

Taking a VOC (Volatile Organic Chemical) Sample Properly

Sometimes water samples show contaminants because of sampling error. To ensure that this does not happen, follow these steps when taking the VOC samples from your water system.

Step One



Get a sample kit from your lab

One vial will be labeled "Trip Blank." You do not need to do anything to it, except send it back to the lab with your test kit water. If the system chlorinates, a brown bottle may also be in the kit.

Step Two



Do Not Rinse Out The Vials

There is a small amount of acid in the other vials (and bottle). Do not rinse it out, it is meant to be there. The brown bottle is used to neutralize the chlorine before you fill the vials.

Step Three



Where Do You Take The Sample?

The sampling point should be a tap faucet, after the treatment system if one exists. Make sure you select an area free from gasoline or diesel fuel fumes.

Step Four



Do Not Touch The Inside Of The Vial Or Cap

Make sure you are wearing clean clothes free of grease, fuel or oil stains. Remember to wash your hands before and after you take the sample.

Make sure you keep all the vials together the whole time you are taking your samples. The samples must be sent to the lab immediately.

Step Five



Remove The Screen, Hoses,

or aerators from the faucet. These devices can put air in the water that will regroup into bubbles during shipping, and make the sample unusable.

Step Six



Run The Water Slowly

Using the cold water, fill the vial until it is slightly over-filled. The water should end up in a mound shape above the rim of the vial. Screw the cap on tightly.

Step Seven



Turn The Vial Over

and tap the cap on a hard surface. There should **NOT** be an air bubble in the sample.

If there is an air bubble, unscrew the cap and add more water.

Step Eight



Fill Out The Paperwork

and **KEEP** a copy for your files. Pack the samples in a Styrofoam container or bubble wrap so the vials do not break. Mail it in to the lab as soon as possible.

The sample will **NOT** be usable if there is an air bubble in the sample. You will then have to resample.

Keep the sample cool by placing samples in a cooler with an ice pack. Do not freeze.

Volatile Organic Chemicals (VOCs)

Volatile Organic Chemicals (VOCs) refers to a group of organic compounds that are usually derived from fuel products or solvents. These compounds can sometimes enter drinking water sources from leaking fuel storage tanks, improper disposal of fuel, paint, solvents, and other VOC containing products, or solid waste or hazardous waste disposal sites. Currently, there are 21-regulated VOCs for which Class A Public Water Systems (PWS) must monitor. The regulated VOCs include: benzene, toluene, xylene, carbon tetrachloride, and other compounds. VOCs may cause both short and long term health problems at levels above the health standards set by the US EPA. Many of these compounds are known or suspected carcinogens which may contribute to an increased risk of some types of cancer if a person is exposed to them over long periods of time. All Class A PWS's are required to monitor for VOC's (instructions on back). Systems that use surface water are required to monitor annually. Most systems that use groundwater are required to monitor every three years. If any of the regulated VOC levels is

higher than 0.5 ppb, the system begins quarterly monitoring to track levels, and movement of the compounds over time. If any regulated VOC exceeds the Maximum Contaminant Level (MCL), the system must treat the water to remove and reduce the contamination. Granular activated carbon (GAC) adsorption and aeration are the most commonly used treatment methods for removing VOCs from water. It is very important for communities and water



system owners to plan ahead and implement a program to protect their drinking water source from VOC contamination. Contamination can come from leaking fuel storage tanks (above and below ground), and improper storage and disposal of

solvents, paints and paint thinners. Aerosol containers may also leak and contaminate a drinking water source. Proper containment and monitoring measures should be implemented for fuel storage areas and landfills. If a spill or leak does occur, it should be reported to DEC right away so that measures can be taken to protect the drinking water source.

Contact DEC Spill Prevention and Response staff in the event of a contaminant (fuel or solvent) spill. Anchorage: 269-3063; Juneau: 465-5340; Fairbanks: 451-2121 or if the spill occurs after business hours call 1-800-478-9300. Increased sampling may be required to monitor possible contamination from improper containment measures or a fuel spill.

Maximum Contaminant Levels (MCL) of Volatile Organic Contaminants for Drinking Water

1,1-Dichloroethylene	7 ppb
1,1,1,-Trichloroethane	200 ppb
1,1,2-Trichloroethane	5 ppb
1,2-Dichloroethane	5 ppb
1,2-Dichloropropane	5 ppb
1,2,4-Trichlorobenzene	70 ppb
Benzene	5 ppb
Carbon tetrachloride	5 ppb
cis-1,2-Dichloroethylene	70 ppb
Dichloromethane	5 ppb
Ethylbenzene	700 ppb
Mono Chlorobenzene	100 ppb
o-Dichlorobenzene	600 ppb
p-Dichlorobenzene	75 ppb
Styrene	100 ppb
Tetrachloroethylene	5 ppb
Toluene	1,000 ppb
trans-1,2-Dichloroethylene	100 ppb
Trichloroethylene	5 ppb
Vinyl Chloride	2 ppb
Xylenes	10,000 ppb

NOTE: (µg/L is 1 ppb)