ALABAMA A&M AND AUBURN UNIVERSITIES

ANR-790-2.2.3

Water Testing

How Should You Collect Water Samples?

The first step for any water quality test is getting a reliable, representative sample. The need for careful sampling techniques varies according to the contaminant being tested. Bacteria and volatile organics, for example, are very sensitive to sample collection procedures while hardness and salts are fairly insensitive to sampling technique. Storage procedures before analysis and time between sampling and analysis are important but also vary substantially for each substance.

A general procedure for taking a sample is given below and would be sufficient for many problems including bacteria. Specific sampling procedures for some contaminants follow. In cases where there is doubt, the laboratory performing the test should be contacted for instructions and a sampling bottle. In fact, in some cases the laboratory may want to take the sample.

General Procedures

For most water tests, follow these steps when collecting a sample:

• Use the container specified by the testing lab. For some tests, water samples may be submitted in a plastic bag or bottle. Other tests require special dark-colored glass bottles.

• Take the sample close to the pump before the water goes through a treatment system.

• Do not take the sample from a swing-type faucet if others are available. Inspect the faucet for leaks. Select another faucet if there is leaking.

• Remove faucet aerator.

• Disinfect the faucet with bleach or a flame.

• Run the water several minutes (up to 10 minutes) to clear the line **if** you are interested in the actual quality of the main source of water (groundwater, stream, river, or water from the main distribution lines of a public water system).

• Take the sample within 3 or 4 seconds after you turn the water on **if** your concern is the condition of your water pipes or storage tanks. (Some tests, such as maximum contamination for lead, require that water stand in the pipes overnight before being sampled. Follow the instructions provided by the lab.)

• Take the sample midstream. Do not breathe into or touch the inside of the collection bottle or the inside of the cap.

• If needed, store the sample in the refrigerator before taking it to the lab.

• Don't pump gasoline before taking the sample; volatile organics in the gasoline such as benzene and 1,2-dichloroethane will evaporate off your hands into the sample.

• Submit the sample as soon as possible. Labs should receive samples within 24 hours (particularly for bacteria tests) and within 48 hours at the latest.

• Transport the sample in a cooler or ship in an insulated container.

Testing For Volatile Organic Chemicals

Many organic contaminants are volatile and will form a gas when they come in contact with air. When collecting a sample to be tested for volatile organic chemicals, follow these additional steps:

• Remove the faucet aerator and let water run for 5 minutes to clear the pipes and bring in fresh water.

• Partially close the faucet until a slow, steady, non-aerated stream of water flows.

• Hold the laboratory sample bottle at an angle to reduce aeration when filling.

• Fill the bottle completely and replace the cover.

• Invert the bottle and check for air bubbles. If bubbles are present, empty and take another sample.

• Take the sample to the laboratory in person, if possible, or use an overnight mail service.

Again, timeliness and cleanliness are extremely important to prevent false results.

Testing For Pesticides

Samples for pesticide testing must be taken so they will not deteriorate or become contaminated before reaching the lab. Contact the lab testing the sample for complete instructions or a collection kit. Specific steps when testing for pesticides include the following:

• Do not use a plastic container.

• Collect the sample in an amber-colored glass bottle if available. These are provided by many laboratories. The dark glass prevents light from degrading the sample.

• Cap the bottle with a Teflon-coated lid. This special lid may also be provided by a lab. It prevents false positive results caused by certain plastics. Do not use lids with waxy seals.

• Keep the sample refrigerated preferably at 35 to 38°F and submit it to the lab within 48 hours.

• If shipping the sample, pack it in ice and ship it in an insulated container.

The Alabama Pesticide Residue Laboratory in Auburn, Alabama requests a 1-gallon sample in a clean glass container with a screw-type lid lined with aluminum foil.

If test results show an unacceptable contamination level, seek the advice of a professional. In most cases, a second test will be taken before possible treatment is recommended.

Corrosion Sampling

When sampling for evidence of corrosion, follow these additional steps:

• Allow the water to stand in the water lines overnight or longer. Do not let the water run before collecting a sample because water held in the pipes will contain the corrosion products you are trying to sample.

• Take the sample from an inside faucet in a laboratory container.

• Deliver the sample to the laboratory in person or use an overnight mail service.

Sampling For Court Cases

Sometimes water samples are taken for evidence in a court case to show pollution or damage to a water supply. These samples should always be collected by a disinterested third party trained in proper sample collection who can testify as to how the sample was handled.

Use a state-certified laboratory for all water testing. Your record of routine sampling can provide evidence about your water supply before pollution or damage.

Summary

For the most accurate results, water samples should always be collected using proper sample collection procedures. They should be tested by a laboratory that uses methods approved by the Environmental Protection Agency.

Sampling is the most important part of water testing. A carelessly collected or an inaccurate sample may cause misleading results, and false results can be costly to both your family's health and finances.

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This publication, supported in part by a grant from the Alabama Department of Environmental Management and the Tennessee Valley Authority, was prepared by James E. Hairston, *Extension Water Quality Scientist,* assisted by Leigh Stribling, *Technical Writer.*

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

UPS, **New June 1995,** Water Quality 2.2.3

ALABAMA COOPERATIVE Extension SYSTEM

ANR-790-2.2.3