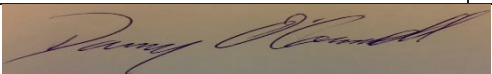


Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	06/08/2023	
Media Program:	Water	
Regulatory Program(s)	AWIA/SDWA	
Facility Name:	Cross County Rural Water System	
Facility Physical Location:	134 Flora Street	
(city, state, zip code)	Hickory Ridge, AR 72347	
Mailing address:	Same as above	
(city, state, zip code)		
County/Parish:	Cross County (service area includes Craighead, Jackson, Poinsett, St Francis, and Woodruff counties)	
Facility Phone Number	870-697-2971	
Facility Contact:	David King	
	System Manager	
FRS Number:	N/A	
Identification/Permit Number:	AR0000459	
Media Identifier Number:	N/A	
NAICS:	N/A	
SIC:	N/A	
Personnel participating in inspection:		
David King	Cross County Rural Water System	System Manager
Maintenance Tech	Cross County Rural Water System	Maintenance/Operations Support
Danny O'Connell	PG Environmental	EPA Contract Inspector
Devin Moon	Arkansas Department of Health	District Engineer
EPA Lead Inspector: Danny O'Connell		7/31/2023
Signature/Date		Danny O'Connell

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

On June 8, 2023, a U.S Environmental Protection Agency (EPA) Region 6 contracted inspector from PG Environmental (hereinafter, the EPA Inspector) conducted an announced American Water Infrastructure Act (AWIA) Risk and Resiliency Assessment (RRA) and Emergency Response Plan (ERP) program/document inspection of the Cross County Rural Water System (System), ID No. AR0000459. The inspection process began at approximately 8:30 a.m. on June 8, 2023 and finished at approximately 12:30 p.m. Devin Moon, a district engineer from the Arkansas Department of Health (ADH), was also present for the inspection.

Danny O’Connell of PG Environmental presented his Safe Drinking Water Act (SDWA) inspector credential to the System representatives upon arrival. He informed Mr. David King, the System Manager, that this was an inspection to observe compliance with the SDWA Section 1433(a) and (b), which requires community water systems that serve more than 3,300 people to complete a RRA and develop an ERP. To facilitate the inspection process, a checklist outlining the requirements of SDWA Section 1433(a) and (b) was used during the document review (refer to Appendix 1, Safe Drinking Water Act (SDWA) Sections 1433(a) and (b) Checklist). The EPA Inspector met with David King for the opening conference.

As a component of the RRA and ERP document review, the following field assets were also observed:

Fitzgerald Crossing Water Treatment Plant (WTP):

- Well Field – Wells #1, #3, and #6
- Water Treatment Plant
 - Aerators
 - Clarifier
 - Chemical Storage and Pumping
 - Filtration
 - Finished Water Storage and Pumping

SYSTEM DESCRIPTION

The Cross County Rural Water System consists of six ground water wells, four water treatment plants (WTPs), each with a clear well, seven distribution system storage tanks, and three consecutive systems. The System serves a population of approximately 8,788 people. Each of the WTPs had aeration, sedimentation, filtration, and disinfection with gaseous chlorine. System representatives stated that they contract US Radar, Inc. (a subsurface imaging systems company) to map and evaluate water assets, including meters, valves, and pipes.

ASSET WALKTHROUGH

As a component of the RRA and ERP document review, several assets at one of the WTPs were observed to cross-reference the information listed in the documents with what was actually being implemented in the field. The inspector drove from the System’s main office at 134 South Flora Street Hickory Ridge, AR to the water system’s largest WTP in Wynne. The facility operators left the facility when the EPA

Inspector introduced himself and stated that he wanted to tour the treatment process. The walkthrough was conducted with a maintenance team member.

The walkthrough started in the well field. Well #1 was located within a shed. Components of the raw water lines were wrapped in insulation. There was a can of bee spray and an unmarked container resting on the well pedestal. The pedestal and motor stand structure appeared to have a layer of oil. There was an accumulation of leaves and some debris surrounding the well pedestal (refer to [Appendix 2, Photographs 1 and 2](#)). There was an unmarked shed on the fence line approximately 60 feet from this well (refer to [Appendix 2, Photograph 3](#)). Well #6 was operational but not in use. The well pedestal was located on a concrete pad. Components of the raw water lines were wrapped in insulation. The PVC line from the air relief valve did not have an external screen. It was unclear if there was an internal screen (refer to [Appendix 2, Photograph 4](#)). Well #3 was located adjacent to a shed on a concrete pad. Components of the raw water lines were wrapped in insulation. There were a few concrete blocks under the well's check valve. The PVC line off the air relief valve was screened. Two unmarked containers were resting adjacent to the well pedestal. The pedestal and motor structure appeared to have a layer of oil. In addition, the top of the pedestal had cracked concrete surrounding the motor stand structure (refer to [Appendix 2, Photograph 5](#)).

The tour then followed the raw water to the treatment process (refer to [Appendix 2, Photograph 6](#)). The raw water was run through one of two aerators. Both aerator units were operating (refer to [Appendix 2, Photograph 7](#)). The aerated raw water is then chlorinated as it flows to the clarifier. The raw water is also dosed with coagulant and caustic soda at the clarifier. The clarifier was not operating properly; there were heavy solids built up on the bottom of the unit and channeling was observed within the solids. The clarifier's rake arm was not operational and could not be located on the bottom of the clarifier. It was unclear if the rake arm was buried in the solids or if any of the solids were being drained to the sedimentation ponds (refer to [Appendix 2, Photograph 8](#)). In addition, there were heavy solids, bio-growth, and debris throughout the unit, including the troughs delivering produced water to the filters (refer to [Appendix 2, Photographs 9, 10, and 11](#)). The center of clarifier operational deck had maintenance materials and debris, including a grease gun on the deck (refer to [Appendix 2, Photograph 12](#)).

The chemical storage and pump area had a few ongoing maintenance projects during the inspection. Maintenance was being conducted on tubing supporting the delivery of treatment chemicals to the process areas. In addition, it appeared as if the team was using PEX piping in their current modifications to the chemical delivery system. Components of the delivery system were resting on the floor of the chemical storeroom. There was dried chemical residue in various areas of the room (refer to [Appendix 2, Photograph 13](#)). Additionally, a number of pumps appeared to be out of service, while others were fastened with bungee cords or resting unsecured (refer to [Appendix 2, Photographs 13 and 14](#)). The area also had dried chemical debris on the floor, pump pedestals, tubing connections, and electrical outlets.

The WTP had three filters in operation. The control center for the filters had blue Styrofoam boxes as protective covers for the control switches which were removed when adjusting the control switch settings. The filter's operations steps were described in printed and hand-written notes taped to the control panel (refer to [Appendix 2, Photograph 16](#)). The produced water from the filters was sent to the clear well.

The clear well had shoebox-type hatchways. The hatch cover had some seal tape; however, it was unclear if the tape maintained a sanitary seal (refer to [Appendix 2, Photograph 17](#)). The clear well had

seven pumps, six high service pumps for the distribution system and one pump to support the filter's backwash operation (refer to [Appendix 2, Photograph 18](#)). One of the lines transferring finished water to the distribution system appeared to be supported by a wooden brace and a few assets had components that had lost their coatings and now are rusting (refer to [Appendix 2, Photograph 19](#)). Another line transferring finished water to the distribution system had a threaded hose tap without backflow protection (refer to [Appendix 2, Photograph 20](#)).

SYSTEM SECURITY AND MONITORING

The supervisory control and data acquisition (SCADA) system was supported by an outside contractor who is responsible for cybersecurity protocols and risk assessment, authority reviews, troubleshooting of major issues, and alarm settings for facility buildings and water production process control operational ranges. This includes generation and issuance of passwords. The System does not have a website.

The System Manager has the authority and the skill set to change process control operational and alarm settings as needed. The SCADA system is reviewed once per quarter for operational performance and system security.

When employees are terminated or quit, they are required to return all company property. This includes keys, access codes, and any other security related items. [REDACTED]

[REDACTED] WTPs, wells, and storage tanks are surrounded by locked perimeter fences to prevent trespassing. [REDACTED] community members are encouraged to call System representatives if they notice suspicious activity. Chemicals used in the treatment process undergo standardized delivery procedures and are stored in a secured location.

RRA AND ERP GENERATION

The System used the EPA Vulnerability Self-Assessment Tool (VSAT) software to complete the RRA process (completed July 26, 2022). The System was in the process of changing to the SEMS software, available for purchase from Arkansas Rural Water Association (ARWA), to update their RRA and ERP. The SEMS software contains RRA and ERP templates that are designed to be in compliance with SDWA 1433(a) and (b).

RISK AND EMERGENCY RESPONSE EXAMPLES

As a component of the RRA and ERP document review, and to provide an example of emergency response and risk assessment, the EPA Inspector asked System representatives to describe their response to three specific challenges that many/all of the systems in Arkansas have faced within the last few years:

The "deep freeze" event of February, 2021 which impacted much of the American southern region. During this event, temperatures were below freezing for a prolonged period of time causing water related infrastructure to freeze. The System had plans that consisted of eleven steps developed in the ERP for the WTPs and high service pumps in response to a freeze event. The WTPs were rated high in the criticality process.

Tornados, which are a common occurrence in Arkansas. System representatives had no formal plans or SOPs written to respond to a tornado. However, they recently supported Wynne County, Arkansas in response to a tornado as part of their verbal mutual aid agreements.

The transfer of knowledge from experienced System representatives to new staff members after they are no longer employed by the System. The System representatives stated that operational knowledge was not formally written down anywhere in the form of SOPs. The System recently hired US Radar, Inc. (a subsurface imaging systems company) to map and assess underground assets and digitize all of their records for future use.

Section II - OBSERVATIONS

The following observations pertain to the SDWA Section 1433(a), Risk and resilience assessments.

The Safe Drinking Water Act, Section 1433(a)(1)(A)(i), states that “Risk and resilience assessments shall include an assessment of the risk to the system from malevolent acts and natural hazards.”

Observation 1. Only the WTPs and high service pumps were identified as high priority. All assets listed for the distribution system in the RRA document were marked as “low priority” and a “Moderate, Tier 3” risk. System representatives stated that they did in fact have high priority assets including critical valves in the distribution system. The RRA will be updated with records generated under the service contract with US Radar, Inc.

The Safe Drinking Water Act, Section 1433(a)(1)(A)(ii), states that “Risk and resilience assessments shall include the resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system.”

Observation 2. Resilience of infrastructure in the distribution system was not described in the RRA. The RRA will be updated with records generated under the service contract with US Radar, Inc.

The Safe Drinking Water Act, Section 1433(a)(1)(A)(iv), states that “Risk and resilience assessments shall include an assessment of the financial infrastructure of the system.”

Observation 3. The financial impact to system infrastructure as a result of a threat to the system was not described in the RRA document.

The following observations pertain to the SDWA Section 1433(b), Emergency response plan.

The Safe Drinking Water Act, Section 1433(b)(3), states that “The emergency response plan shall include actions, procedures, and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals, including the development of alternative source water options, relocation of water intakes, and construction of flood protection barriers.”

Observation 4. The System had ERPs for the ‘high criticality’ assets, the WTPs and High Service Pumps. It is unclear if other assets should be identified as ‘high criticality’ assets.

The Safe Drinking Water Act, Section 1433(b)(2), states that “The emergency response plan shall include plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water.”

Observation 5. The response plans to a threat to the treatment system were dated and had not been updated since the ERP was written in March 2021. The manager was updating the plans at the time of the inspection.

The Safe Drinking Water Act, Section 1433(b)(1), states that “The emergency response plan shall include strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system.”

Observation 6. Strategies and resources to improve the resilience of the system (both physical and cybersecurity) were not developed in the ERP document. System representative stated that all computers were password protected, and that only specific personnel had administrative access to the SCADA system. In terms of physical security, there were locked fences surrounding the perimeter of all system assets. System representatives said that the locks on all doors and gates were changed whenever a staff member quit or was fired. However, this information was not described in the ERP.

The following observations pertain to the field assets that were observed during the walkthrough component of the review.

Observation 7. There was a private residence located on the fence within less than 100 feet of all wells (refer to [Appendix 2, Photograph 1](#)).

Observation 8. There was a can of bee spray and an unmarked container resting on the well pedestal. The pedestal and motor stand structure appeared to have a layer of oil. There was an accumulation of leaves and some debris surrounding the well pedestal (refer to [Appendix 2, Photograph 2](#)).

Observation 9. There was an unmarked shed on the fence line approximately 60 feet from Well #1 (refer to [Appendix 2, Photograph 3](#)).

Observation 10. Well #6, the PVC line from the air relief valve did not have an external screen. It was unclear if there was an internal screen (refer to [Appendix 2, Photograph 4](#)).

Observation 11. There were a few concrete blocks under Well #3's check valve. The PVC line off the air relief valve was screened. Two unmarked containers were resting adjacent to the well pedestal. The pedestal and motor structure appeared to have a layer of oil. In addition, the top of the pedestal had cracked concrete surrounding the motor stand structure (refer to [Appendix 2, Photograph 5](#)).

Observation 12. There were heavy solids built up on the bottom of the clarifier and channeling within the solids. The clarifier's rake arm was not operational and could not be located on the bottom of the clarifier. It was unclear if the rake arm was buried in the solids or if any of the solids were being drained to the sedimentation ponds (refer to [Appendix 2, Photograph 15](#)).

Observation 13. There were heavy solids, bio-growth, and debris throughout the clarifier, including the troughs delivering produced water to the filters (refer to [Appendix 2, Photographs 9, 10, and 11](#)). Additionally, there were maintenance materials and debris, including a grease gun on the clarifier operations deck (refer to [Appendix 2, Photograph 12](#)).

Observation 14. There was ongoing maintenance being conducted on the tubing supporting the delivery of treatment chemicals to the process areas. It appeared as if the operators were using PEX piping in their current modifications to the chemical delivery system. The delivery system was resting on the floor of the chemical storeroom. There was dried chemical residue in various areas of the room. In addition, a replacement chemical pump was positioned with bungee cords at one of the coagulant pump stations. Various tubing and piping systems in the chemical area were disconnected. Dried chemical debris was observed on the floor, pump pedestals, tubing connections and electrical outlets. (refer to [Appendix 2, Photographs 13, 14, and 15](#)).

Observation 15. One of the hatchways to the clear well had some seal tape on the cover; however, it was unclear if the tape maintained a sanitary seal (refer to [Appendix 2, Photograph 17](#)).

Observation 16. One of the high service pump lines appeared to be supported by a wooden brace and a few assets had components that had lost their coatings and were rusting (refer to [Appendix 2, Photograph 19](#)).

Observation 17. A finished water line contained a threaded hose tap without backflow protection (refer to [Appendix 2, Photograph 20](#)).

Section IV – CLOSING CONFERENCE

On June 8, 2023, the EPA Inspector met with the System Manager at the administration office building in Hickory Ridge. A closing conference was conducted at this location prior to touring the Fitzgerald Crossing WTP. Danny O’Connell reviewed observations made during the document review portion of the inspection with the System manager and explained that all observations were preliminary and did not constitute any formal compliance determination. A closing conference was not conducted after the WTP tour.

Section V – FOLLOW UP

No additional information was received by EPA after exiting the Facility on June 8, 2023.

Section VI – LIST OF APPENDICES

Appendix 1 – Safe Drinking Water Act (SDWA) Sections 1433(a) and (b) Checklist

Appendix 2 – Photograph Log

Appendix 2

Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 1. Fitzgerald Crossing Well Field View of the Fitzgerald Crossing well field and backup generator. The well field was surrounded by a locked perimeter fence. There was a private residence located on the fence within less than 100 feet of all wells.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 2. Well #1 View of Well #1, that was located within a shed. Components of the raw water lines were wrapped in insulation. There was a can of bee spray and an unmarked container resting on the well pedestal. The pedestal and motor stand structure appeared to have a layer of oil. There was an accumulation of leaves and some debris surrounding the well pedestal.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 3. Well #1 View of an unmarked shed that was located on the fence line approximately 60 feet from Well #1.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 4. Well #6 View of Well #6. The well pedestal was located on a concrete pad. Components of the raw water lines were wrapped in insulation. The PVC line from the air relief valve didn't have an external screen. It's unclear if there was an internal screen.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 5. Well #3 View of Well #3 and its pedestal that were located outside a shed, on a concrete pad. Components of the raw water lines were wrapped in insulation. There were a few concrete blocks under the well's check valve. The PVC line off the air relief valve was screened. Two unmarked containers were resting adjacent to the well pedestal. The pedestal and motor structure appeared to have a layer of oil. In addition, the top of the pedestal had cracked concrete surrounding the motor stand structure.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 6. Water Treatment Plant View of the aeration and clarifier structures, the chemical and filter building and the valve building supporting the clearwell's operations.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 7. Water Treatment Plant, Aerators View of one of the aerators and the control panel for both units. Both units were operating.

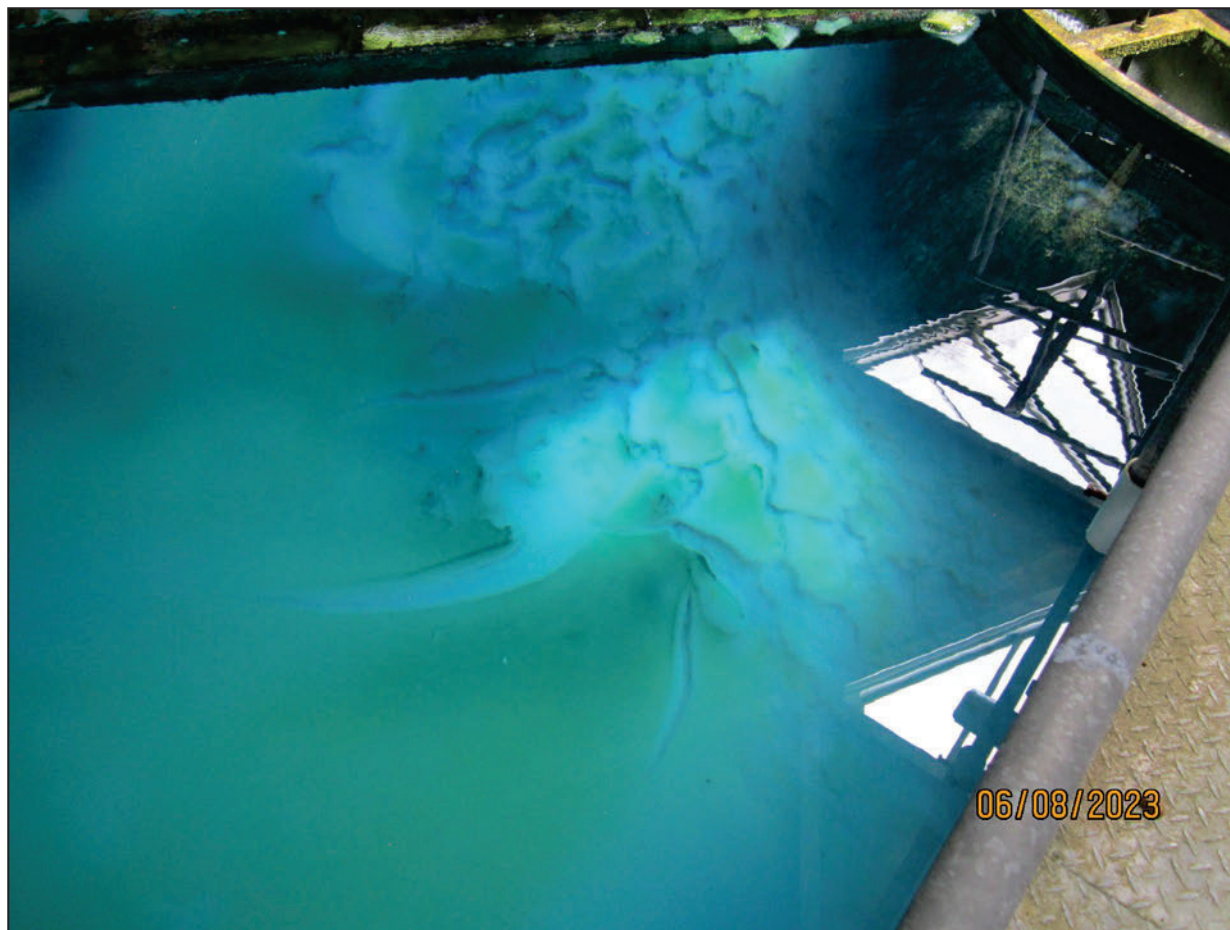


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 8. Water Treatment Plant, Clarifier View of the bottom of the clarifier. There were heavy solids built up on the bottom of the unit and channeling within the solids. The clarifier's rake arm was not operational and couldn't be located on the bottom of the clarifier. It was unclear if the rake arm is buried in the solids or if any of the solids were being drained to the sedimentation ponds.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 9. Water Treatment Plant, Clarifier View of the top of the clarifier. There are heavy solids, bio-growth, and debris throughout the unit, including the troughs delivering produced water to the filters.

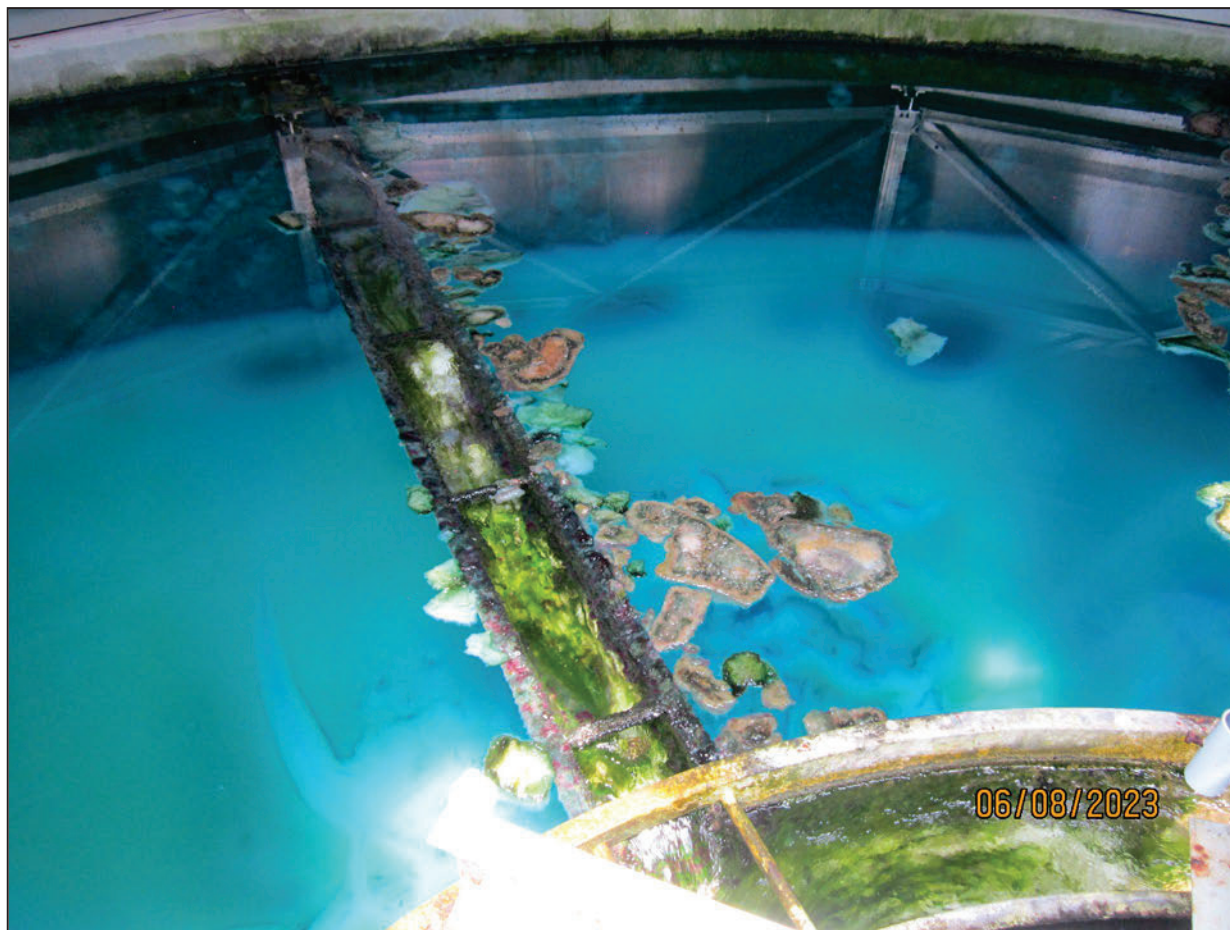


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 10. Water Treatment Plant, Clarifier Alternate view of the top of the clarifier. There were heavy solids, bio-growth, and debris throughout the unit.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 11. Water Treatment Plant, Clarifier Alternate view of the top of the clarifier. There were heavy solids, bio-growth, and debris throughout the unit.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 12. Water Treatment Plant, Clarifier View of the center of clarifier operational deck. There were maintenance materials and debris, including a grease gun on the deck.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 13. Water Treatment Plant, Chemical Storage and Pump Area View of current maintenance being conducted on tubing supporting the delivery of treatment chemicals to the process areas. It appeared that the team was using PEX piping in their current modifications to the chemical delivery system. The delivery system was resting on the floor of the chemical storeroom. There was dried chemical residue in various areas of the room.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 14. Water Treatment Plant, Chemical Storage and Pump Area View of a replacement chemical pump positioned with bungee cords at one of the coagulant pump stations. Various tubing and piping systems in the chemical area were disconnected. What appeared to be a new PEX piping (blue) was cable-tied to the containment wall behind the pumping station.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 15. Water Treatment Plant, Chemical Storage and Pump Area Alternate view of a replacement caustic chemical pump positioned behind failed pump at one of the stations. Dried chemical debris was observed on the floor, pump pedestals, tubing connections and electrical outlets. The caustic soda was a sodium hydroxide, 50% solution. What appeared to be new PEX piping (blue) was cable-tied to the wall behind the pumping station.

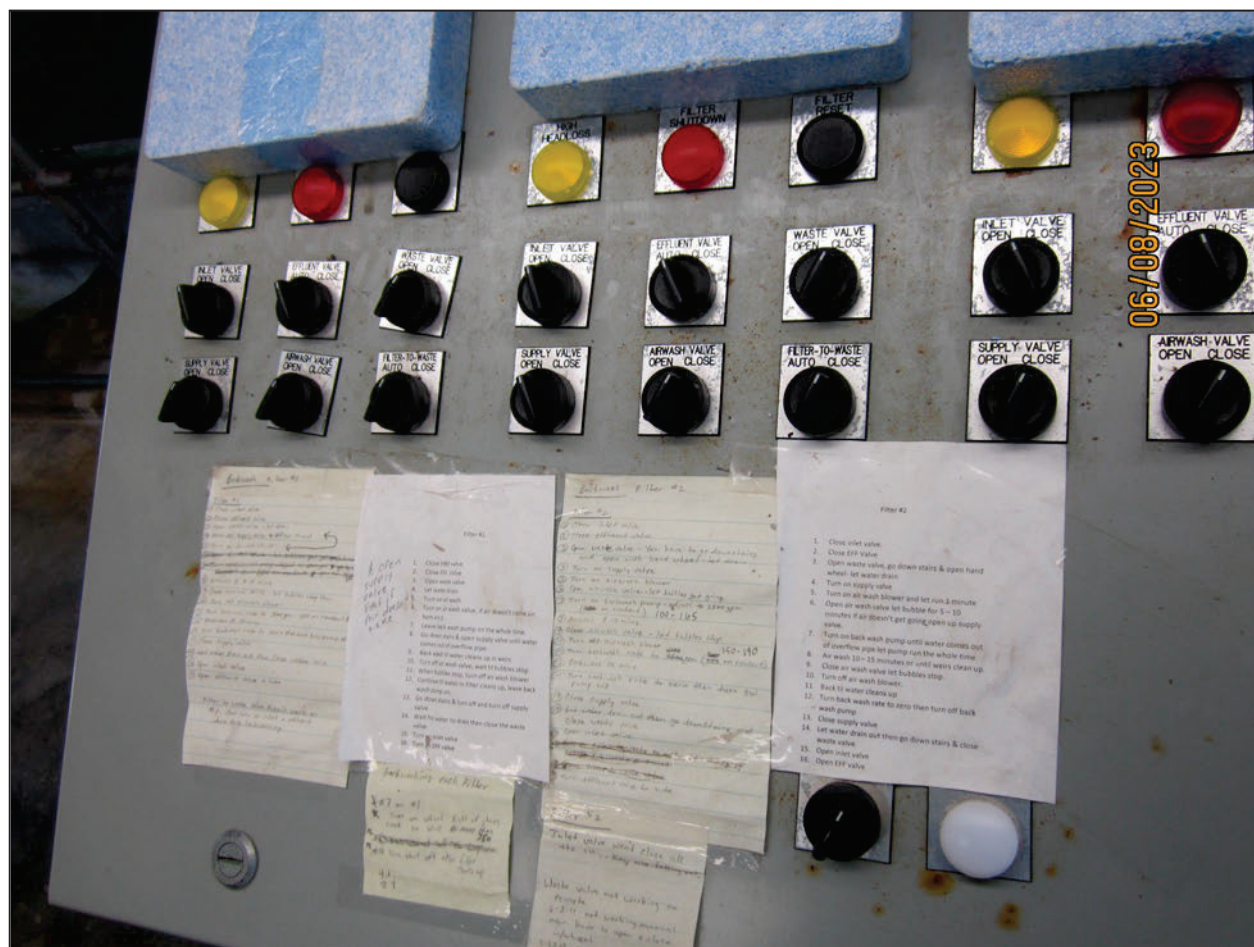


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 16. Water Treatment Plant, Filter Control Center View of the control center for the filters. Blue Styrofoam boxes were described as protective covers for the control switches and were removed to show control switch settings. Operations steps were described in printed and hand-written notes taped to the control panel.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 17. Water Treatment Plant, Clear Well View of one of the hatchways to the clearwell. The hatch had a shoebox top cover and some seal tape on the cover. However, it is unclear if the tape maintained a sanitary seal.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 18. Water Treatment Plant, Clear Well View of the top of the clearwell, finished water pumps, the area's backup generator, and the valve house supporting finished water supply to the distribution system. Only one of the pump discharges was still wrapped with insulation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 19. Water Treatment Plant, Clear Well Pump Valve House View of the piping supporting the pumps delivery of finished water to the distribution system. One of the lines appeared to be supported by a wooden brace and a few assets had components that had lost their coatings and were rusting.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

Location: Cross County Rural Water System		
City: Multiple	County/Parish: Multiple	State: Arkansas



Photograph 20. Water Treatment Plant, Clear Well Pump Valve House View of a finished water line with a threaded hose tap without backflow protection.