Water Laboratories

For water to be healthy for us to drink, cook and bathe in it needs to reach certain standards. What guidelines does the Laboratory follow for determining whether the water quality is safe for human consumption?

Australian and New Zealand Drinking Water Guidelines.

The Rous Water drinking water is tested at several stages throughout the treatment and supply. Name three places water samples are taken for testing at the Laboratory.

1 Rocky Creek Dam

2 Reservoirs

3 Pipes

Some of the main parameters tested by the Laboratory, to ensure Rous Water supplies a 'good quality drinking water', are as follows. Answer the following questions:

Turbidity

What machine tests for turbidity?

Turbidity meter

Why is it important to test for this parameter?

High turbidity affects the ability for chlorine to disinfect. It colours the water and can stain clothes etc. Chlorination of water with high turbidity (caused by organic material) can also release by products called THM (Trihalomethanes) if water is high in organic materials. These can be carcinogenic.

pH

What machine tests for pH?

pH meter

Why is it important to test for this parameter?

Measures H+ ion activity. It can effect chemical reactions and low levels can contribute to corrosion in pipes.

Conductivity

What machine tests for conductivity?

Conductivity meter

Why is it important to test for this parameter?

Measures salts. Salts can make the water unpalatable and hard. Hard water doesn't lather and leaves residues that can block pipes and filters.

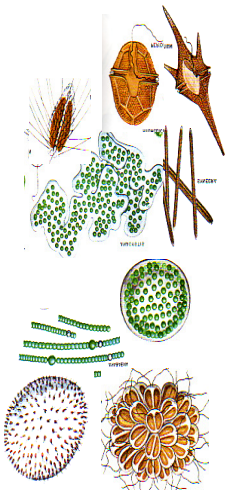
Bacteria

How do you test for the presence of Bacteria?

Special enzymes are metabolised by the particular bacteria we are looking for (Total Coliforms and E.coli) and colour up yellow and fluoresce.

Why is it important to test for this parameter?

Determines if there is faecal contamination in drinking water (the result should be 0). Faecal contamination can lead to diseases such as dysentery, diphtheria and cholera. It is also an indicator for the presence of protozoa (ie Cryptospiridium and Giardia) that are found in faecal matter.



Common Algae found in Freshwater

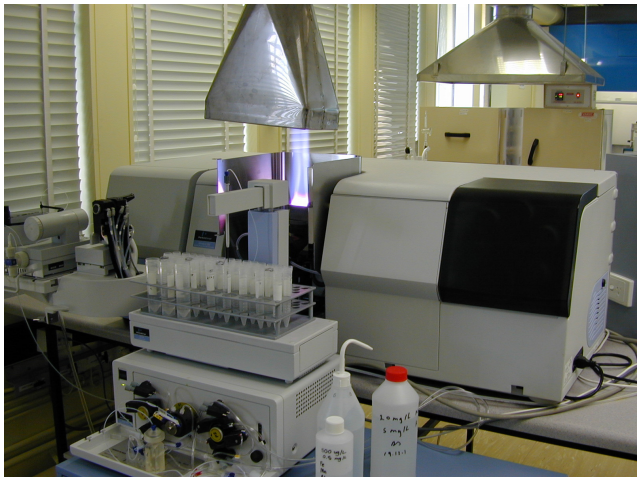
Algae

How do you test for the presence of Algae?

Samples are pre-treated with iodine to kill the algae and stop it from swimming around under the microscope. It is identified through the microscope using keys from charts and books. Each cell needs to be counted which can be quite time consuming and difficult.

Why is it important to test for this parameter?

Some algae cause taste, odour or filter blocking problems. Other algae, especially blue-green (cyano bacteria) algae can produce toxins that are harmful to humans and animals. Special water treatment is required if these are present ie powered activated carbon.



What is the name of this machine?

Atomic Absorption

What is it testing for?

The concentrations of metals eg Aluminium, Iron, Magnesium and Calcium.

What is the method of analysis?

Uses the light spectra to determine the metal concentrations as samples release energy via heating to extremely high temperatures. Certain wavelengths of light are absorbed by the samples depending on their concentrations of metals. The more metal the more absorbance.

What is the name of this machine?

Discrete Analyser

What is it testing for?

Anions such as Nitrate, Nitrite, Ammonia and other inorganics such as Alkalinity, Hardness, Colour. (Organic material is DDT's, THM's, PCB's).

What is the method of analysis?

Automatically adds chemicals to a sample and measures the reaction as a colour charge eg pink for Nitrate. The more intense the colour changes the higher the concentration of anolyte. The light spectra and the absorbance is also used by this machine as with the Atomic Absorption, the difference being a chemical reaction instead of a high temperature reaction.