

2025 Operator Renewal Training



OKLAHOMA
Environmental
Quality

Public Water Supply Year Operator Training

**Agenda for January 7th, 2025
Shawnee, OK**

Time	Topic	Presenter
8:30-8:55	Drinking Water State Revolving Fund (DWSRF)	
8:55-9:20	Asset Management	
9:20-9:30	Break	
9:30-9:55	Lead/Copper	
9:55- 10:20	DBPs	
10:20-10:30	Break	
10:30- 10:55	AWOP	
10:55-11:20	PFAS	
11:20-11:30	Break	
11:30-11:55	Cybersecurity	
11:55- 12:20	Consecutive Connections	
12:20-12:30	Operator Certification Paperwork/ Survey	

Step-by-Step Application Process

DWSRF Project Phases

It is recommended for the Public Water Supply to work with a consulting engineer as early as possible in the DWSRF project planning process.

1. Start-up Phase:

Contract with Engineering firm. Submit "Project Priority Letter", Sample Letter:

<https://www.deq.ok.gov/wp-content/uploads/deqmainresources/Request-for-Placement-Letter-Example.doc>



2. Planning Phase

EPA DEQ Eligibility Handbook

https://www.epa.gov/sites/default/files/2017-06/documents/dwsrf_eligibility_handbook_june_13_2017_updated_508_version.pdf

For Submission of the Project:

<https://applications.deq.ok.gov/nviro/nform/Home/e230d012-df2a-42ff-9372-702e9c4d7d62>



Environmental Review

Capacity Development Review

Engineering Planning and Design

Construction Permit (Forms may be submitted through the "Applications" link as shown above)

For submission of Financial Application:

To Submit a Financial Application to OWRB

<https://oklahoma.gov/owrb/financing/forms-and-guidance.html>



3. Contracts Phase

Pre-Bid meeting

Advertising and accepting bids

Approved at OWRB Board/binding commitment signed

Interest rate set, loan closed

Award of construction contracts

Oklahoma Competitive Bidding Act/DBE



4. Construction

Applicant Resident Inspection

Monthly Meetings and Site Visits

Pay Requests submitted (reimbursement)

AIS/BABA/Davis Bacon

Other Helpful Links

Loan and Grant Resource Guide for Additional Funding Needs:

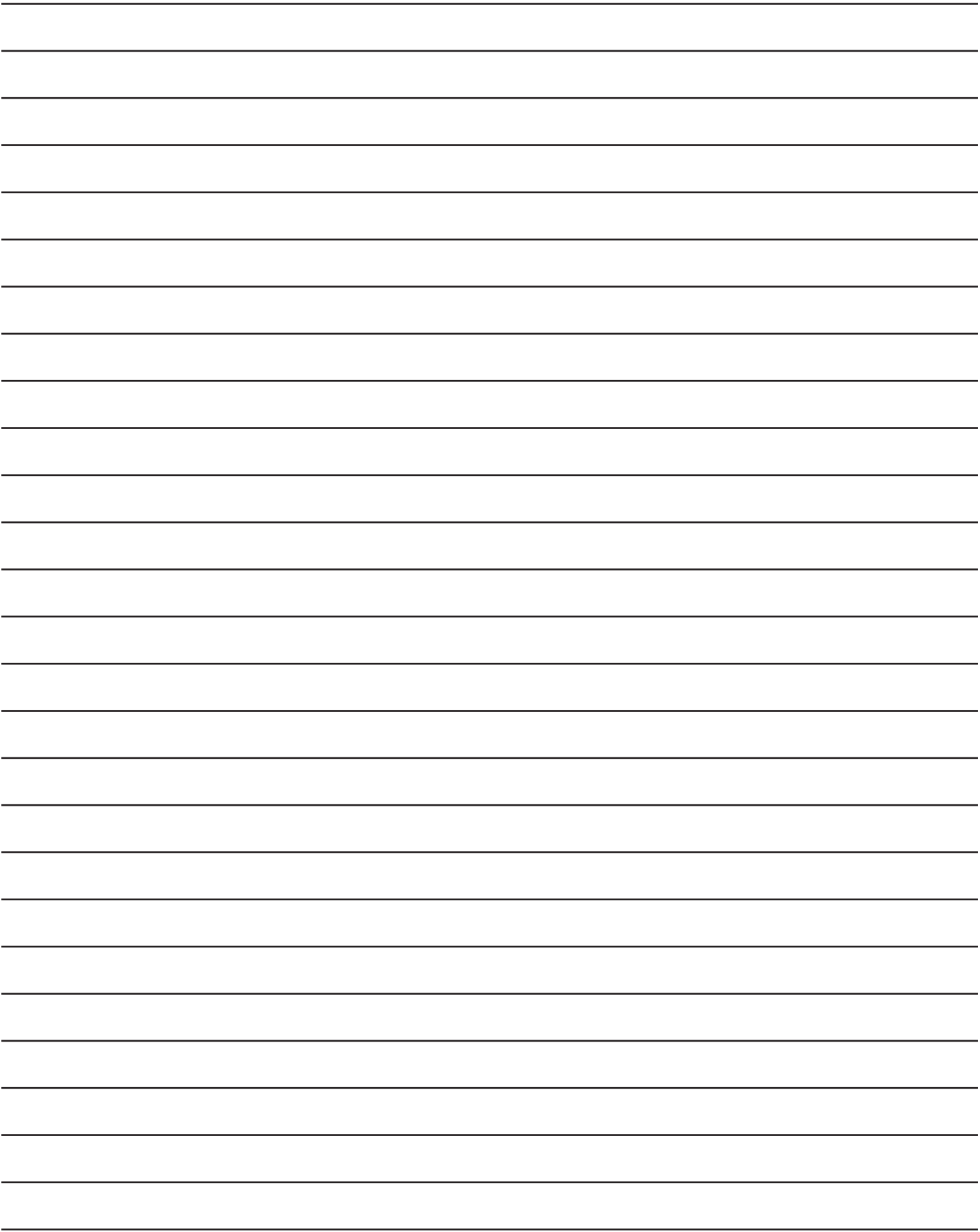
<https://oklahoma.gov/content/dam/ok/en/owrb/documents/financing/forms-and-guidance/lgrsourceguide.pdf>



To Find Information on Lead Service Inventory Procedures:

<https://www.deq.ok.gov/lead-service-line-inventory/>





Asset Management

What is Asset Management?

Asset Management is a framework to help utilities provide a **desired level of service** at the lowest **life cycle cost**. It is designed to help people decide how and where to best spend their limited time, resources, and money to achieve the desired results.

Why participate?

Water system assets (pipe, valves, tanks, pumps, outfalls, storage basins, treatment facilities, etc.) can lose value over time as the system ages and deteriorates. As the assets deteriorate, the level of service the utility's customers desire may become compromised, operation and maintenance costs can increase, and the utility may be faced with excessive costs it can no longer afford. Asset management gives utilities the tools and information needed to meet these challenges and function sustainably.

The 5 Core Components of Asset Management

Asset Inventory

What assets do we have, where are they, what is their worth?

Long-Term Funding

Can you afford to operate, maintain, and replace these assets?



Level of Service

Can you provide for your customers now and in the future?

Life Cycle Costing

Is there a strategy for repairing and replacing critical assets?

Criticality

What is the risk of these assets failing?

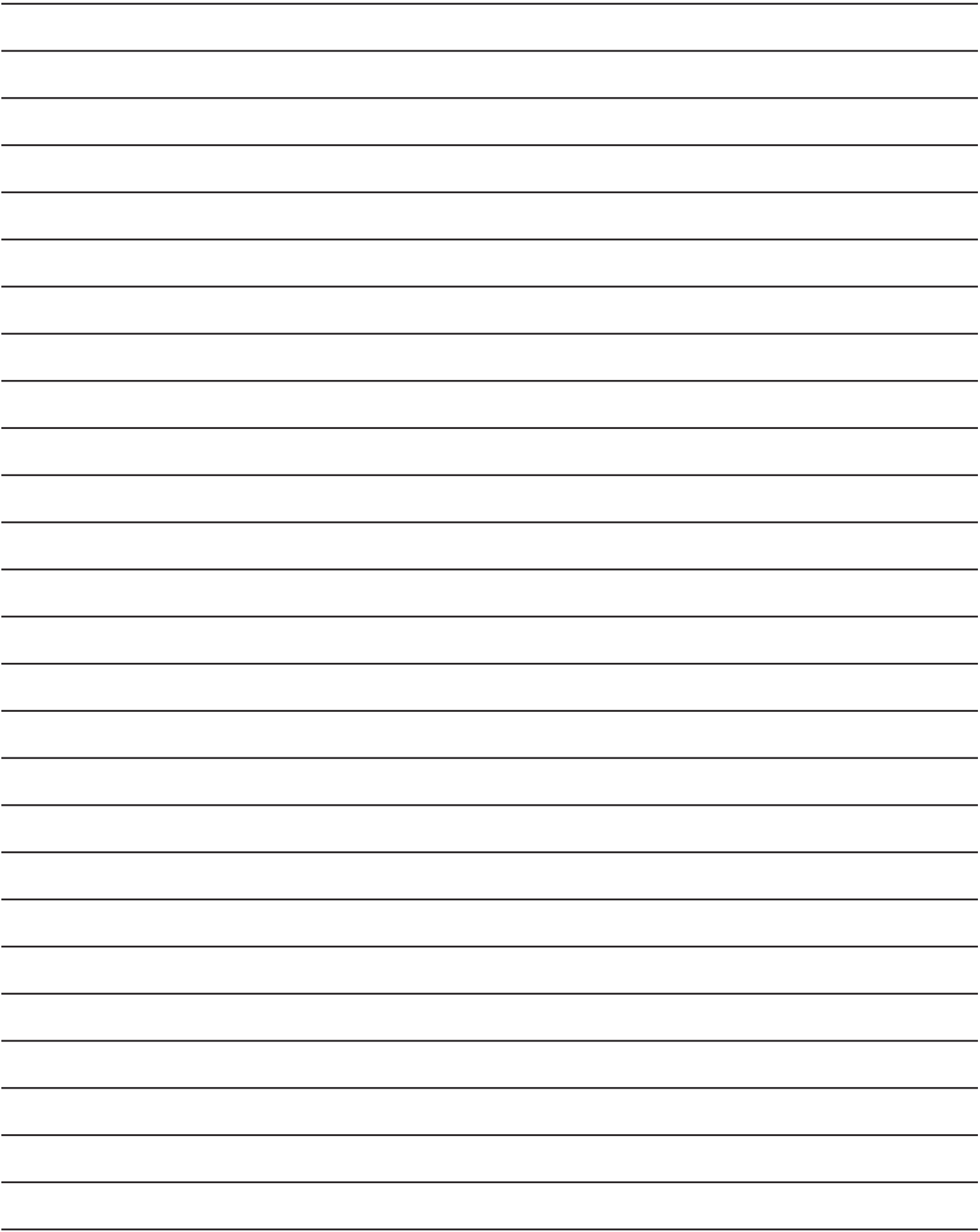
Benefits of Asset Management

- Knowledgeable to make Better operational decisions
- Helps utility managers know when to repair, replace, or rehabilitate assets
- Consistent level of service provided to customers by incorporating a long-term funding strategy?
- Improved emergency response
- Increased knowledge of asset location and condition
- Ability to use limited finances as efficiently as possible
- Improved rate setting: rates are based on better information, and have increased customer acceptance
- Better prioritization of capital improvement projects

How do I get started? Contact:

Capacity Development
405-702-8270
deq.capdev@deq.ok.gov





Lead and Copper

Initial Lead Service Line Inventory

- Submit the initial LSLI if you have not done so already
- Make sure to distribute the Service Line Consumer Notification to any consumer served by a LSL, GRR or Unknown material service line
- LSLI and notification templates can be found at <https://www.deq.ok.gov/lead-service-line-inventory/>

Lead and Copper monitoring periods

- June 1st- September 30th for yearly or 3-year schedules
- January 1st- June 30th and July 1st- December 31st for 6-month schedules
- Any samples collected outside of the monitoring period will not be counted towards compliance
- If sampling is not completed, it will result in a violation, and you will return to 6-month monitoring also known as standard monitoring

Tier 1 Notification of Lead ALE based on the 90th percentile

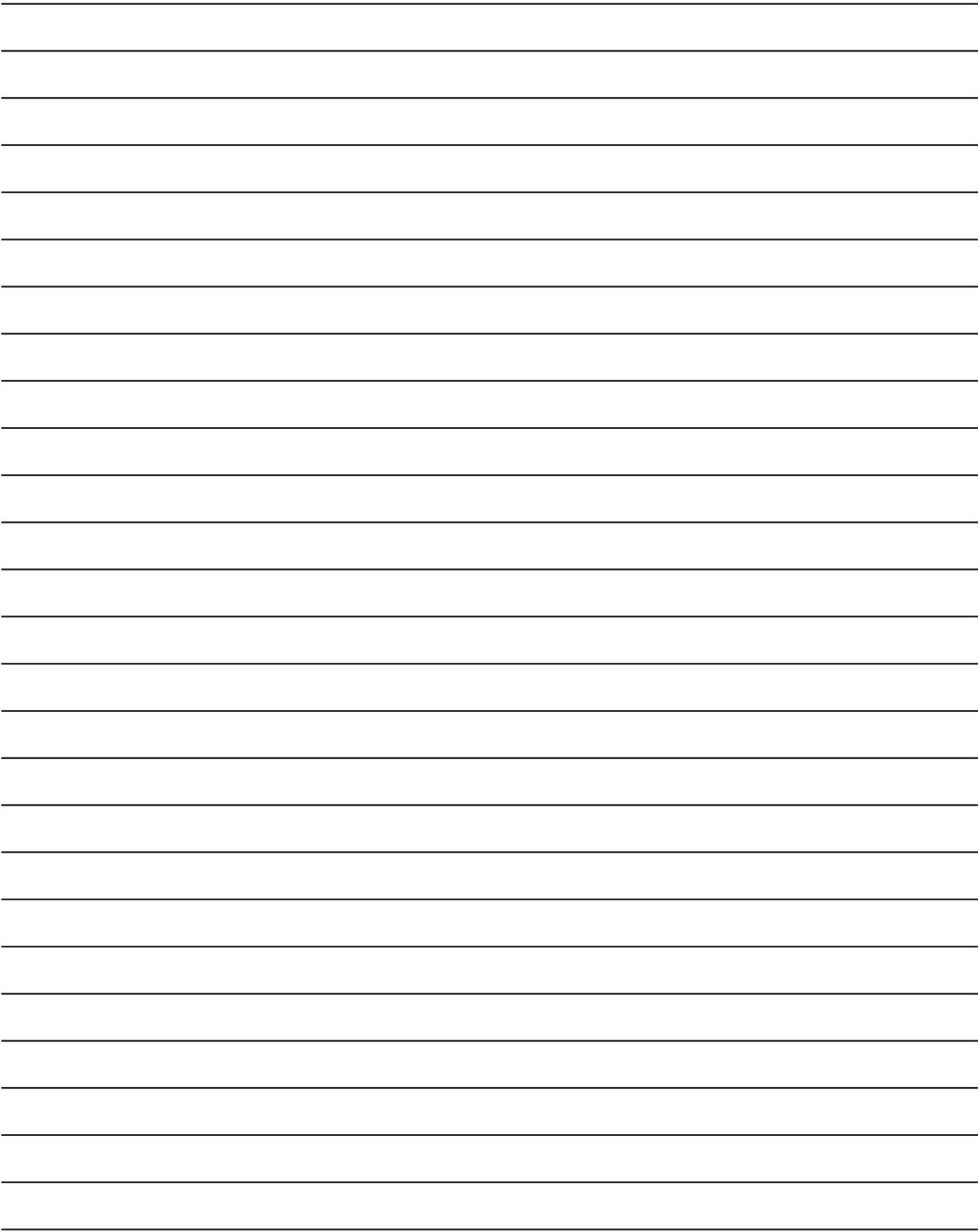
- Notification to all consumers within 24 hours after the determination of a Lead Action Level Exceedance based on the 90th percentile

Health Effects of Lead

- Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney, or nervous system problems.

Lead Testing in Schools and Childcare Facilities

- Free lead testing program and remediation funding available LWSC@deq.ok.gov



Disinfection By-Products (DBPs)

Precursors
Bromide
Total Organic Carbon (TOC)
Natural Organic Matter (NOM)



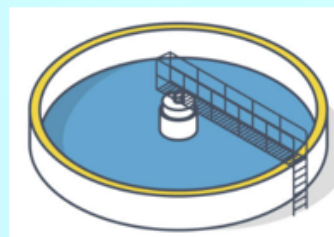
Data Collection & Testing
DBP Profiling
Water Age Profiling
Disinfection Residual Profiling
TOC Testing
Source Water Testing
Jar Testing

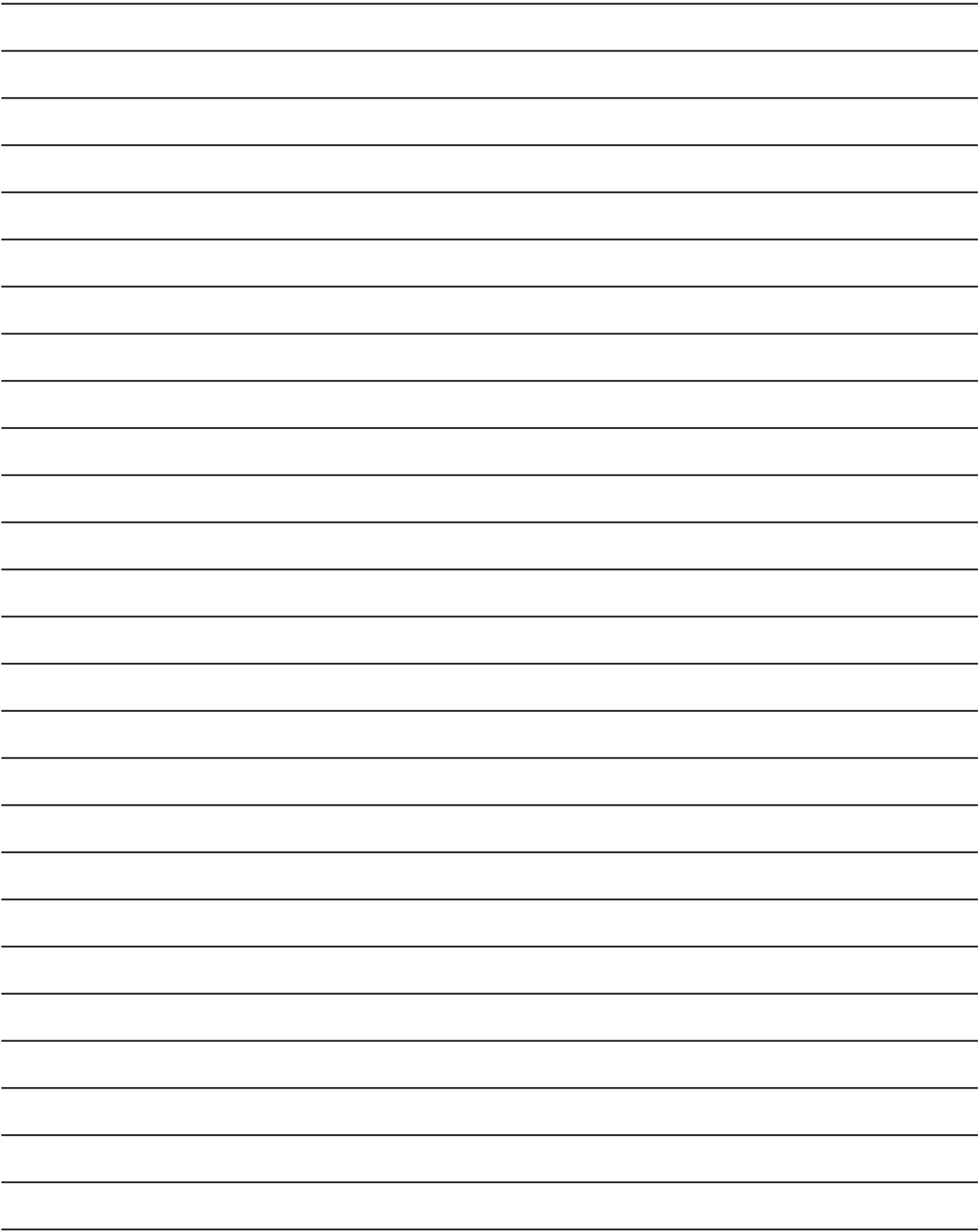
DBP Factors
Precursor Concentration
Disinfection Type
Water Age
Water Chemistry
Bioactivity



Treatment
Optimize Coagulation
Jar Testing
pH Levels
GAC Filters
Recirculation
Aeration
Mixing

Disinfection Types
Bromine
Iodine
Ozone
Potassium Permanganate
Oxygen
Chlorine Dioxide
Chlorine





Oklahoma Area Wide Optimization Program (AWOP)

The Area Wide Optimization Program (AWOP) is a national program sponsored by the Environmental Protection Agency (EPA). This program focuses on optimizing water systems to increase public health protection, while utilizing the existing staff and facilities.

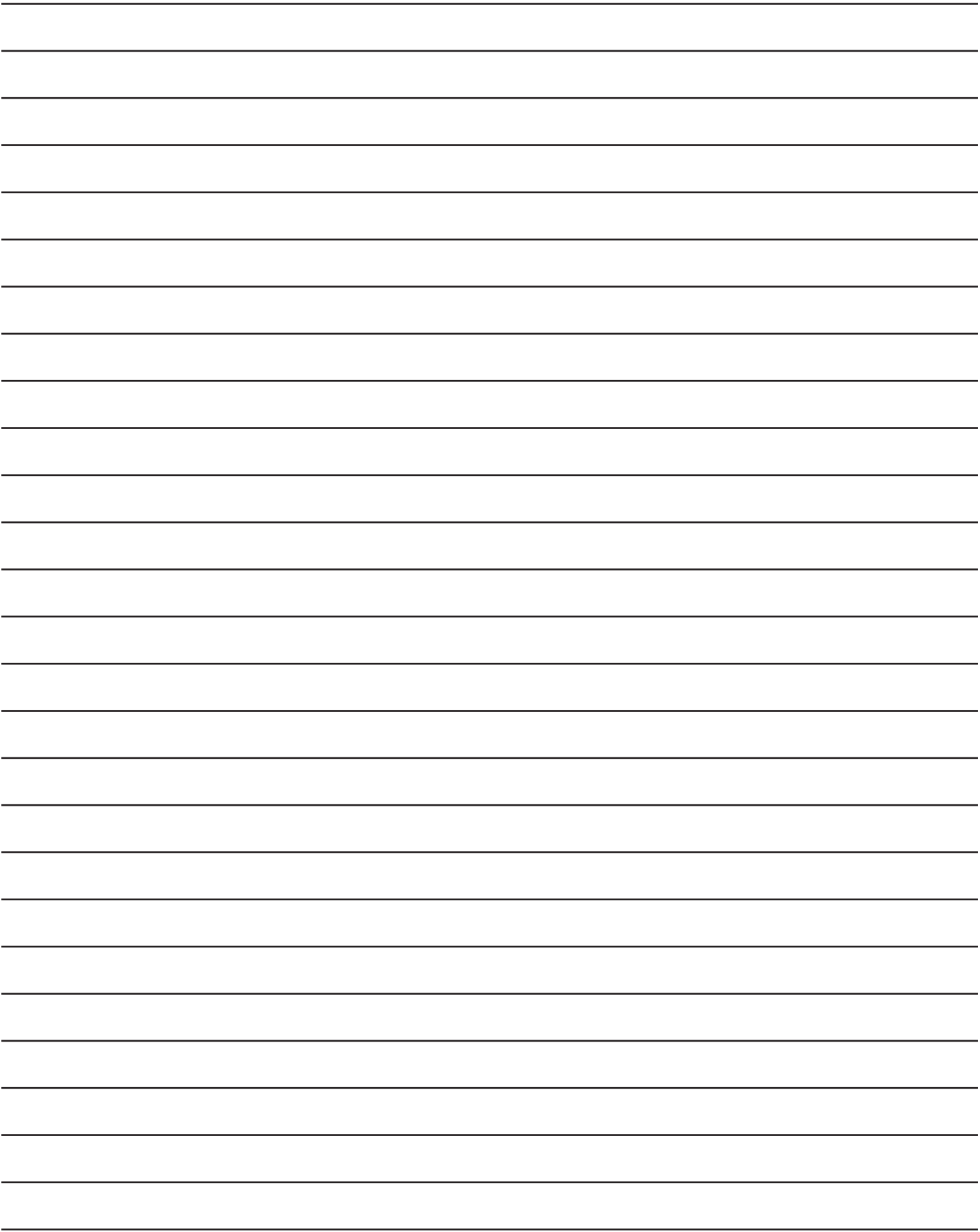
What areas can AWOP assist with?

- Disinfection Byproducts (DBPs)
- Turbidity
- Chlorine Residual
- Corrosion Control
- Treatment Techniques and Data Integrity
- Distribution Systems and Storage Tank Integrity
- Manganese Control
- Nitrification
- Harmful Algal Blooms (HABs)

3 Team Structure

AWOP Awards	Workshops	Comprehensive Performance Evaluations
<p>Public Water Systems strive to meet optimized treatment goals, and receive awards based on their performance. Water Systems are scored on a tier based system.</p> <p>Public Water Systems are scored based on:</p> <ul style="list-style-type: none"> ○ Turbidity, IFE and CFE (If applicable) ○ Monitoring ○ Capacity Development ○ Water Loss Audit ○ MCL Violations ○ and more, depending on the type of system. <p>Benefits of Participating:</p> <ul style="list-style-type: none"> ○ Priority for water leak detection if warranted by water loss audit ○ Optimization Certificates ○ Awards and Recognition! <p>Previous years awards have included:</p> <ul style="list-style-type: none"> ○ Customized Plaque ○ Customized Flag ○ Customized Trophy ○ AWOP lapel pins ○ AWOP vinyl stickers <p><i>With more to come...</i></p>	<p>Workshops offer an in-depth look at water systems, while focusing on a singular topic.</p> <p>Previous topics have included:</p> <ul style="list-style-type: none"> ○ DBPs ○ Manganese ○ Turbidity ○ Data Validity <p>With more to come in the future!</p> <p>Each workshop is a full day's length, and also requires planning visits, where DEQ staff will visit the system and gather informational data ahead of time.</p> <p>Operator Certification Credit is available for Public Water System staff that participates in the workshops.</p>	<p>Comprehensive Performance Evaluations (CPEs) are a voluntary week-long process in which DEQ staff analyzes a water system using the optimization goals. At the end of the week, the system is given a report of "Performance Limiting Factors," that when addressed will assist them with improving their optimization.</p> <p>Areas evaluated:</p> <ul style="list-style-type: none"> ○ Daily Operations ○ Treatment Processes & Data Integrity ○ Administration and Billing ○ Communication ○ Design & Maintenance ○ Distribution System Integrity and Quality Control <p>Benefits of Participating:</p> <ul style="list-style-type: none"> ○ Identification of Performance Limiting Factors ○ In-Depth report of water system data and findings ○ Recommendations on how to achieve optimization consistently ○ Increased public health protection

For more information, or to sign up for the program, please contact Tara Bussing at tara.bussing@deq.ok.gov or call 405-702-8189



PFAS Compliance

“Forever Chemicals”- Strong bonds resist breaking down in environment, causing a buildup ecologically and in our bodies.

Health Effects: Increased risk of cancer, reproductive issues, high cholesterol, immune system suppression, hormone interference.

All **Community (C)** and **Non-Transient Non-Community (NTNC)** systems will be required to monitor for PFAS

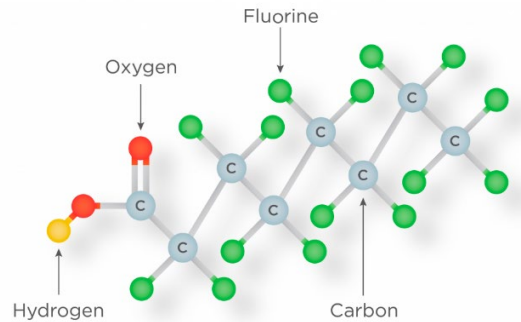
Initial Monitoring: Complete by April 25, 2027

Surface Water: 4 Quarterly samples 2-4 months apart

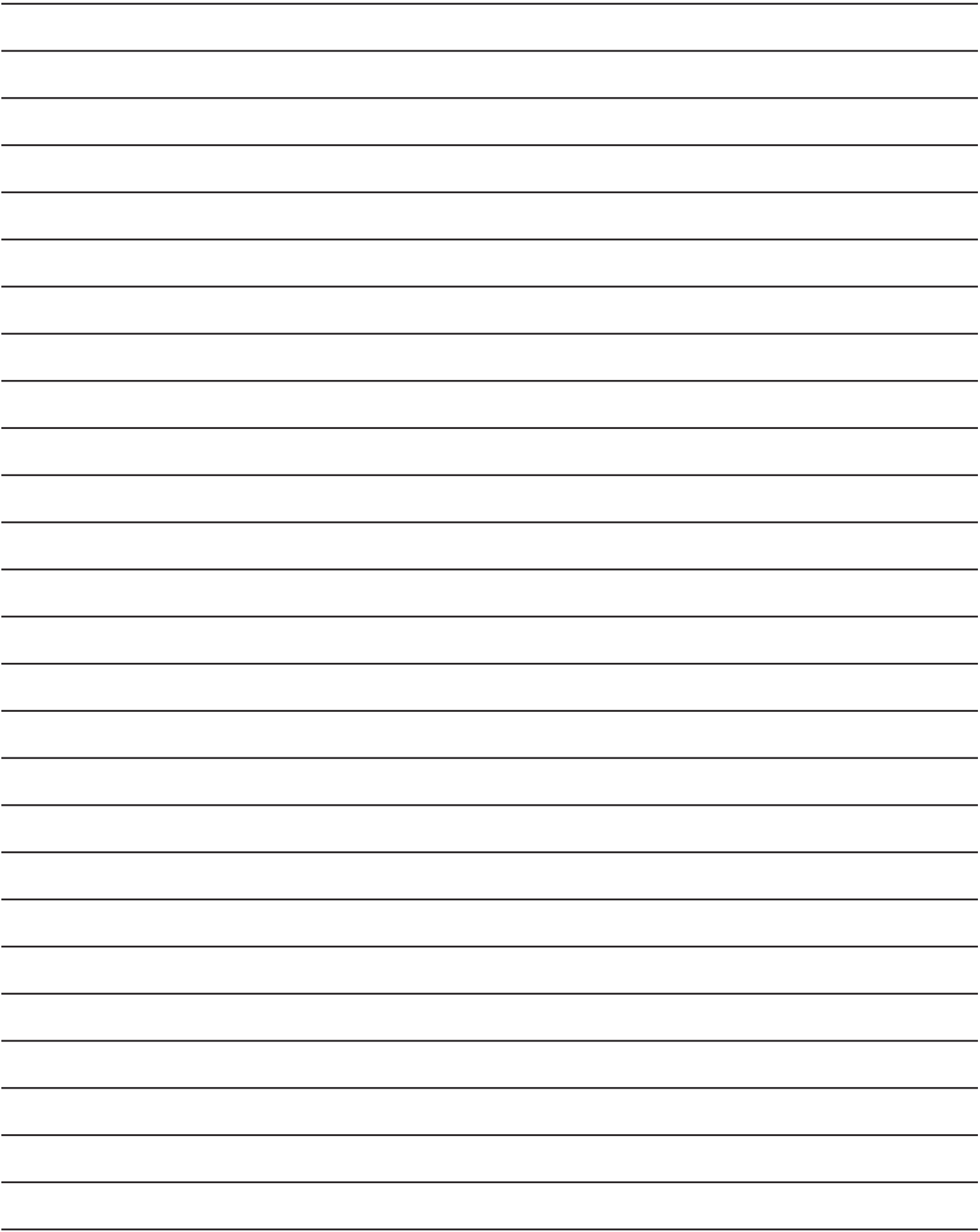
Groundwater >10,000: 4 Quarterly samples 2-4 months apart

Groundwater <10,000: 2 Samples in same year, 5-7 months apart

Compliance with MCLs and Hazard Index: April 2029



Chemical	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)
PFOA	0	4.0 ppt
PFOS	0	4.0 ppt
PFNA	10 ppt	10 ppt
PFHxS	10 ppt	10 ppt
HFPO-DA (GenX chemicals)	10 ppt	10 ppt
Mixture of two or more: PFNA, PFHxS, HFPO-DA, and PFBS	Hazard Index of 1	Hazard Index of 1
<p>Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.</p> <p>Maximum Contaminant Level (MCL): The maximum level allowed of a contaminant in water which is delivered to any user of a public water system.</p>		

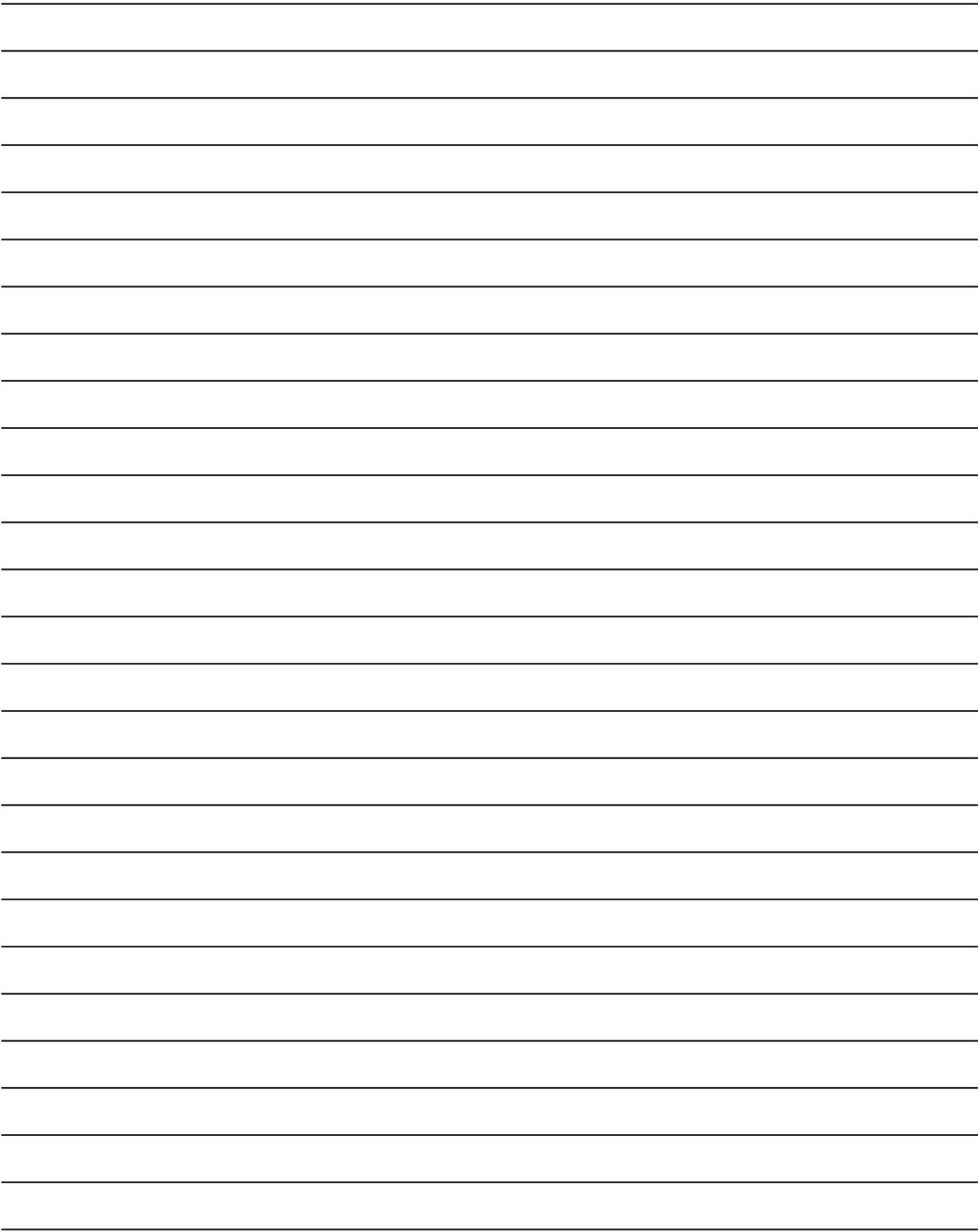


Implement these Cybersecurity Actions Today

1. Change Default Passwords
 - Weak default or insecure passwords are easy to discover and exploit, and they may allow cyber threat actors to make changes to a water systems' operational processes. **CISA's Secure our World Campaign: Use Strong Passwords**
2. Update Software to Reduce Exposure to Vulnerabilities
 - Prioritize OT patches in accordance with **CISA's Known Exploited Vulnerabilities (KEV) catalog** during scheduled downtime of OT equipment; prioritize patches in IT, as applicable. **CISA's Secure our World Campaign** provides guidance on updating software.
3. Backup Operational Technology (OT) and Informational Technology (IT) Systems
 - Implement the NIST **3-2-1 rule**: 3) Keep three copies: one primary and two backups; 2) Keep the backups on two different media types; 1) Store one copy offsite.
4. Reduce Exposure to the Internet
 - Use cyber hygiene services to reduce exposure of key assets to the public-facing internet. **CISA's Free Cyber Vulnerability Scanning for Water Utilities** fact sheet explains the process and benefits of signing up for CISA's free vulnerability scanning program.
5. Create an Inventory of OT/IT Assets
 - Focus initial efforts on internet-connected devices and devices where manual operations are not possible. **EPA's Cybersecurity Technical Assistance Program** supports you in conducting an inventory.
6. Conduct a Cybersecurity Assessment
 - Conduct a cybersecurity assessment on a regular basis to understand the existing vulnerabilities within OT and IT systems. Use EPA's **Water Cybersecurity Assessment Tool (WCAT)**.
7. Create an Incident Response and Recovery Plan
 - Understand incident response actions, roles, responsibilities, who to contact and how to report a cyber incident before one occurs. Test your incident response plan annually to ensure all operators are familiar with roles and responsibilities. **EPA's Cybersecurity Action Checklist and CISA's Incident Response Plan (IRP) Basics** can help.
8. Implement Cybersecurity Awareness Training
 - Conduct cybersecurity awareness training at least annually for all employees. Use **EPA's Cybersecurity Training** and **CISA's Industrial Control Systems** virtual training.

Use this QR code to access CISA's **Top Cyber Actions for Securing Water Systems** PDF which provides links to free services, resources, and tools, but, remember, always check QR codes to be sure they are going to the website they claim!





CYBER INCIDENT REPORTING PROCESS

WHY IS IT IMPORTANT TO REPORT CYBER INCIDENTS?

A cyber incident could jeopardize drinking water and wastewater utilities by allowing access to private customer/employee information, changing chemical levels in water treatment processes, or denying access to critical systems. Cyber incidents resulting in disruptions of operational processes are of particular concern to the Federal Government. The attacker is a criminal, and reporting an incident allows individuals to look out for suspicious activity and enables them to take steps to protect themselves.

WHERE TO REPORT:

REPORT TO THE FBI FOR THREAT RESPONSE

Submit an internet crime complaint form to the FBI at www.ic3.gov or contact your local field office at www.fbi.gov/contact-us/field. The FBI will conduct the investigation.

OR

REPORT TO CISA FOR ASSET RESPONSE

Submit a computer security incident form to the Cybersecurity and Infrastructure Security Agency (CISA) Incident Reporting System at www.us-cert.cisa.gov/forms/report. CISA can be contacted by phone at 888-282-0870 and by email at Central@cisa.gov. CISA will provide technical assets and assistance to mitigate vulnerabilities and reduce the impact of the incident.

OR

CONTACT EPA FOR CENTRALIZED RESPONSE

Please reach out to the U.S. Environmental Protection Agency (EPA) Water Infrastructure and Cyber Resilience Division (WICRD) at WICRD-outreach@epa.gov. EPA's WICRD will act as a centralized federal point of contact between the affected parties/stakeholders and all appropriate federal agencies incorporated in the incident response.

WHEN TO REPORT TO THE FEDERAL GOVERNMENT

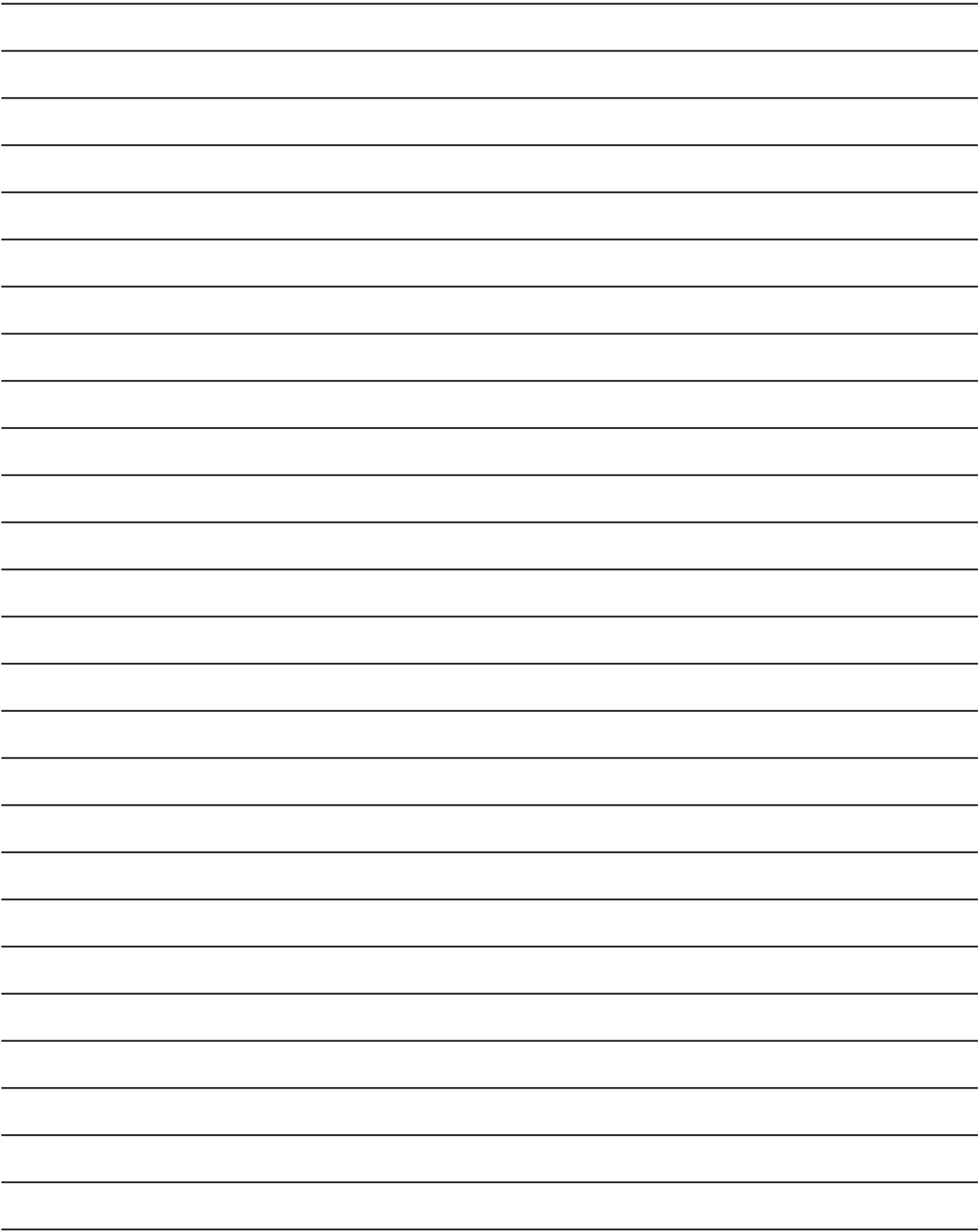
Utilities are encouraged to report all cyber incidents when there is any:

- Loss of data, system availability, or control of systems;
- Impact to any number of victims;
- Detection of unauthorized access to, or malicious software present on, critical information technology systems;
- Affected critical infrastructure or core government functions; or
- Impact to national security, economic security, or public health and safety.

WHAT TO REPORT TO THE FEDERAL GOVERNMENT

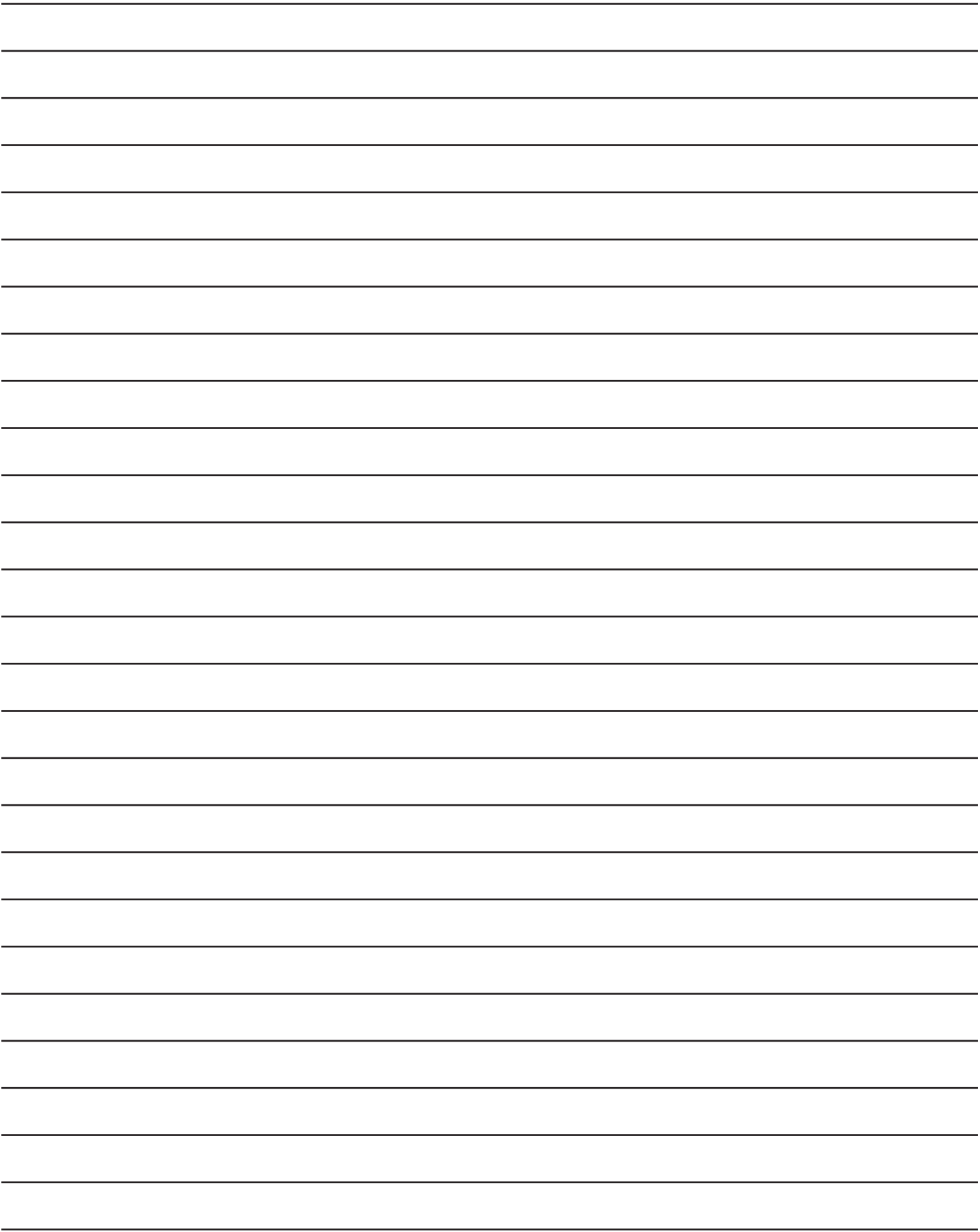
A cyber incident may be reported at various stages, even when complete information may not be available. Helpful information could include:

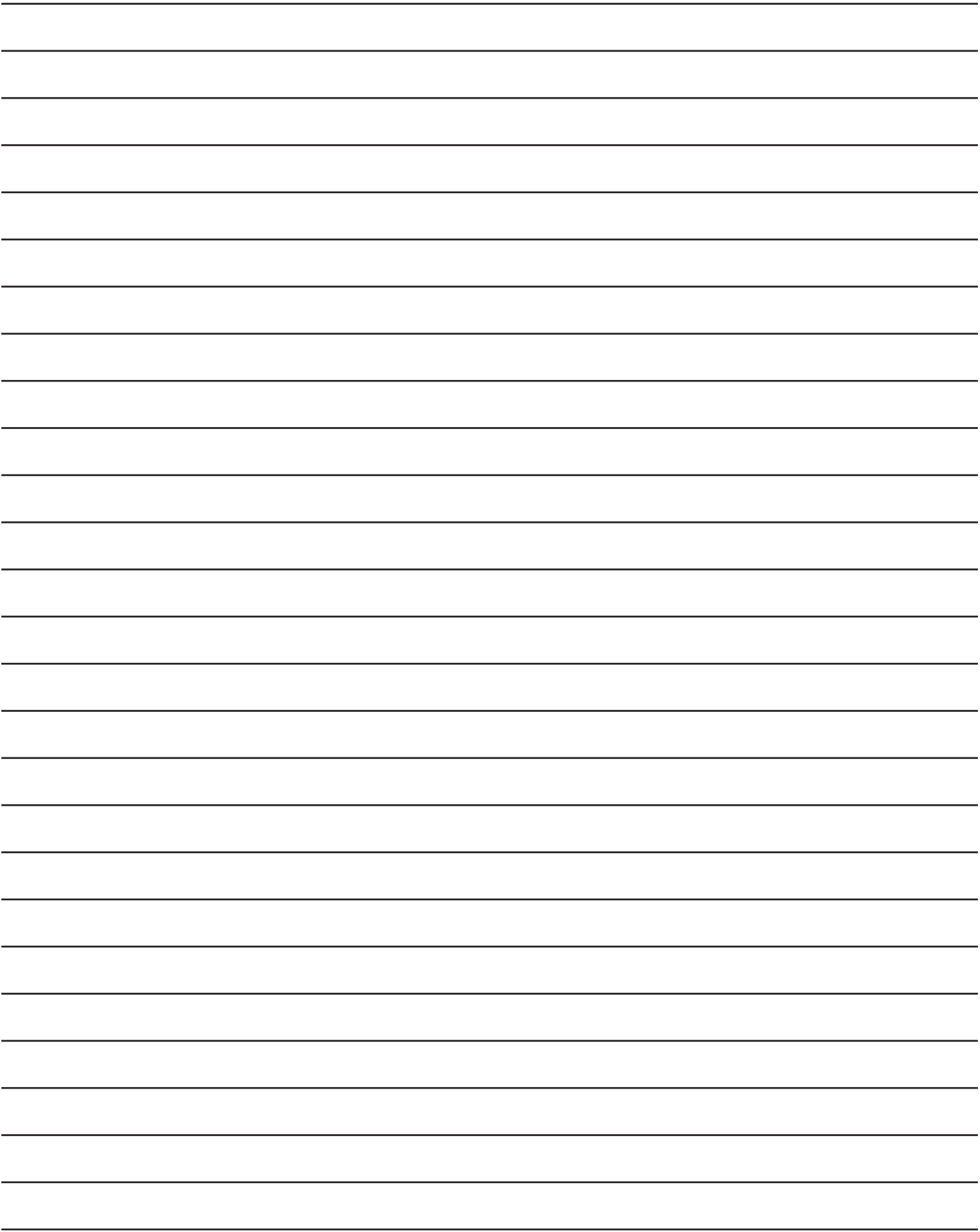
- Who you are,
- Who experienced the incident,
- What sort of incident occurred,
- Details of incident impact,
- How and when the incident was initially detected,
- What response actions have already been taken, and
- Who has been notified.



Consecutive Connections

- Consecutive system defined as a public water supply system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.
 - Purpose
 - Provide water to systems with:
 - Inadequate quality and quantity of sources
 - Financial limitations
 - Rapid population growth
 - Communication Between Operators Key Points
 - Monitor water quality parameters across all systems
 - Notify consecutive systems of changes to treatment process
 - Emergency response plan should include notification to consecutive systems
 - Attend board meetings of consecutive systems
 - Represent customers of consecutive systems
 - Disinfection byproduct compliance strategies for purchase systems
 - Coordinate flushing unilaterally beginning with wholesaler and moving outwards
 - Optimize volumes in storage tanks
 - Maintain, rehabilitate, or invest in wells to blend with purchased water
 - Compatible Disinfectants
 - Avoid blending chloraminated water with chlorinated water
 - Free chlorine can bond with monochloramines, forming di- and tri-chloramines
 - Results in weaker disinfectants, lower residuals, and taste and odor
 - Increases risk of nitrification and bacterial growth
 - RTCR/GWR Additional Requirements
 - Groundwater-source wholesalers must be notified within 24 hours of a total coliform positive sample in a consecutive system
 - Active groundwater sources of purchase and wholesaler must be sampled
 - *E. coli* positive of groundwater source results in a boil order for all systems that receive water from the source
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