

WATER UK BRIEFING NOTE



HOW THE QUALITY OF DRINKING WATER IS ASSURED

SUMMARY

- **UK water suppliers place the highest priority on assuring the quality of water provided to their customers. They work closely with all other stakeholders, including customers, to cover the influences on water quality that are outwith the control of the water suppliers as well as the areas that are within their direct control.**
- **Strict standards for the quality of UK drinking water are laid down in national regulations derived from the EU Drinking Water Directive (98/83/EC). These are based on advice from the World Health Organization (WHO) and are regularly reviewed.**
- **Water quality is closely checked and regulated by independent drinking water inspectorates in England and Wales, Scotland and Northern Ireland.**

Water suppliers have risk management procedures in place to ensure that standards are met but these procedures are being formalised and expanded to further assure the quality in a more holistic way. This concept is called water safety plans (WSPs)

- **Water UK supports the use of the WSP approach, which is endorsed by the WHO. WSPs are based on managing the risks to drinking water quality through the whole of the water supply chain from source to tap. However, this also requires that other stakeholders such as those responsible for controlling pollution of water sources and water quality in buildings, including householders, play their part.**

TECHNICAL BACKGROUND

Drinking water safety

Public drinking water is carefully managed to ensure that it is safe to drink. The greatest concern for water supplies is still the danger of pathogenic microorganisms that can come from a number of different sources but against which water supplies have a range of barriers (the multiple barrier approach).

All water will contain natural minerals, such as calcium and magnesium, which dissolve from rocks through which the water passes before being abstracted for water supply. The actual amount and composition of the mineral salts will vary from place to place. These minerals contribute to the taste and natural character of drinking water.

Because water is a very good natural solvent, depending on the water source and other factors, various other substances can also be present in very small quantities. These can derive from:

- Natural organic matter from the breakdown of plants and organic matter in soil found in the source water, particularly surface waters.
- Source water pollution.
- As a result of the treatment and distribution process itself
- Or due to interaction with plumbing systems in buildings

Water suppliers assess the risks of different contaminants being present in drinking water and take action to ensure that the safety of water is guaranteed at all times. This is increasingly being managed within the framework of Water Safety Plans.

What standards exist for drinking water?

In the UK all drinking water, whether from public supplies or other sources, has to meet strict quality standards laid down in UK Regulations derived from the EU Drinking Water Directive (EC/98/83). It is the duty of each EU Member State Government to translate the requirements of the Directive into local laws, which must as a minimum meet those laid down in EU legislation. The UK requirements follow the Directive but some are stricter than those defined by the Directive and reflect the high standards of water supplies in the UK.

The law requires that drinking water is wholesome and clean, and sets down maximum acceptable concentrations for a number of potential contaminants. In addition, there is a general clause which requires that:

“Water is free from any micro-organisms and parasites and from any substances which, in numbers or concentrations, constitute a potential danger to human health”

The standards set out in the Directive and UK Regulations are based on advice from the World Health Organisation through their “Guidelines for Drinking Water Quality”, which are regularly updated to take account of new knowledge. The Directive requires the European Commission to review these standards at least every 5 years, in order to take account of changes in the WHO Guidelines. The latest review took place at a conference of European experts in October 2003, at which it was concluded that there was no urgent need to change the standards in the directive at that time.

As well as water quality standards, the Directive also lays down strict requirements for :

- Monitoring and analysis
- Public reporting of data
- Use of treatment chemicals and materials in contact with water
- Action that must be taken if a standard is exceeded

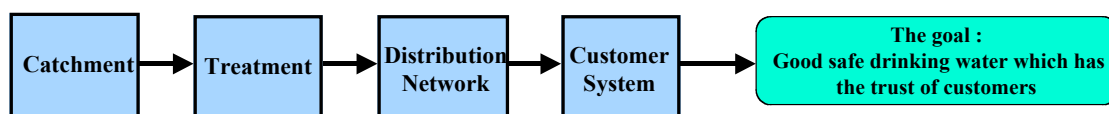
The existing directive takes a traditional regulatory approach, and is based largely on requirements to test water samples for potential chemical and biological contaminants and check that these are within limits set in EU or national standards. This approach is supported by a range of measures that are routinely used by the industry to assure drinking water quality, and which form a significant part of Water Safety Plans.

How is the quality of drinking water assured?

It is the job of water suppliers to manage the quality of drinking water and ensure that it is safe and pleasant to use for all domestic purposes. However, water quality experts agree that, where possible, management of drinking water quality is best achieved through partnerships between all those with responsibilities that affect the various stages of the water supply process from source to tap.

As well as water suppliers this includes:

- Governments, health and local authorities, and regulatory agencies
- Environmental protection agencies
- Industry, agriculture and others that can cause pollution or inadvertent damage to infrastructure
- House builders, plumbers, and suppliers of plumbing fittings
- House and building owners



To provide a framework for these partnerships and to further enhance the protection of drinking water quality, both the WHO and other expert bodies have developed the approach that has become known as “water safety planning”. This approach retains the use of water quality standards but manages drinking water quality on a more holistic and systematic basis, in which all potential risks to water quality, from source to tap are identified and ameliorated. In fact, such an approach has been used in the UK for some time, but Water UK Members are actively working with other organisations both locally and nationally to further develop, refine and formalise this concept into new ways of working.

Water suppliers must be at the heart of the developing “water safety plans” focussing on the aspects under their control, particularly water treatment and distribution through the supply network. However, as outlined above, to be fully effective it is essential that all those concerned with drinking water quality play their part.

Catchment protection

It is particularly important that regulators and environmental protection agencies responsible for preventing pollution of water resources do more to protect and improve the quality of raw water. This is now a requirement of the new EU Water Framework Directive (WFD). The UK water industry strongly supports such a preventative approach and is working closely with the various authorities to ensure that the relevant clause (Article 7) of the WFD is fully implemented as soon as practicable.

Treatment and distribution

Drinking water in the UK is derived from a number of different sources, including underground aquifers, rivers and upland storage reservoirs. The approaches adopted by water companies to ensure the quality of drinking water will vary considerably depending on many different factors. For example, the level of treatment necessary to produce drinking water will depend on the natural contaminants and pollutants that might be present in the raw water.

Water in buildings

Deterioration in water quality can occur after the point of delivery to customers due to the condition and operation of the plumbing systems within buildings. This is why it is so important that all plumbing systems are designed, installed and maintained in ways that avoid such risks. Although the plumbing system in buildings is not the responsibility of water suppliers, they will usually provide advice to customers.