



THE OHIO STATE UNIVERSITY

Appalachian Water Research Exchange (AWaRE)

Thank you for agreeing to participate in this study!

Our goal is to engage with local organizations, experts, and community members to better understand and address problems in small water systems to ensure affordable and equitable water quality for Appalachian Ohio.

We are currently conducting informal conversations and interviews, an online survey, and water quality assessments to help us better understand historical and current issues of water quality, system management, affordability, perceptions, and use in your community.

The purpose of these activities is to understand the relationship rural Scioto County residents have with their municipal water systems and drinking water quality. We will collect information through interviews, surveys, and water quality tests with residents of rural areas of Scioto County.

Our water quality study incorporates the assistance of community scientists like you, who conduct real-time testing of water from their household faucets and mail water samples to us for additional laboratory testing. On the OSU campus, we will analyze these samples for microbial and chemical water quality parameters. Additionally, through partnership with the local water utility, we will obtain source water and treated drinking water directly from the municipal or private water treatment plant for analysis.

We estimate your total time commitment for the interview activities will be 2 hours with some preparation time ahead of the interview.

Please Watch the Following Videos

Part 1 provides an overview of the research study activities. Part 2 provides an overview of instructions for water sampling and shipping.

Click here to watch Part 1: <https://go.osu.edu/aware-instructions-part-1>

Click here to watch Part 2: <https://go.osu.edu/aware-instructions-part-2>



1. Before the Interview

1.1. Overview

- You will participate in an interview, survey, and water sampling activity.
- Two researchers will interview you and record your responses using various online tools that you will be able to see during the study.

1.2. You will receive the following...

- Email with personalized Zoom link
- Electronic copy of Consent Form attached to the email
 - Please review before interview
 - You can also view the Consent Form here: <https://u.osu.edu/aware/consent-form/>
- Water sampling kit

1.3. Review these instructions at least 1-2 days before the interview

- Remove shipping label on the cardboard box.
- Open the cardboard box (**Do not throw away**) and remove foam cooler.
- Open foam cooler and check the contents:
 - 3 x Ice Packs (**Freeze these immediately**)
 - Packing material (**Do not throw away**)
 - Large plastic bag (**Do not throw away**)
 - Pre-Paid UPS Next Day Air shipping label sticker
 - Nitrile gloves
 - Yellow Labelled WhirlPak - “Sample 1”
 - Purple Labelled WhirlPak - “Sample 2A” *
 - Purple Labelled WhirlPak - “Sample 2B” *
 - Purple Labelled WhirlPak - “Sample 3” *
 - Purple Labelled WhirlPak - “Sample 4” *
 - Bottle with Free Chlorine Test Strips
 - 2 x 50 mL plastic tubes for collecting water sample
 - Plastic bag with 2 14-in-1 water testing strips
 - 14-in-1 water testing color guide
 - Packing tape strips

** The Purple WhirlPaks are Thio-Bags. Thio-Bags contain a nontoxic, white tablet containing sodium thiosulfate (will appear as white powder if crushed during transit) which is used to neutralize chlorine in water at the time of collection. The removal of chlorine from the sample is required for bacteriological testing and disinfection byproduct testing.*

- Mark your calendar. We have pre-scheduled a UPS pickup service for returning the sampling kit to OSU based on your interview date and time.
- Ensure you have access to the following on the day of your interview:
 - Access to internet connection and/or cellular data
 - Laptop, computer, tablet, or smart phone to access Zoom link
 - Download Zoom if you do not have it installed on your device
 - Test the Zoom link before the interview by clicking on the link to your personalized meeting room
 - Download Zoom: <https://zoom.us/> or on the app store of your mobile device
- Review water sampling instructions provided in the Water Sampling Section.
 - Make notes of any questions you may have.
- Gather your most recent water bill(s), if available. You may need to access your online account for the Northwest Regional Water (NWR) District, call the office, or talk to your landlord.
 - Website: www.nwrwater.com
 - NWR Phone: 740-259-2789
 - If you cannot gather your water bill(s) by the interview date, do not worry. Proceed with the interview and let the interviewers know. You may provide the water bill after the interview at a later date.
- Choose the faucet you will sample from. The faucet should:
 - Have separate hot and cold water handles
 - **Sample cold water only. Do not sample hot water.**
 - Be free of attachments
 - Be indoors
 - Have at least 12 inches of space underneath the faucet to allow you to collect water without touching the sampling container to the faucet
- Watch Part 1 and Part 2 of the instructional videos if you have not already done so.
 - Part 1: <https://go.osu.edu/aware-instructions-part-1>
 - Part 2: <https://go.osu.edu/aware-instructions-part-2>
 - You should be familiar with how to use a WhirlPak for water sampling before the study.
 - You encourage you to practice using the yellow labelled WhirlPak provided, labelled “Practice” after you watch the video.
 - Questions about using WhirlPaks can be directed to Daniel Ma at 614-915-0922.



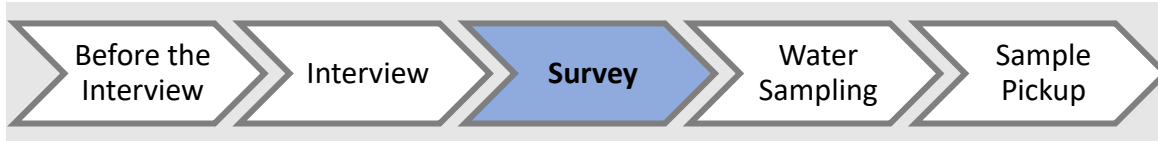
2. Interview

2.1. Before your interview...

- Review these the instructions in this packet. Make note of questions and let the researchers know of any questions you may have at the start of the interview.
- Make sure the following items are ready:
 - Water sampling kit contents
 - Water bill(s)
 - Frozen ice packs
 - Water faucet to sample from
 - Know how to use WhirlPaks
 - *Optional: Containers such as pots or buckets to collect tap water so that it does not go to waste*
- Move to an area where you are close to the water faucet and set up your electronic device to prepare for the interview

2.2. At the time of your interview...

- Open the personalized Zoom link in the email we sent you.
 - In the event the researcher are not yet in the room, please be patient and remain in the meeting.
 - Once the researchers arrive, they will introduce themselves and start the interview with you.
 - We estimate the interview will last about 45-60 minutes.



3. Survey

3.1. Overview of the survey

- We are interested in how you use and think about water.
 - Your answers are important to us, so please try to answer every question.
 - If you don't know how to answer a question, the researchers will help you.
 - It's okay to skip any question(s) you are uncomfortable about or do not wish to answer.
- Please be assured that your responses will be completely confidential and stored in a secure online server at Ohio State.
- Any report or document that is published using the data from this survey will not contain personal information that could be used to identify you.

3.2. What to Expect

- We estimate the survey will last about 15-30 minutes.
- At the end of the survey, the researchers will guide you through the water sampling part of the study.



4. Water Sampling

4.1. Reminders

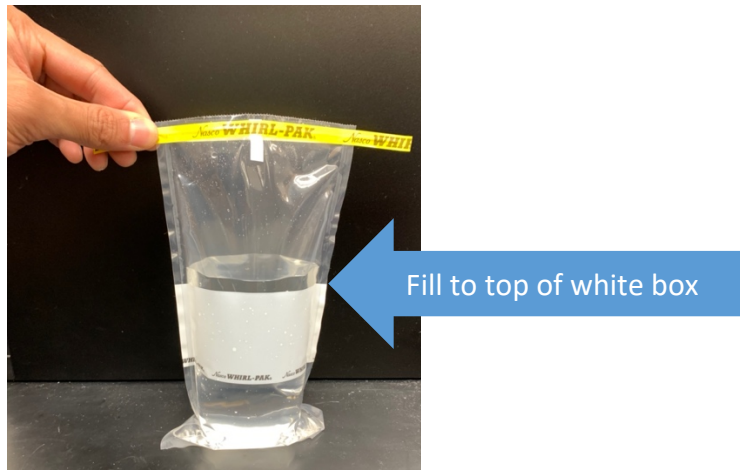
- Have your sampling kit ready on the day of the interview.
- Make sure your ice packs are frozen.
- Water sampling can be directed to Daniel Ma at 614-915-0922.
- If you have arranged to do water sampling separate from the interview, we will make the appropriate accommodations for you.

4.2. What to Expect

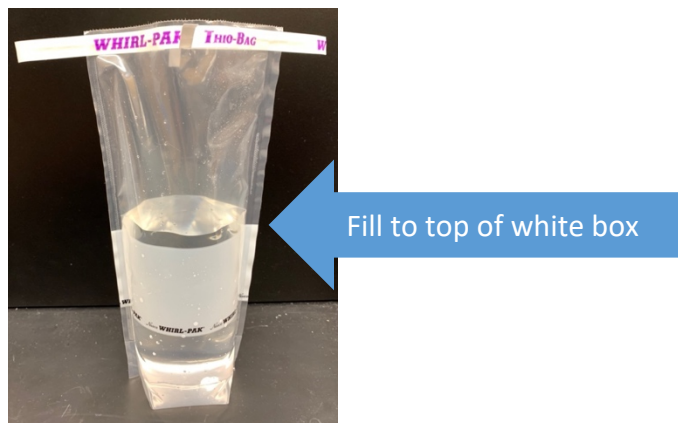
- The researchers will guide you through all the steps of the water sampling and testing activity.
- Below, we have provided shortened instructions for water sampling that the interviewer will guide you through during the interview.

General Instructions for Water Sampling

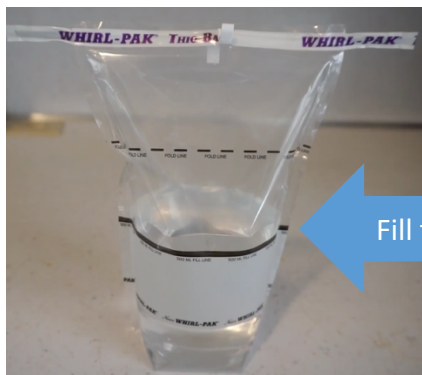
1. Turn on your cold water for 5 minutes.
2. You may collect the water in containers to avoid wasting water.
3. Put on gloves. Keep gloves on for duration of water sampling and testing activities.
4. After 5 minutes, reduce the flow of the water to the thickness of a pencil. Reducing the flow will minimize splashing and potential contamination of the water sample.
5. Pick up bag labelled Sample #1.
6. Tear off the top. Avoid touching the inside of the bag or contacting the inside of the bag with the faucet to prevent contamination.
7. Pull open the bag with the white tabs on each side of the bag.
8. Place the opening under the flowing water. Collect water sample to the top of the white box (all samples will be collected to the top of the white box)



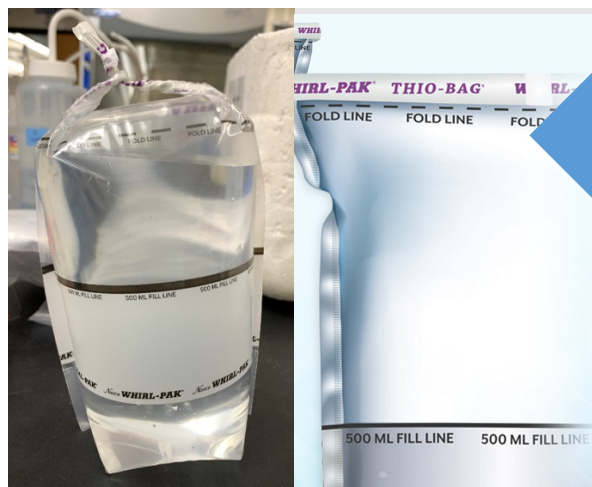
9. Hold the bag by the wire ends. Whirl the bag at least three complete revolutions to form an airtight seal.
10. Twist the wire ends together so that the ends will not come apart. After closing the WhirlPak, set aside.
11. Pick up bag labelled Sample #2A. Tear off the top, and pull tabs to open.
12. Collect water sample to the top of the white box.



13. Whirl Sample #2A at least 3 complete revolutions, and twist wire ends together. Set aside.
Repeat with Sample #2B
14. Pick up bag labelled Sample #3.
15. Tear off the top, and pull tabs to open, collect sample to top of white box.



16. Hold the bag by the wire ends. Whirl the bag to the dotted fold line, or fold the top of the bag down to the dashed fold line, until an airtight seal forms.
17. Twist the wire ends together to prevent the bag from opening. Set aside.
18. Repeat this for the bag labelled Sample #4. Set aside.



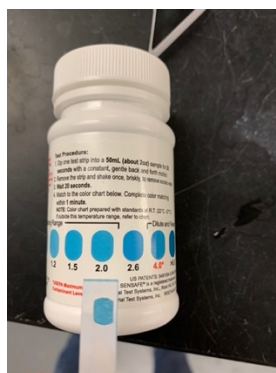
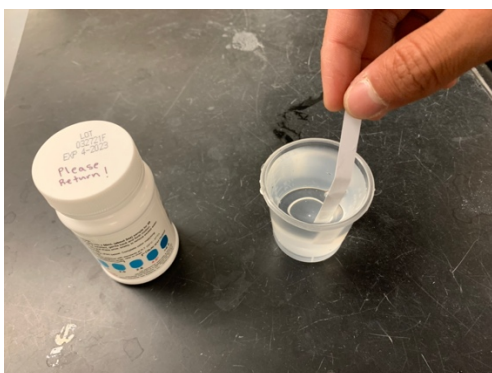
Instructions for Water Testing

Free Chlorine Testing

1. Fill the 50 mL plastic tubes to the top of the container.

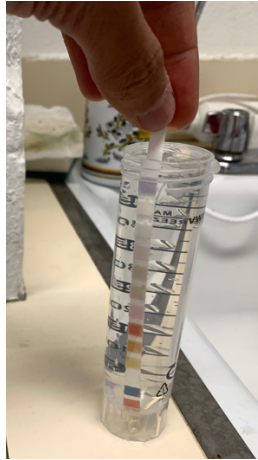


2. Take a Free Chlorine test strip out of the test strip bottle.
3. Follow the instructions that are provided on the test strip bottle:
 - a. Dip one test strip into the water sample for 20 seconds. Move the strip with a constant, gentle back and forth motion.
 - b. Remove the strip, shake once to remove excess water.
 - c. Wait 20 seconds.
 - d. Match to the color chart on the bottle. Complete color matching within 1 minute.
 - e. Record the result for Free Chlorine (in units of ppm).

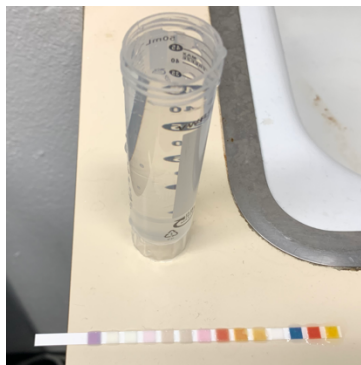


Multi-Parameter Testing

4. Next, remove a 14 parameter test strip from the plastic bag. Dip 14 parameter test strip completely into the water, while keeping all the squares submerged for 5 seconds.



5. Remove the strip from the water, and lay flat on a dry surface for 60 seconds.



6. Pick up the first strip and the color guide. Match the colors for each of the 14 parameters. from left to right on the color guide, starting with total alkalinity. Complete the matching within 1 minute.



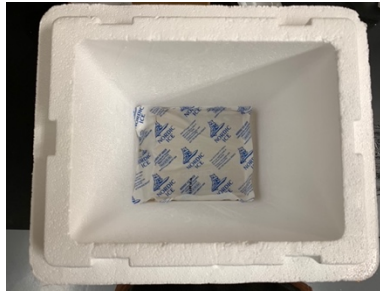
7. Record the results that you match from the color guide.
8. Repeat with the second tube and the second 14 parameter test strip. Record the results.
9. Close the tubes. You
10. This concludes the water sampling and testing. We will provide you a summary of the water testing results via email.



5. Sample Pickup

5.1. Packing the Samples

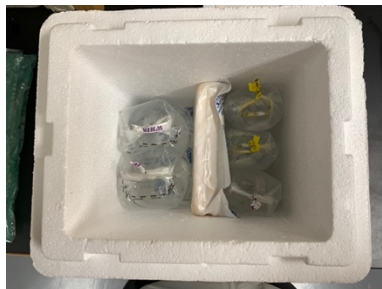
6. Place the first ice pack flat at the bottom of the cooler.



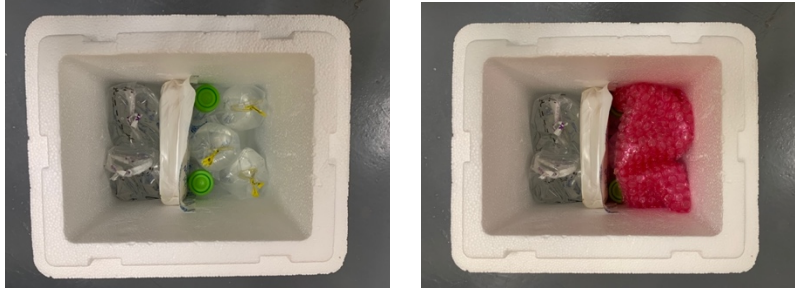
7. Place the second ice pack vertically in the middle of the cooler to create two compartments



8. Place 2 large WhirlPaks on one side, the other 3 small Whirlpaks on the other side.



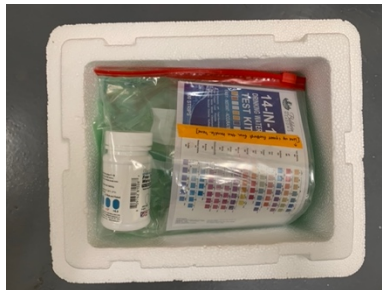
9. Place the plastic tubes into the foam cooler on the side with the three small Whirlpaks. Place the test tubes wherever there is space in the cooler (standing up). Place one air bubble in the compartment with the 3 small WhirlPaks to prevent the WhirlPaks from moving around during shipping.



10. Place the third ice pack above the WhirlPaks so that the third ice pack rests on top of the vertical ice pack but is not crushing or squeezing the WhirlPaks.



11. Place packing material above the third ice pack. Place the color guide and water test strip bottle inside the plastic bag. Place the plastic bag above the packing material.



12. Place the lid on the foam cooler, seal each edge with tape. Tip – let participant know to hold the lid down while taping the lid to the cooler to ensure a tight seal. Use as much packing material as possible and leave out any packing material that won't fit. Place the cooler in the cardboard box.



13. Use tape to seal the cardboard box.
14. Take off the backing from the pre-paid shipping label and attach the sticker to the top of the box.
15. Place the box outside your door for pre-scheduled pickup.

Again, thank you for your participation!

If you have questions or want more information...

...about the interview:

- Please email Natalie Hull (hull.305@osu.edu), Matt Hamilton (hamilton.1323@osu.edu), and Daniel Ma (ma.1081@osu.edu). We can reschedule to a time more convenient for you. Please use “Ohio State Scioto County Interview” as the email subject, or call 614-915-0922.

...about water sampling:

- Email any questions you may have pertaining to the sampling procedure to Natalie Hull (hull.305@osu.edu) and Daniel Ma (ma.1081@osu.edu). Please use “Ohio State Scioto County Water Sampling” as the email subject, or call 614-915-0922.

Phone contact: Call or text Daniel Ma at 614-915-0922 for any general or urgent concerns concerning the research activities.

Website: Please see our website for more information: <https://u.osu.edu/aware/>.

Facebook: [@OhioStateAWaRE](http://www.facebook.com/ohiostateaware)