

Taking Phase II/V Inorganics, Gross Alpha & Nitrate Samples Properly

Sometimes water samples show contaminants because of a sampling error. To ensure that this does not happen, follow these steps when taking samples for Gross Alpha, Nitrates and Phase II & V Inorganics from your water system.

Step One



Get a Sample Kit From Your Lab – Contact the lab for sample bottles. The lab will send the proper plastic sample bottles for collecting the samples.

Step Two



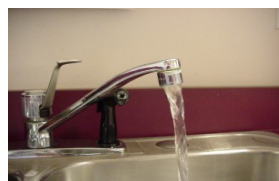
Where Do You Take the Sample? – The sampling point should be a tap faucet, after any existing treatment.

Step Three



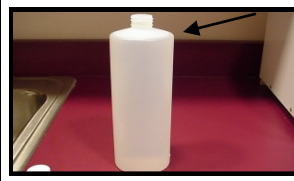
Prepare the Faucet – Remove the faucet screen or any other hoses or aerators from the end of the faucet.

Step Four



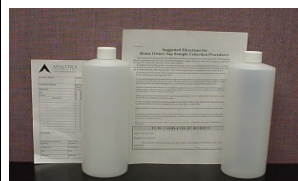
Flush the Water – Run the cold water gently for about 2 minutes to flush the line. Reduce the flow.

Step Five



Take the Sample – Fill the bottle with cold water to the shoulder and turn off the water. **DO NOT** overflow the bottle. Tightly cap the sample bottle

Step Six



Fill Out the Paperwork– Pack the samples in a cooler or box. Ship it in to the lab as soon as possible. Keep a copy of the paperwork for your files.

What are the MCL's?

Antimony.....	0.006 mg/L
Arsenic.....	0.01 mg/L
Asbestos.....	7 MF/L
Barium.....	2 mg/L
Beryllium.....	0.004 mg/L
Cadmium.....	0.005 mg/L
Chromium.....	0.1 mg/L
Cyanide.....	0.2 mg/L
Fluoride.....	4.0 mg/L
Mercury.....	.002 mg/L
Nitrate.....	10 mg/L
Nitrite.....	1 mg/L
Selenium.....	0.05 mg/L



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

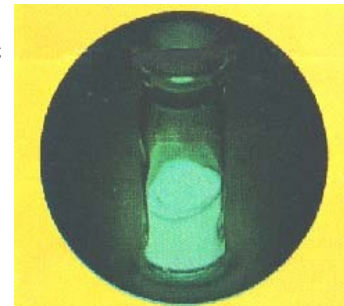
Inorganic Contaminants—Phase II/IV and Nitrate

Inorganic contaminants refer to a group of compounds that can be either naturally occurring in the environment or can come from activities such as agriculture or manufacturing. There are 15 inorganic chemicals that are regulated in drinking water by the Alaska Department of Environmental Conservation (ADEC) Drinking Water Regulations, 18 AAC 80. The regulated inorganic contaminants are: antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nitrate, nitrite, selenium, and thallium. Most inorganic contaminants are found in the environment as part of natural ore deposits or metals. As water travels in streams, rivers or over the land and through the soil or rock, it can dissolve these compounds. The compounds can also be used in many manufacturing processes, as well as in agricultural activities. Most of these metals are harmless in low amounts, but they can be potentially harmful if they are present in concentrations greater than the Maximum Contaminant Level (MCL) set by EPA in the National Primary Drinking Water Standards. ADEC requires all Community and Non-Transient Non-Community Water Systems to test for inorganic contaminants on a periodic basis to ensure that none of the contaminant concentrations exceed the MCL. Inorganic contaminants can cause a variety of health effects if they are present in drinking water in lev-



els exceeding the MCL. Health effects can be either acute or chronic. Acute health effects are those effects that occur almost immediately, within hours or days of the time a person is exposed to the contaminant. Acute health effects caused by drinking contaminated water are usually due to microorganisms, such as bacteria, viruses or parasitic protozoa. Chronic health effects are those effects that occur when a person is exposed to a contaminant over a long period of time, usually years. While almost any contaminant can cause acute health effects if a person is exposed to extraordinarily high amounts, the most common health effects of inorganic contaminants are chronic. Chronic health effects caused by inorganic contaminants are usually systemic and include: nervous system disorders, kidney or liver damage, cancers and cancerous tumors, circulatory system problems, and skin disorders.

The only regulated inorganic contaminant considered to be an acute contaminant is nitrate. Nitrates can be in either an organic or inorganic form. Most organic nitrates come from human sewage



or animal manure. Inorganic nitrates primarily come from fertilizers, such as potassium nitrate or ammonium nitrate. Both forms of nitrate are very soluble and can enter the groundwater easily. The MCL for nitrate is 10 mg/L (ppm). High levels of nitrate can cause serious illness, and sometimes even death, in small children. Methemoglobinemia, blue-baby syndrome, can occur if infants consume water or baby formula made with water contaminated with high levels of nitrate. When nitrate is consumed, it is converted to nitrite in the stomach by bacteria. Methemoglobinemia is a condition that occurs when hemoglobin in the blood is converted to methemoglobin by nitrite. Hemoglobin carries oxygen to cells in the body.

Methemoglobin cannot carry oxygen as well, so the baby can be deprived of oxygen and turn blue. All Community and Non-Transient Non-Community Water Systems are required to test for nitrate on an annual basis. There are no waivers available for nitrate. If the level of nitrate in drinking water exceeds the MCL, the PWS would be required to provide treatment to remove nitrate. Ion Exchange, Reverse Osmosis and Electrodialysis are treatment methods that are approved and effective for nitrate removal.