2025. I requested that Mr. Sheetz provide me with written responses to the preliminary findings within 15 days. Mr. Sheetz stated he would be on vacation from September 3, 2025, to September 16, 2025, but would begin working on responses when he returned. On September 17, 2025, Mr. Sheetz provided me with a written response with plans to address the findings (attachment 3). Additional findings were identified following the inspection, included in the report and below.

Findings:

1) The system was unable to produce documentation of National Primary Drinking Water violations and corrections within the past 3 years upon request as required by 40 CFR 141.33.

2) The system serves an estimated total population of 3,209 and would need to conduct a Risk and Resiliency Assessment and develop an Emergency Response Plan if the total population served reached 3,300, as required by Section 1433 of the SDWA.

3) Well #4 is improperly abandoned because it is not plugged.

4) The system's intakes have not been observed or inspected since 2011.

5) The system did not complete the last annual certification for acrylamide and epichlorohydrin dosage for coagulants as required by 40 CFR 141.111.

6). The system does not have a written procedure on when inspections and replacements of filter media should occur.

7) The system does not know if filter to waste occurs on plant startup and regularly reports high levels of turbidity upon plant startup.

8) There were operational technology concerns with the system's SCADA.

9) The bulk chemical fill station protections and procedures are inadequate to protect against mishandling.

10) The system does not have a schedule for inspecting clearwells.

11) The system has not recently inspected the 300,000-gallon and 100,000-gallon clearwells.

12) The 300,000-gallon clearwell finished water access hatch did not have a watertight seal.

13) The system does not know if the inside clearwell overflow and vent are screened.

14) Security measures were not in place at the 75,000-gallon Cone Tower and 200,000-gallon Sphere Tower.

15) The 75,000-gallon Cone Tower has large gaps at the top with daylight visible from inside the finished water tank. The tower does not have a roof vent and instead vents through the gaps where the roof met the sidewall of the tower shell.
On September 2, 2025, the system provided EPA a corrective action plan to address the gaps in the tower be completed no later than September 30, 2025.

On September 30, 2025, I requested an update on if this had been completed via phone call and email, and Mr. Sheetz stated it had not been completed. I asked him to request an extension with a specific date with an explanation of why an extension was being requested. On October 1, 2025, he requested a new date of October 27, 2025 (Attachment 11).

16) The Cone and Sphere Tower finished water and tower access hatches do not have watertight seals.

17) The Sphere Tower overflow mesh is larger than 24 mesh, not downturned, and near a source of potential contamination.

18) The diameter of the air gap device for the bulk fill is small enough that it could potentially be submerged in a bulk fill tank.

19) The system does not have a valve exercising program.

20) The system does not have a written standard operating procedure for flushing.

21) The system does not track or regularly inspect high hazard cross connections.

22) Chlorine residuals are not measured immediately upon sample collection.

23) The Lead and Copper sampling plan does not include tiers and is not updated to reflect changes in sampling locations.

CONNOR FINN Digitally signed by CONNOR FINN Date: 2025.10.03 12:47:59 -05'00'

Connor Finn
Life Scientist, WB/DWIS

NICOLE MORAN Digitally signed by NICOLE MORAN Date: 2025.10.06 08:37:09 -05'00'

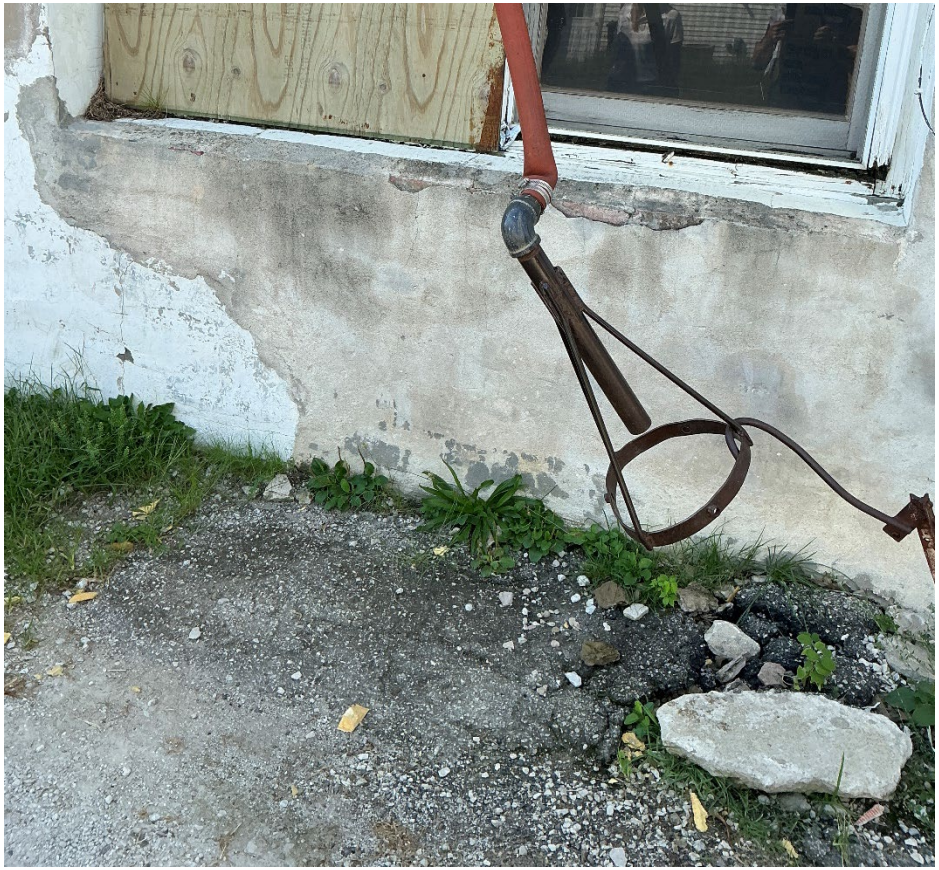
Nicole Moran
Supervisor, WB/DWIS

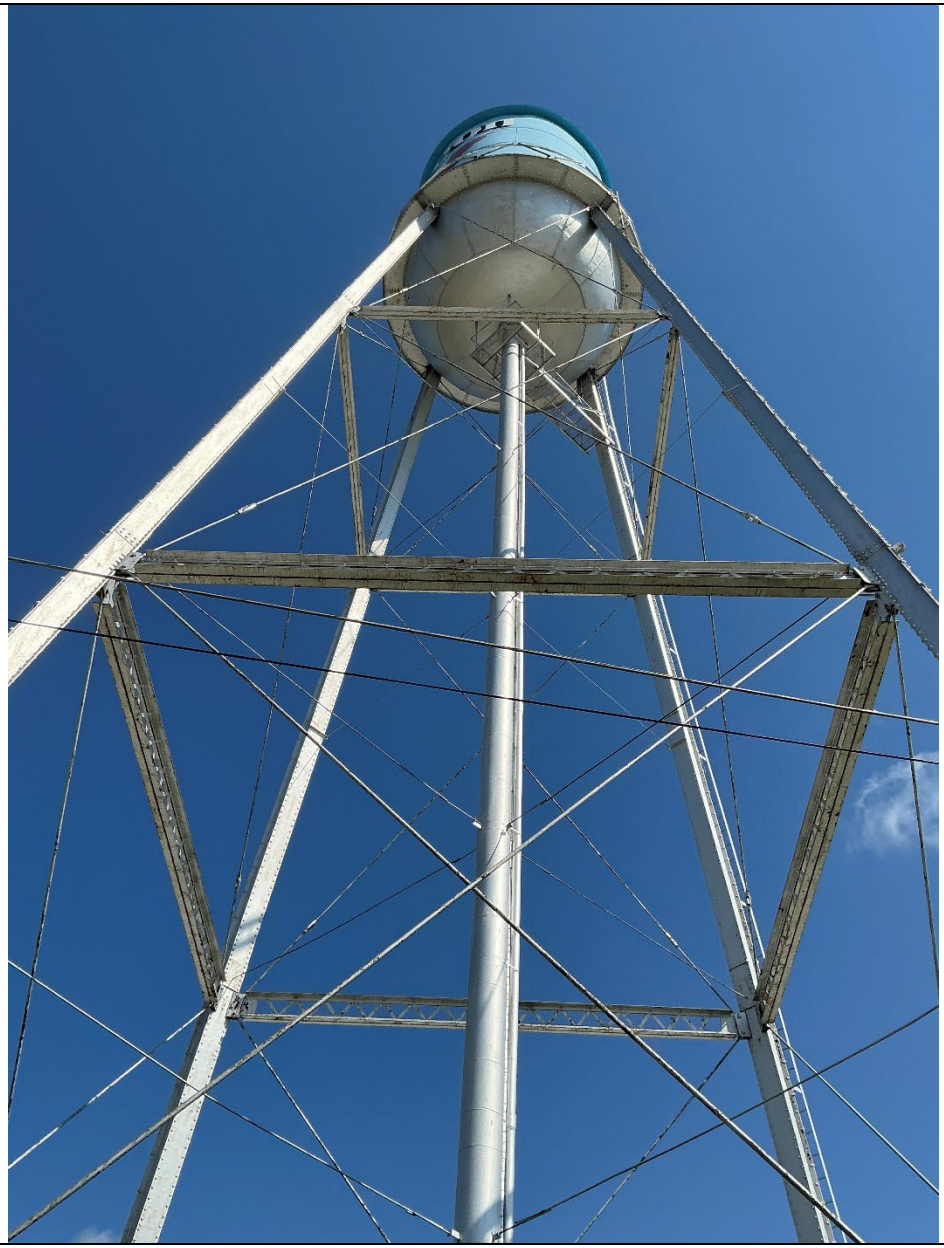
Attachments:
1. Digital Photographs (12 pages)
2. August 20, 2025, Signed NOPF (2 pages)
3. September 17, 2025, System's NOPF Response (3 pages)
4. SDWIS Violation Data (1 page)
5. IDNR's 2023 SS Report (12 pages)
6. EPA Inspection Notification (2 pages)
7. Bilateral Compliance Agreement (12 pages)
8. 2022 Recommended Standards for Water Works, 2022 (220 pages)
9. System's initial compliance plan for tower repair (1 page)
10. EPA letter to system documenting compliance plan (3 pages)
11. New compliance schedule from system (2 pages)
12. EPA's 2019 How to Conduct a Sanitary Survey (304 pages)

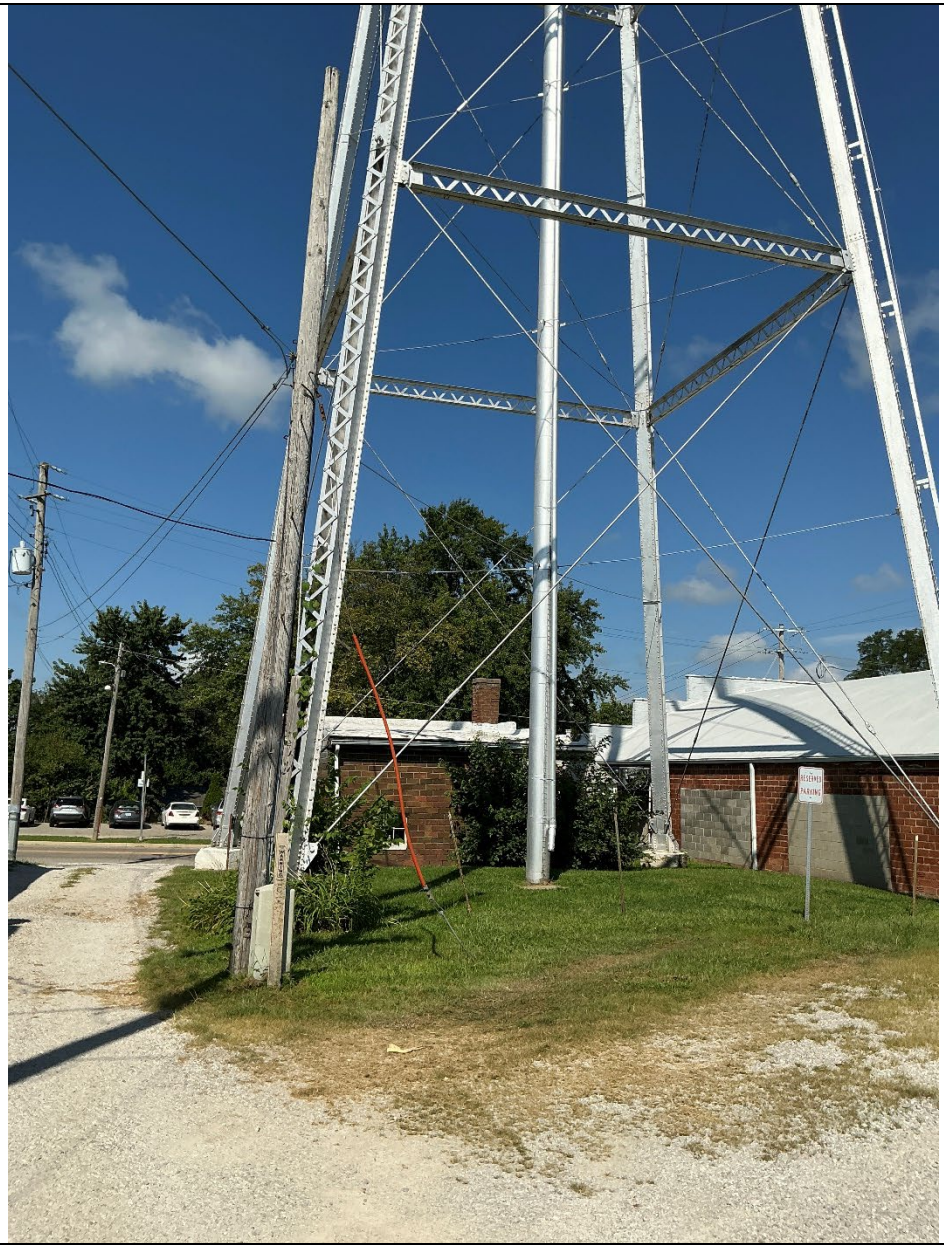
United States Environmental Protection Agency – Region 7

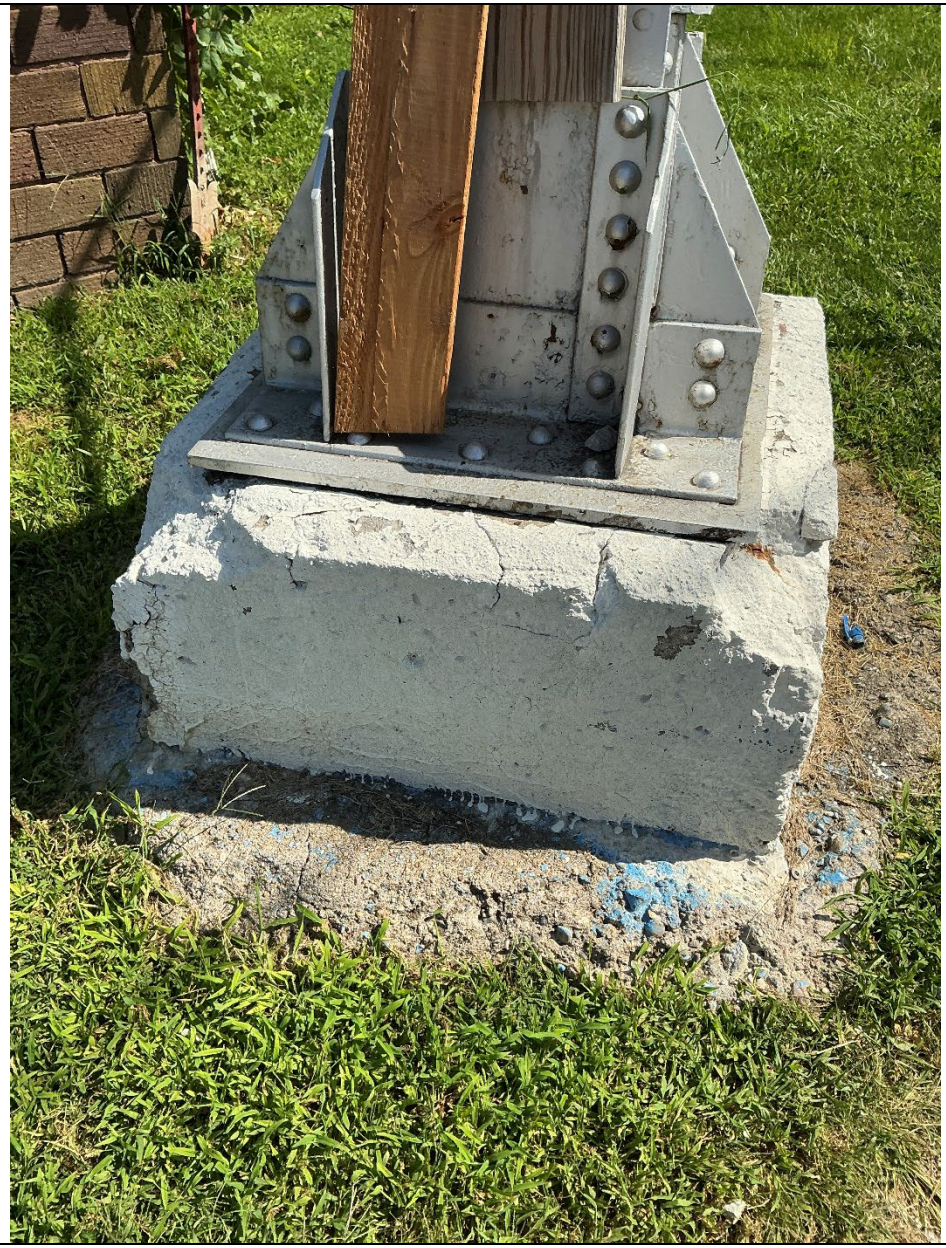
Digital Image Log

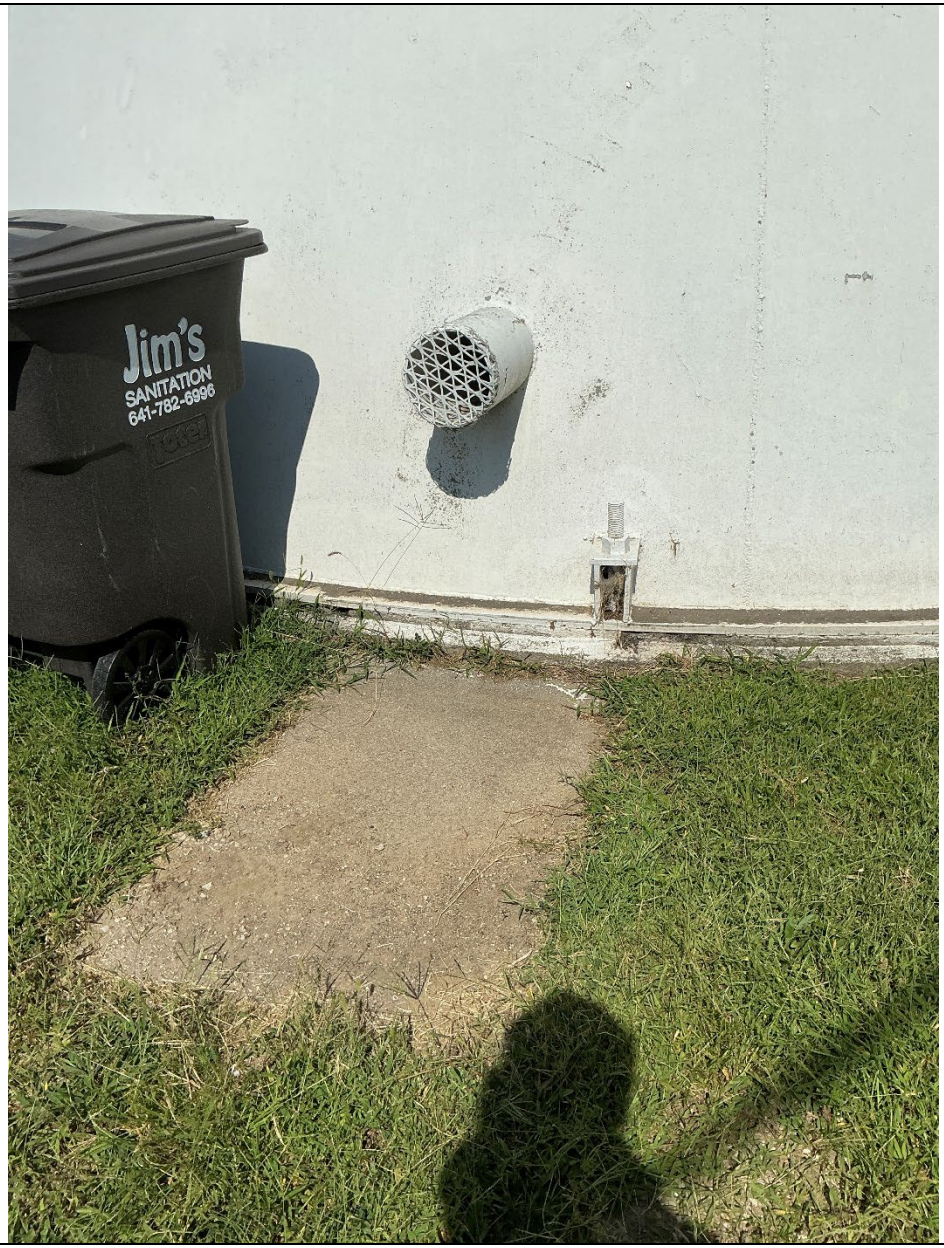
1. Facility Name: Leon Water Supply **2. PWS ID #: IA2742076**	**3. Inspector Name: Connor Finn**		
4. Date of Inspection: 8/19/25	**5. City: Leon**	**6. State: IA**	**7. Zip: 50144**
8. Image Numbers: 1- 26	**9. File Name: WB.DWIS.IR_FY25_Leon_IA_SDWA**		

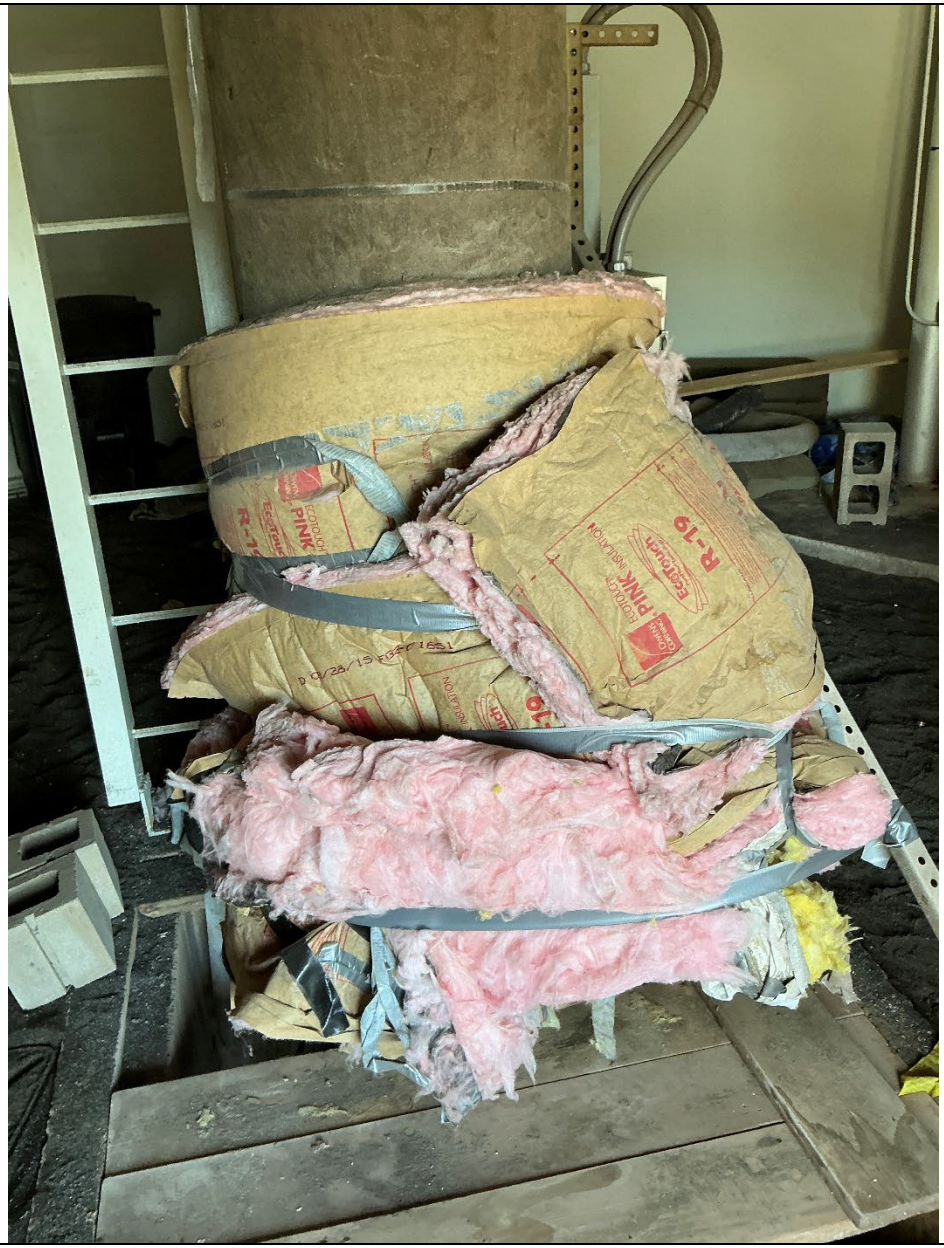
Number	Photo
1	
	Bulk fill station outside WTP.

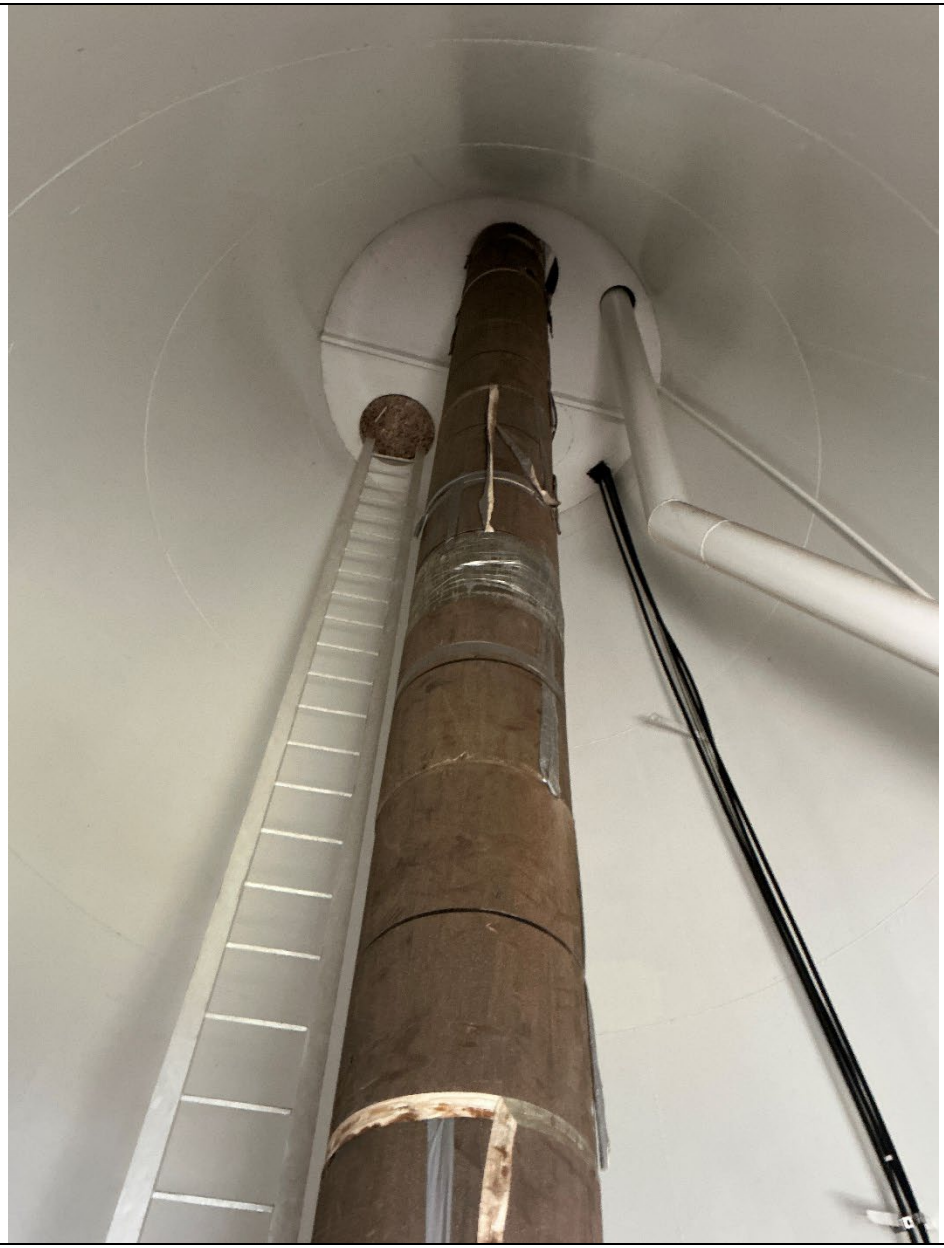
2		
	75,000-gallon Cone Tower without a roof vent and venting through unscreened air gaps where the roof meets the sidewall of the tower.	

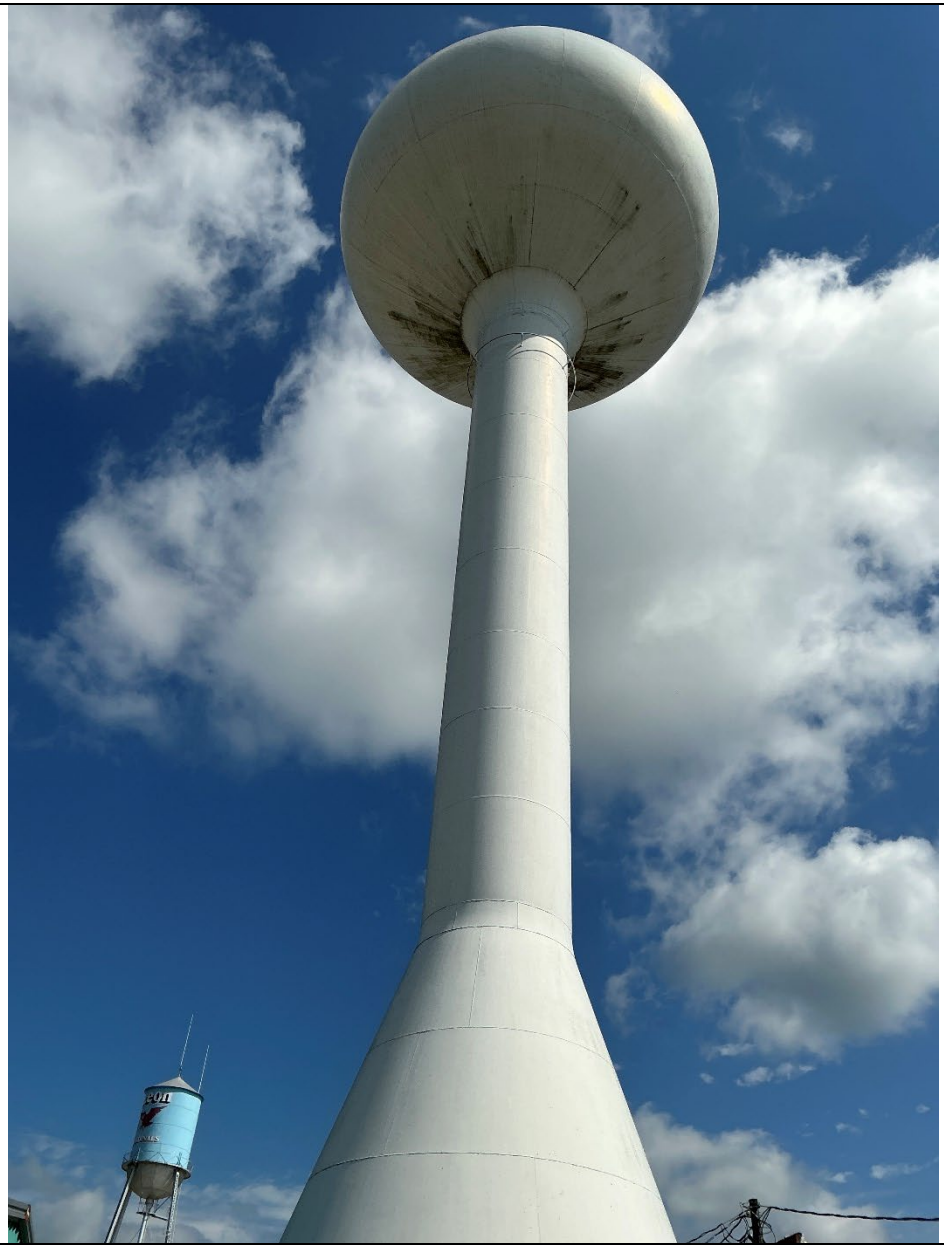
3		
	Base of the 75,000-gallon Cone Tower.	

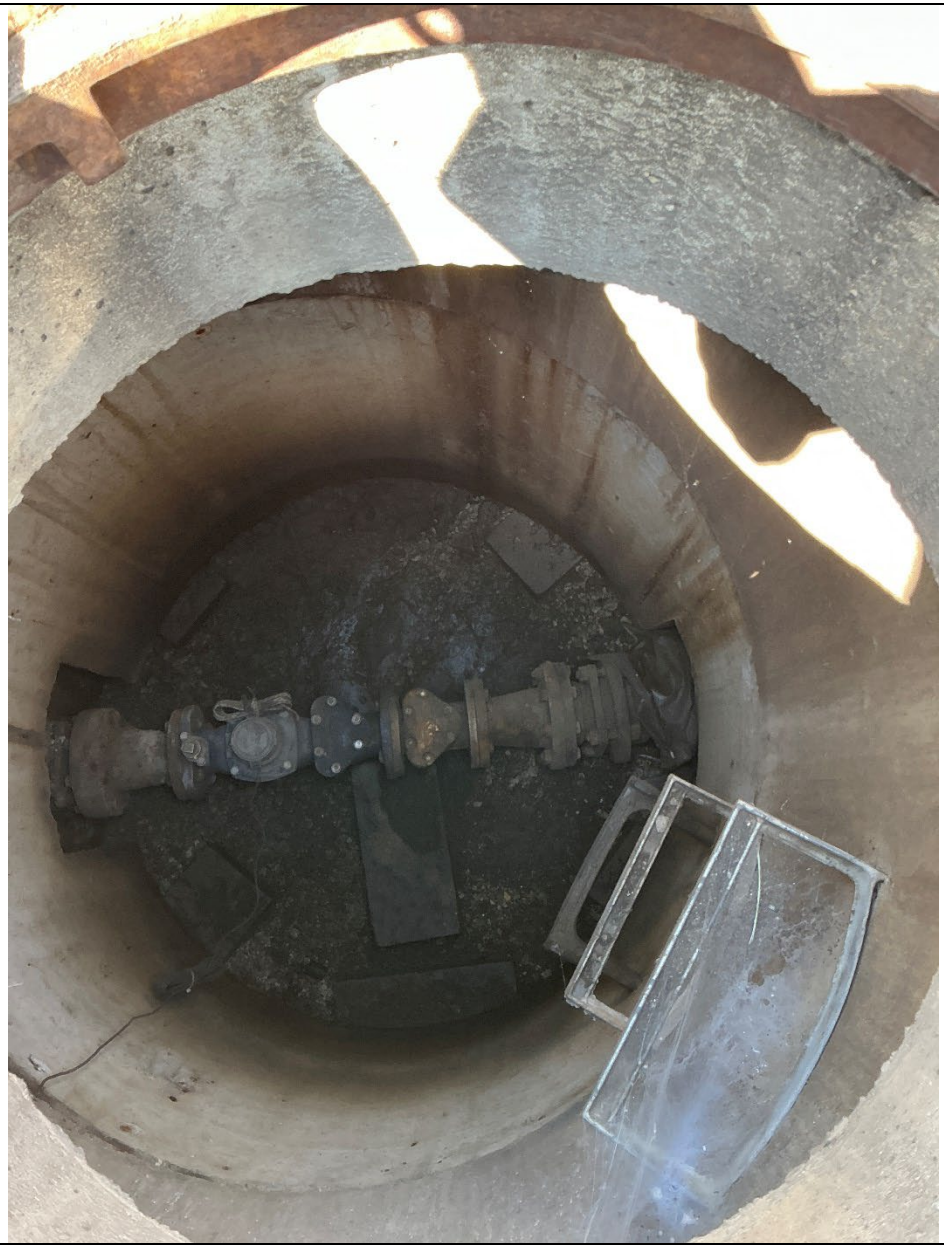
4		
	Deterioration of the concrete foundation supporting one of the legs of the 75,000-gallon Cone Tower.	

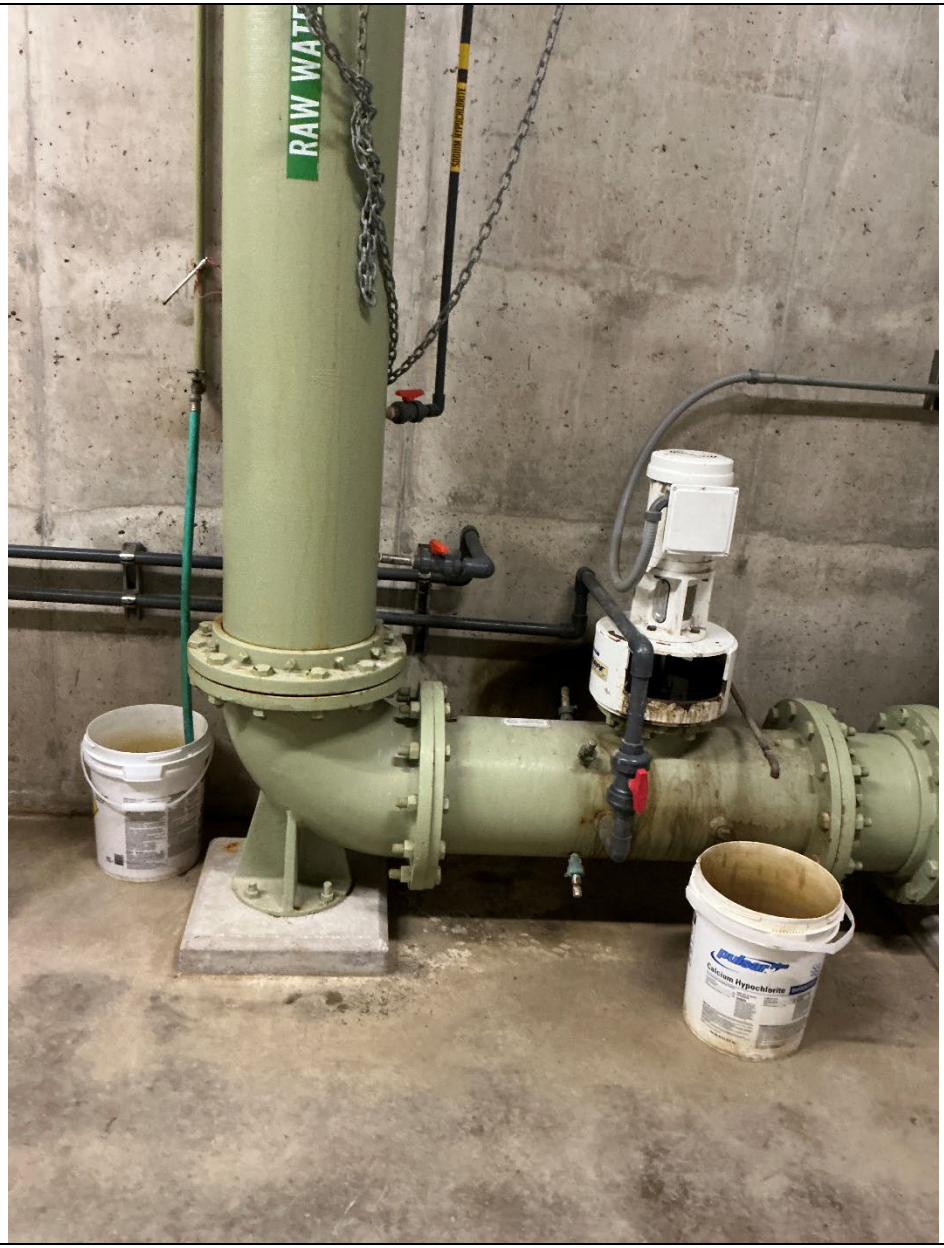
5		
	200,000-gallon Sphere Tower overflow does not have 24 mesh.	

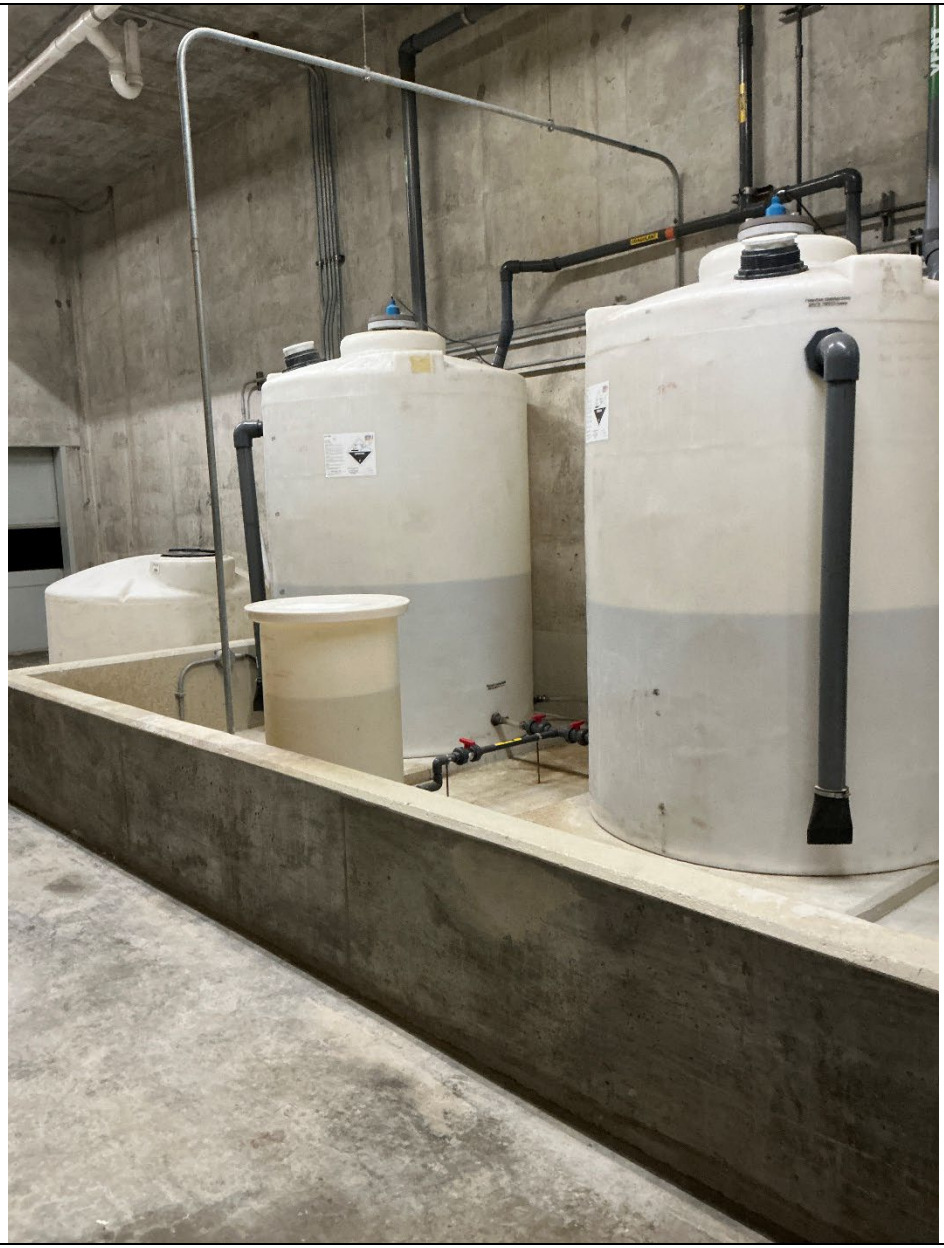
6		
	200,000-gallon Sphere Tower interior.	

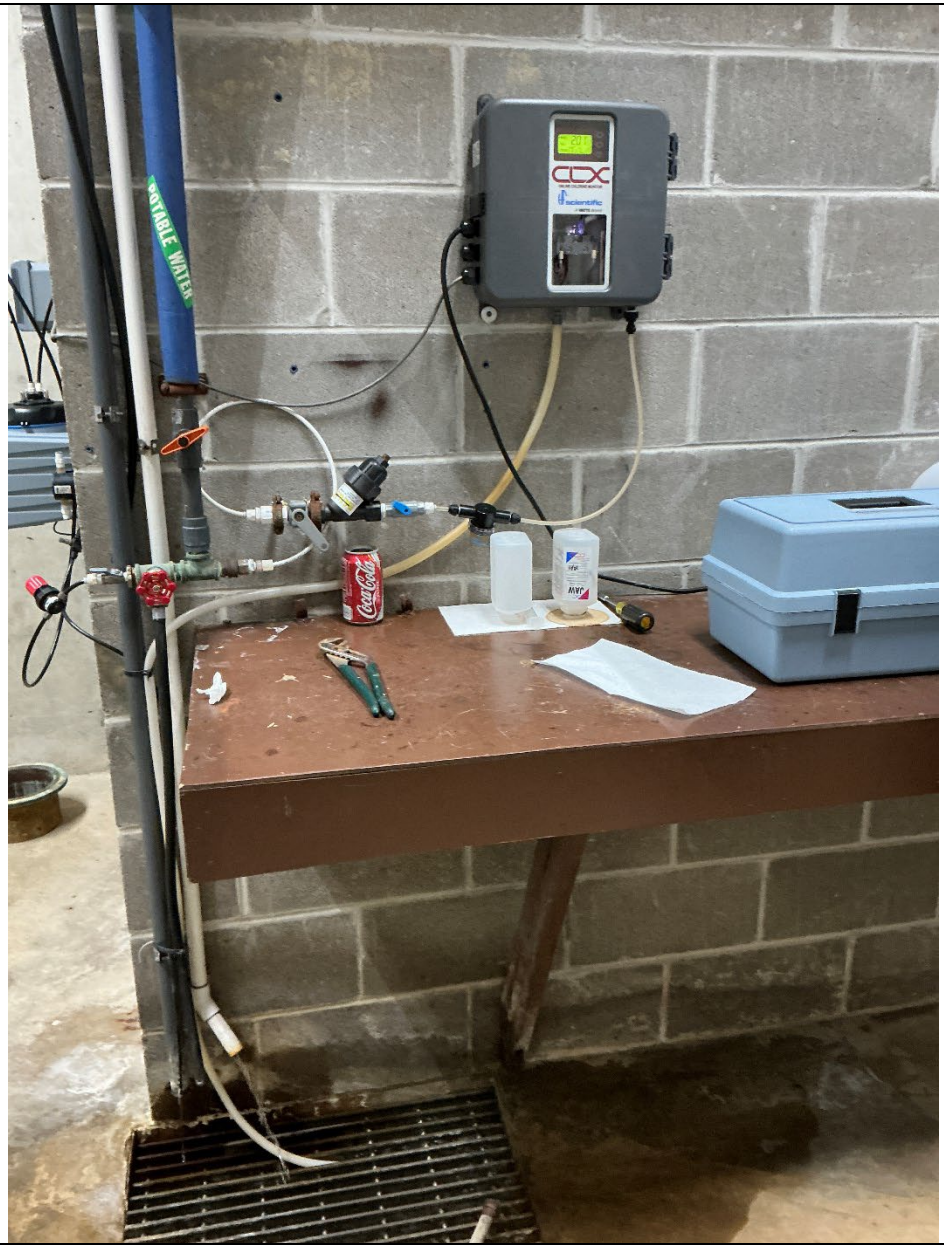
7		
	200,000-gallon Sphere Tower interior.	

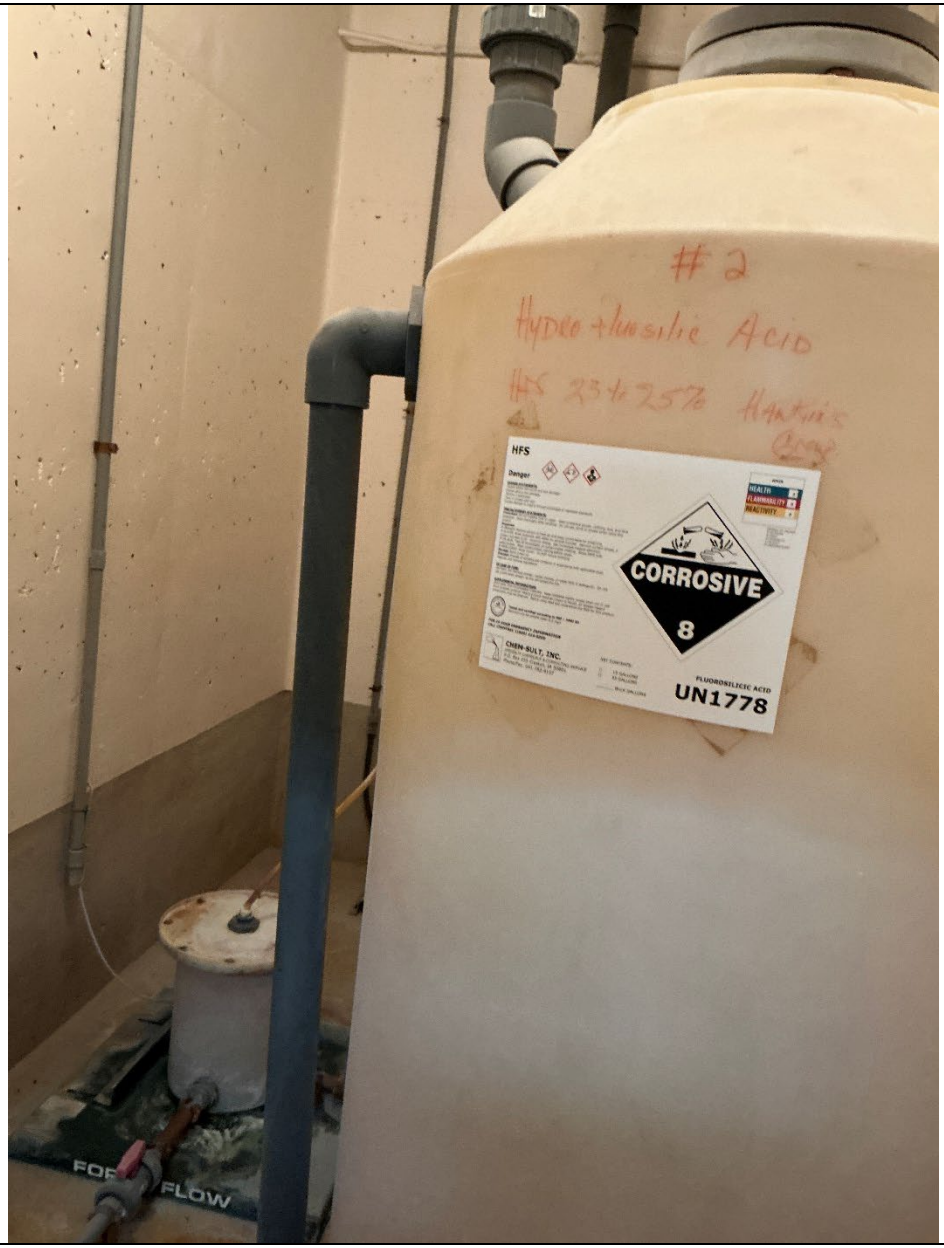
8		
	200,000-gallon Sphere Tower exterior.	

9		
		Meter pit connection with the SIRWA system. Owned by SIRWA.

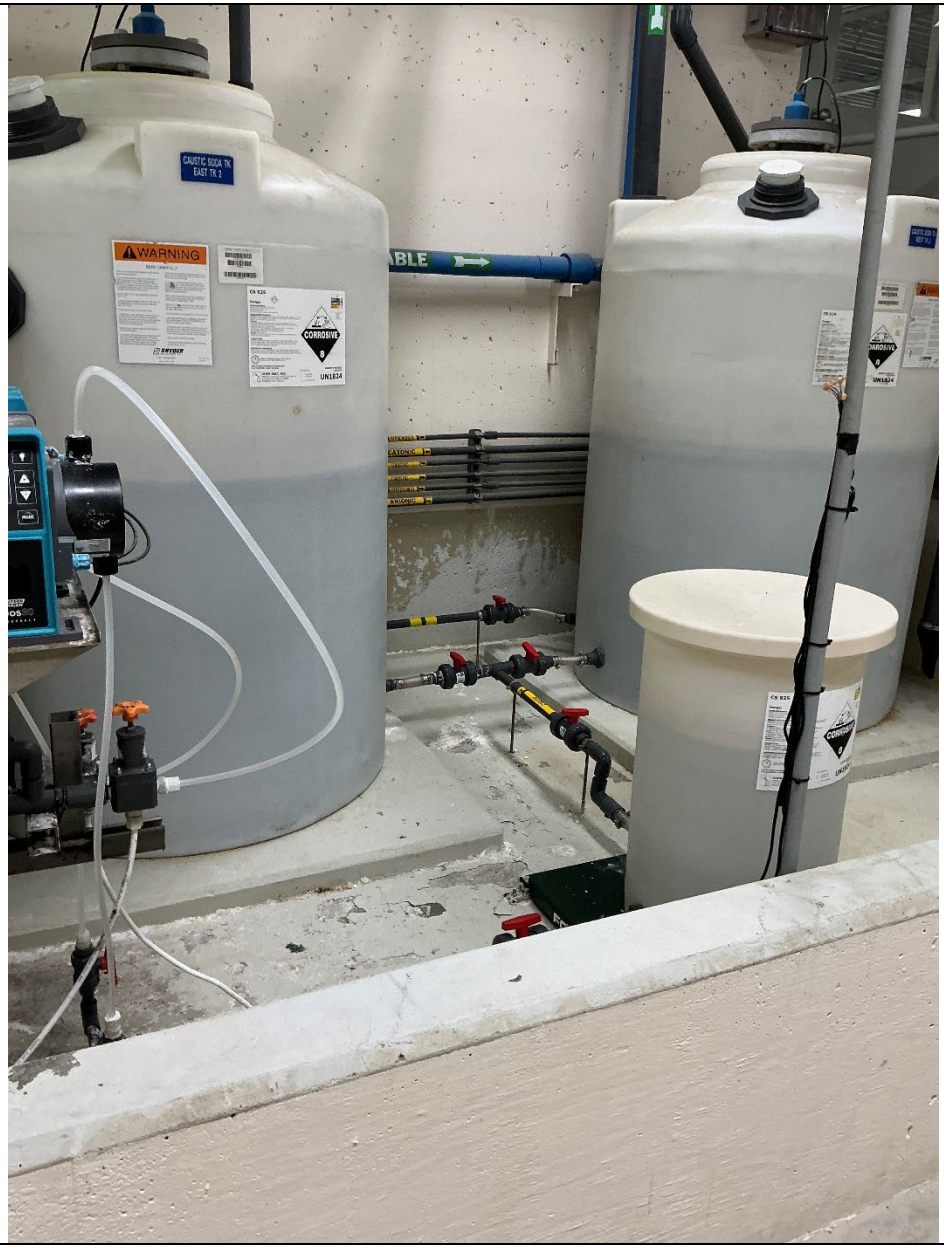
10		
	Water Treatment Plant raw water entry point and first sampling location.	

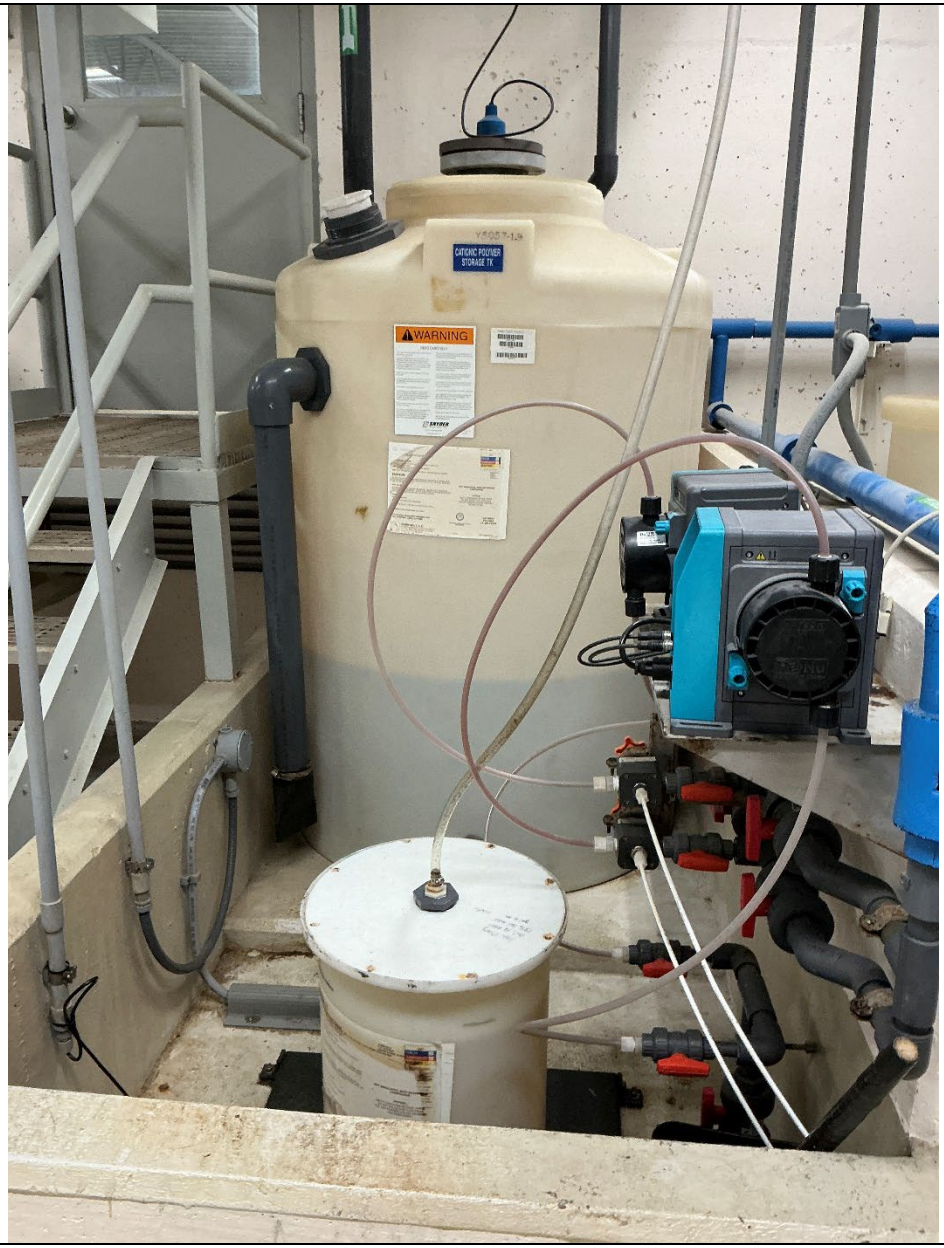
11		
	Coagulants with secondary containment.	

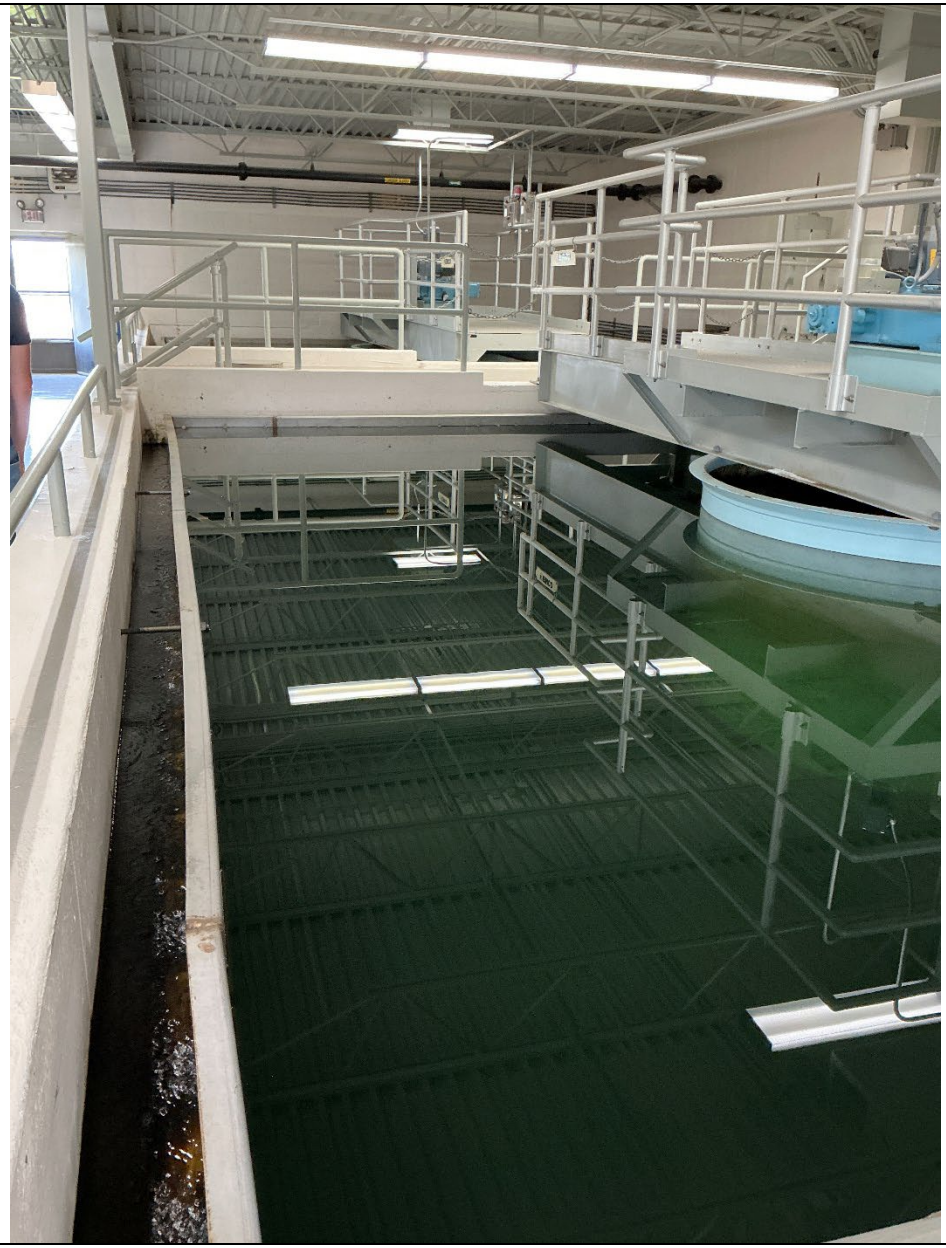
12		
	Second sampling point in the WTP.	

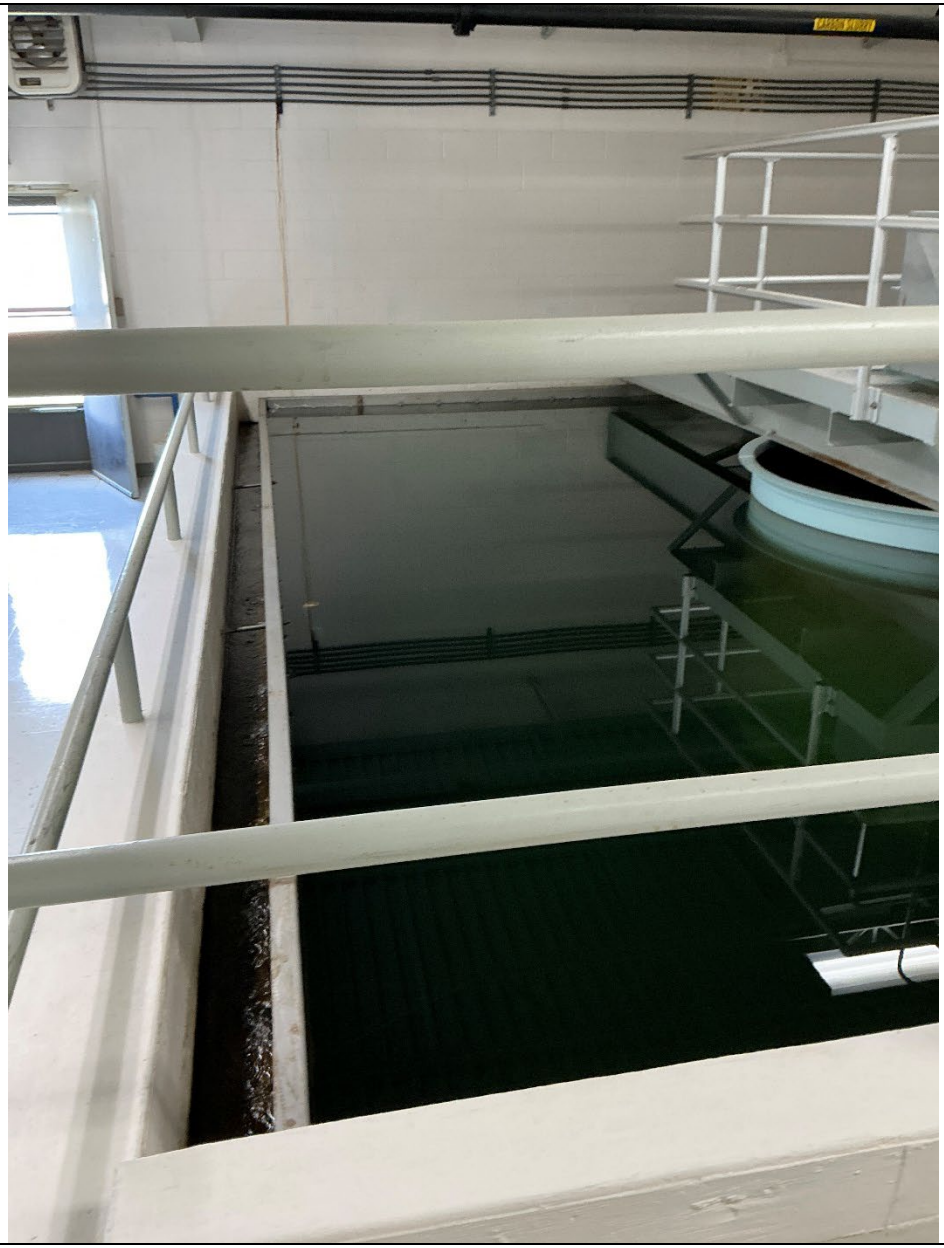
13		
	Hydrofluorosilicic acid tank.	

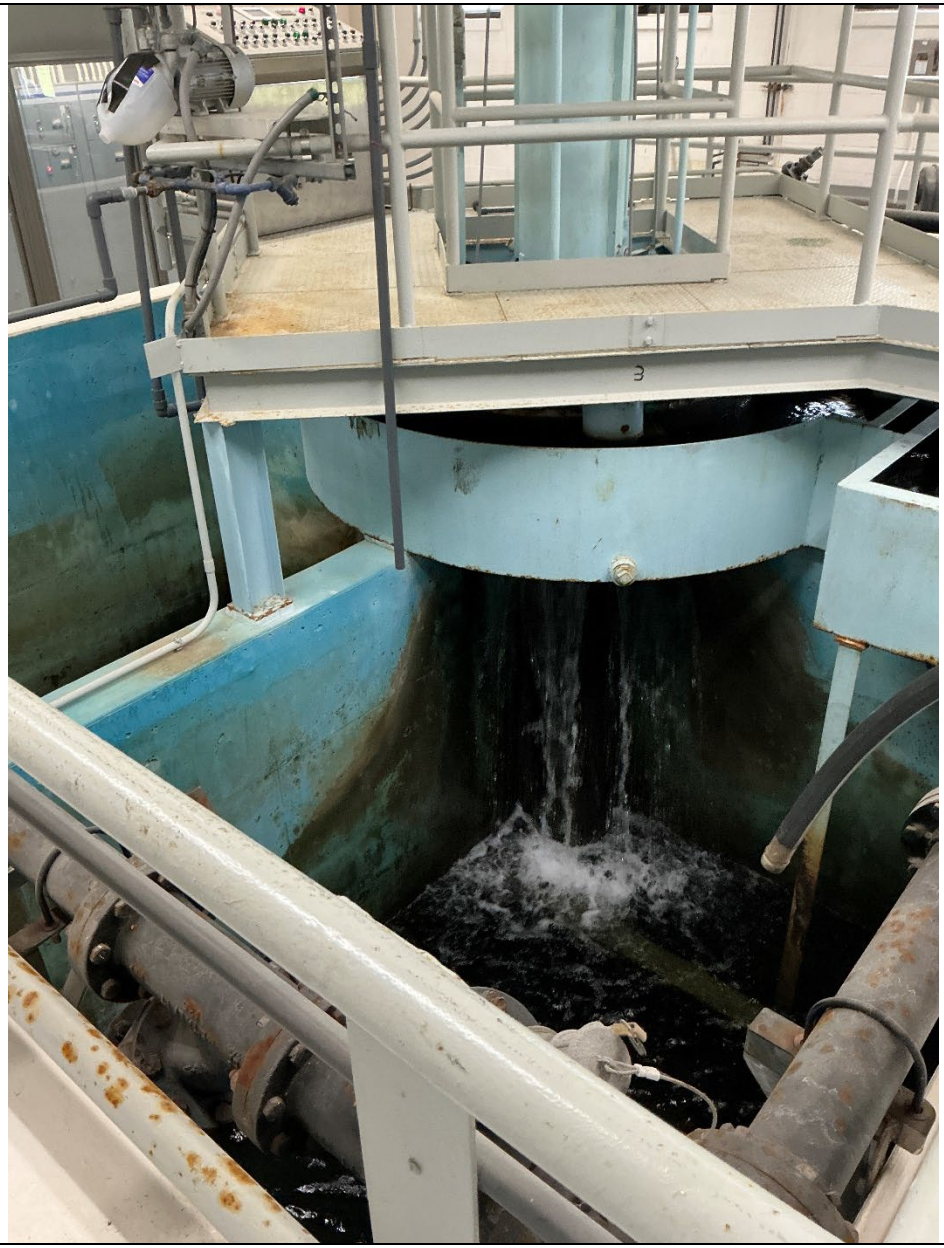
14		
	Coagulants with secondary containment.	

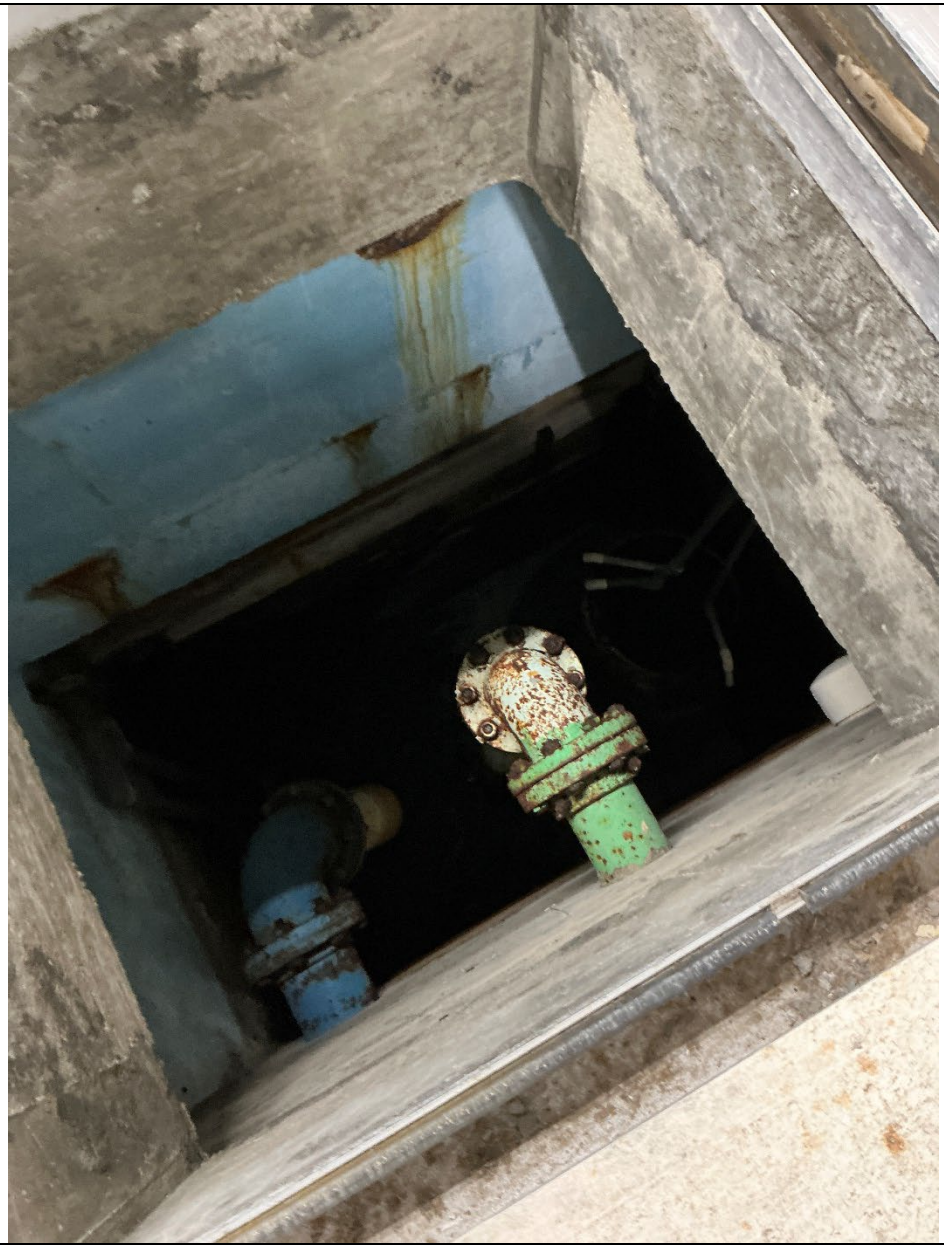
15		
	Caustic soda with secondary containment.	

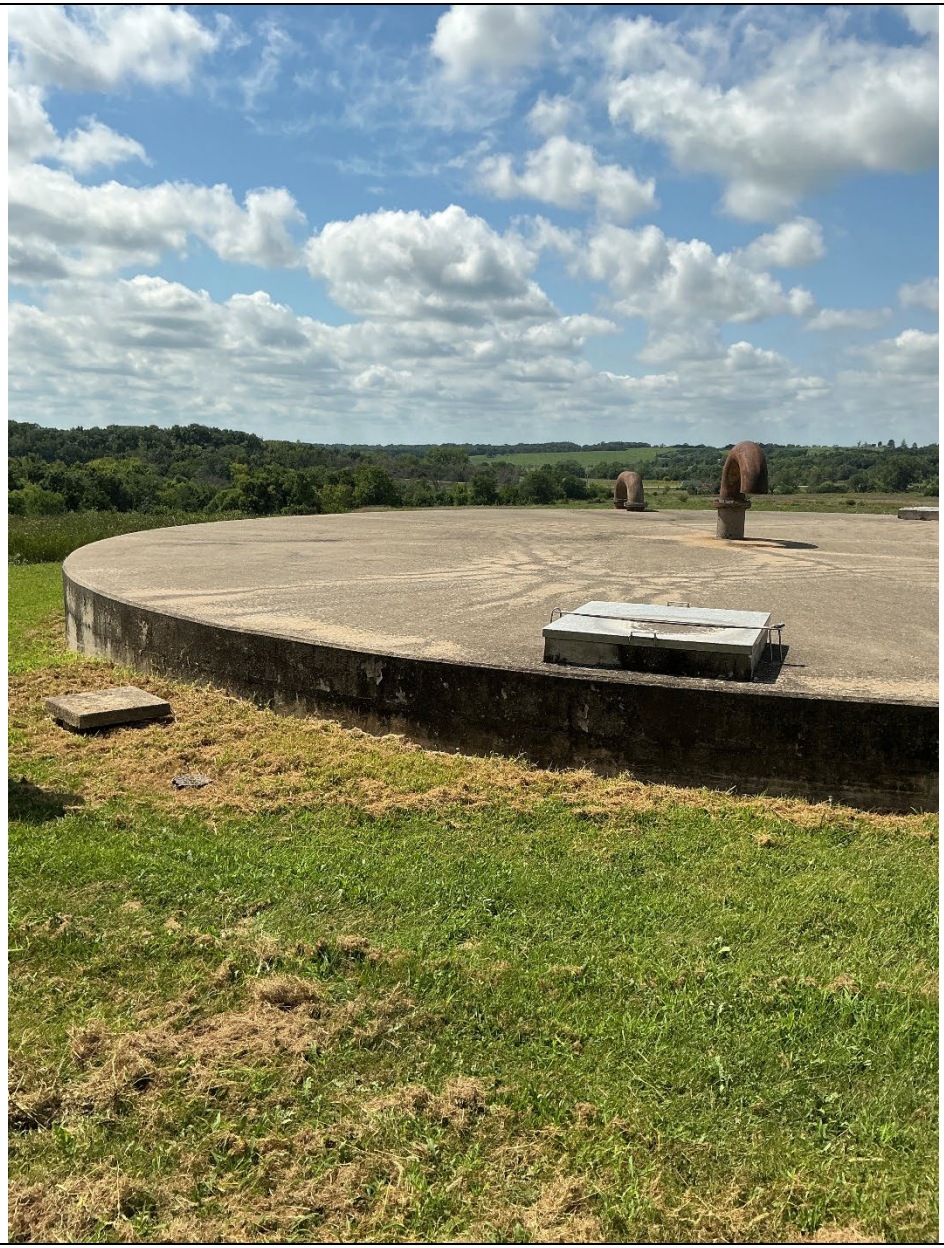
16		
	Cationic polymer with secondary containment.	

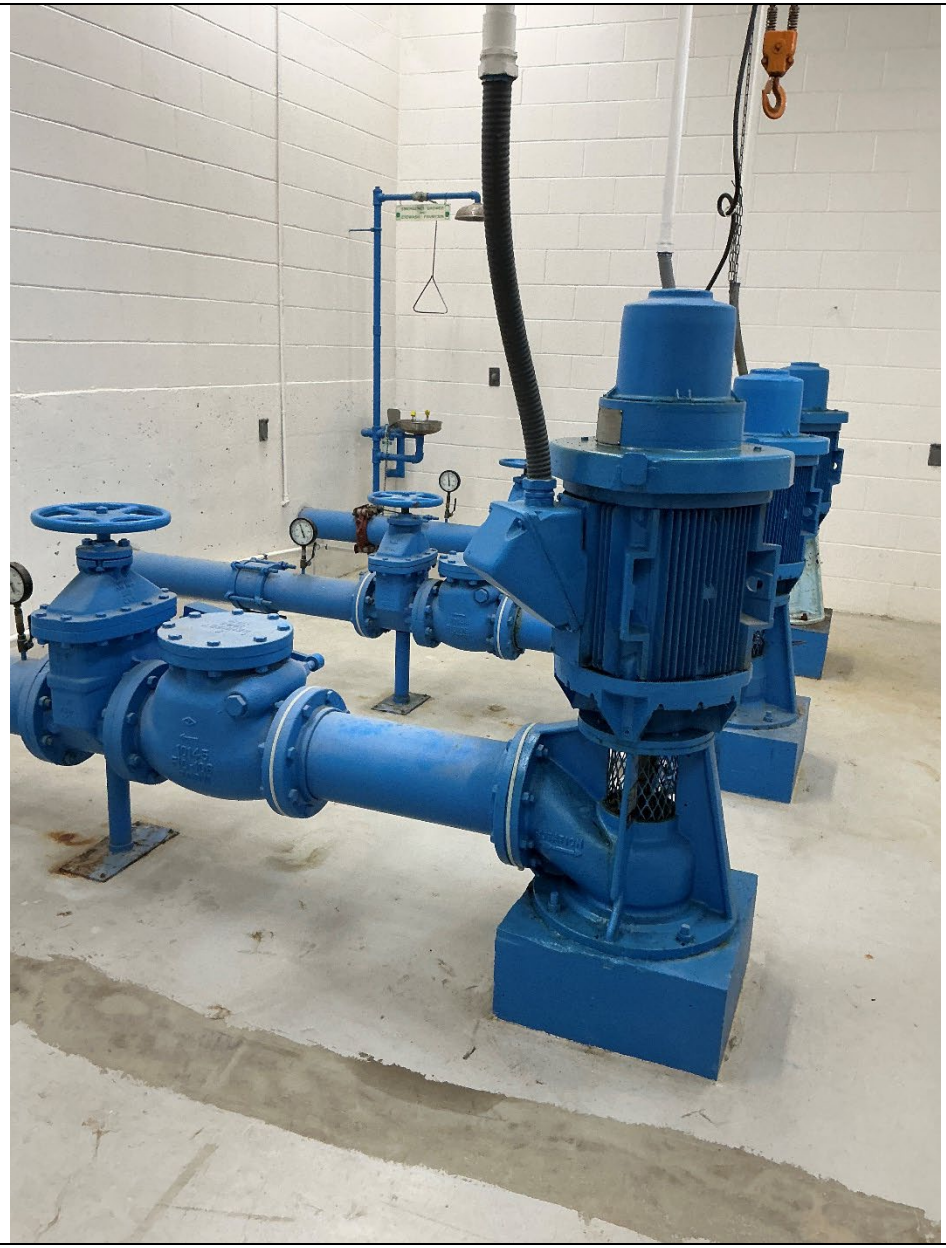
17		
	300 GPM carifier.	

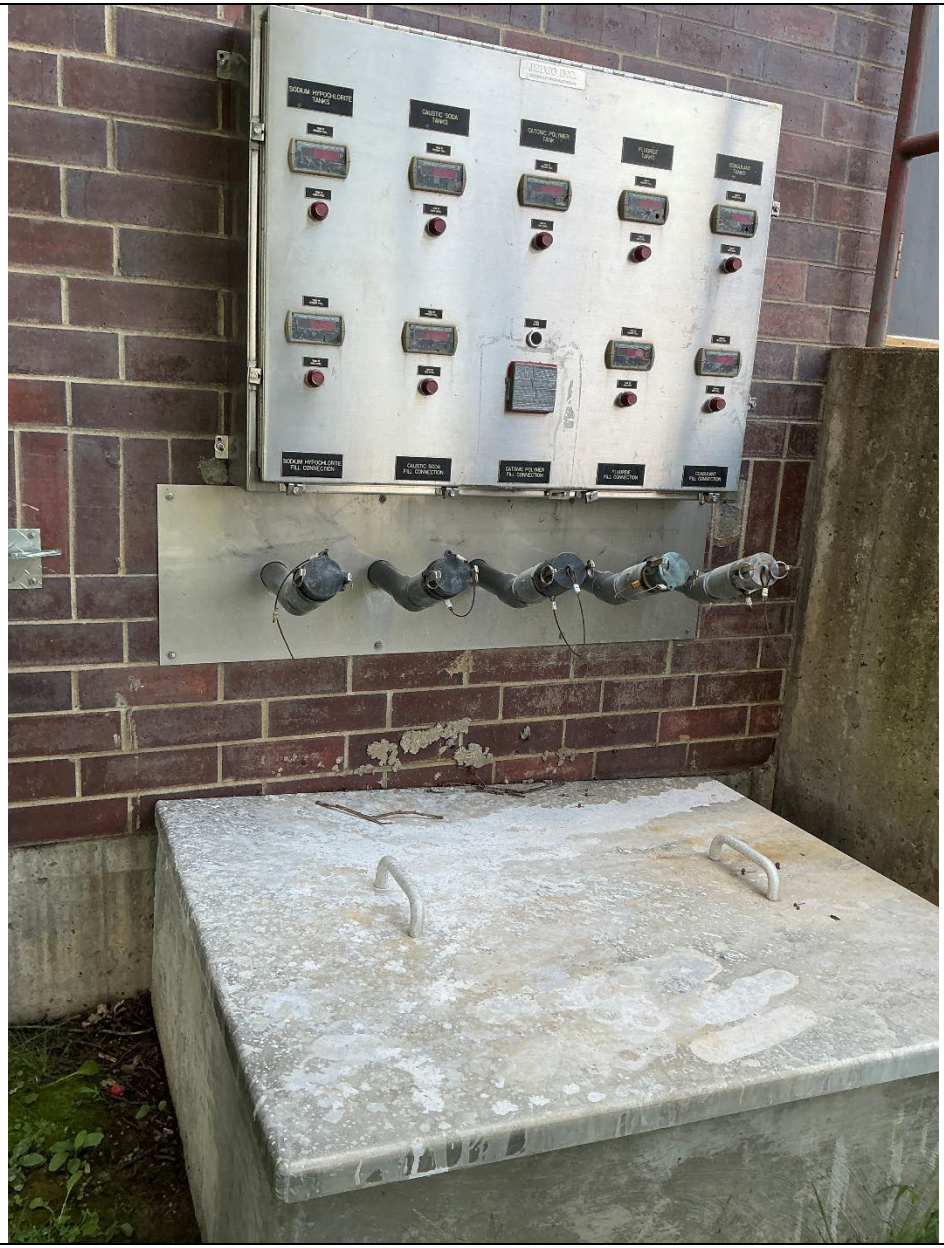
18		
	300 GPM carifier.	

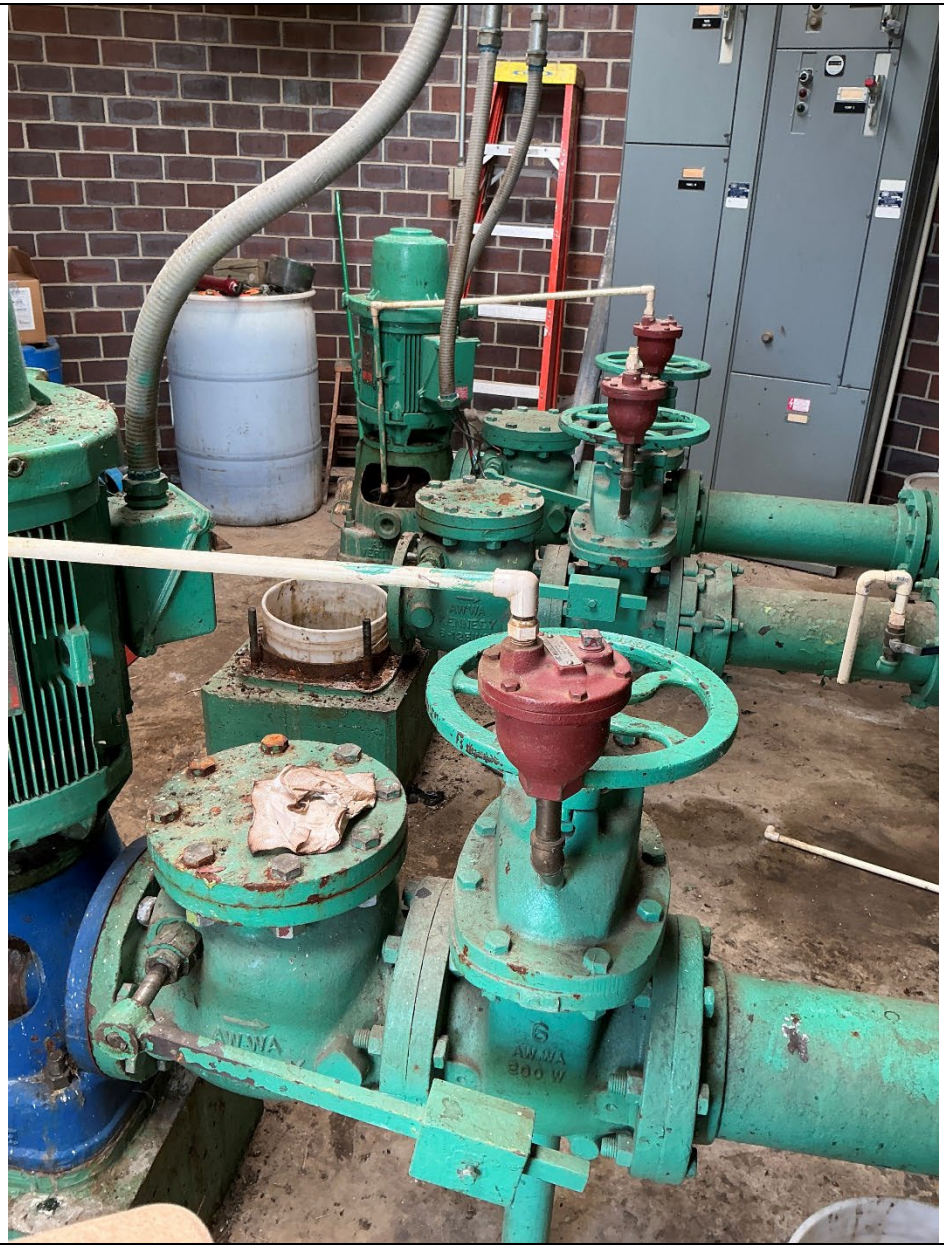
19		
		GAC, sand, and gravel filters.

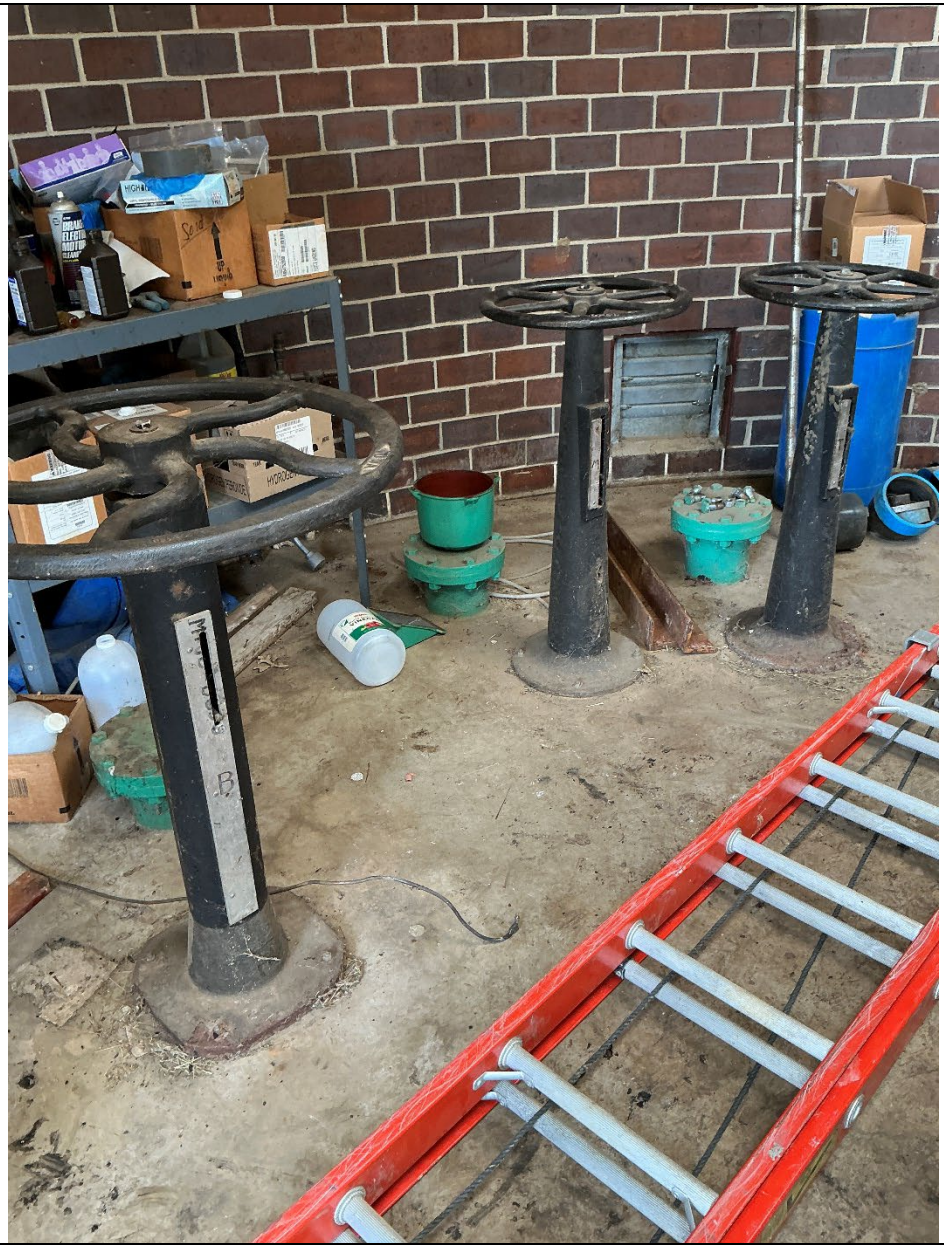
20		
	Basin with redwood bottom that is planned to be replaced with concrete. Ammonia injection point planned to provide distribution system with chloramines under Bilateral Compliance Agreement (BCA) with the State.	

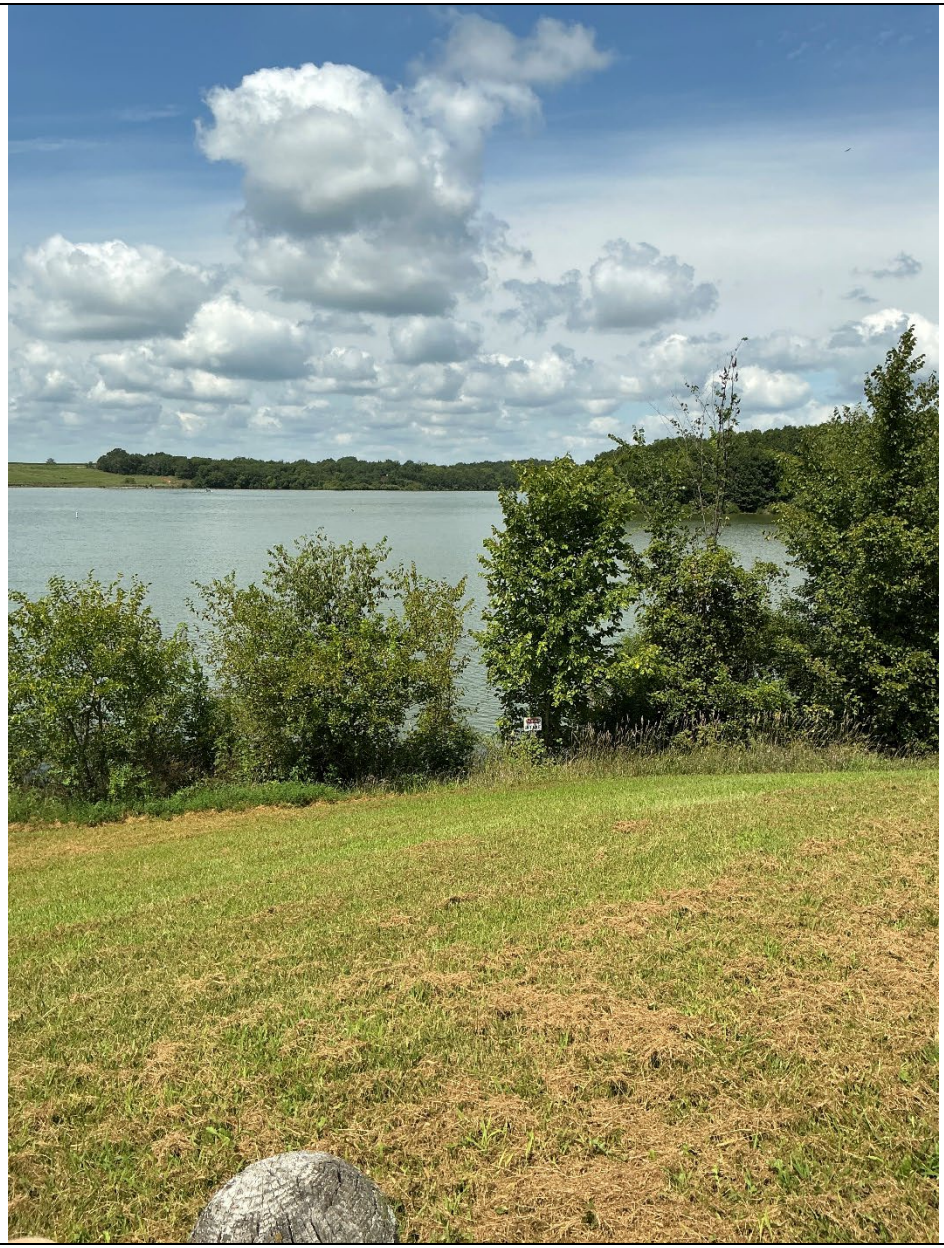
21		
	300,000-gallon clearwell. Finished water access hatch does not have gasket/watertight seal. No inspection report available.	

22		
		WTP high service pumps.

23		
	Bulk fill chemical station with inadequate protections.	

24		
		Raw water pumps.

25		
	Turn wheels to control intakes.	

26		
	Little River Lake.	