



guardians of drinking water quality



Drinking Water in Wales 2004

A report by the Chief Inspector
Drinking Water Inspectorate



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Drinking Water Inspectorate**

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From the 18th July 2005
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Introduction

Drinking Water in Wales 2004

Introduction

Explanation of the new style report

The Water Supply (Water Quality) Regulations 2001 applied in full from the beginning of 2004. These Regulations implement the requirements of the 1998 European Union Council Directive 98/83/EC on the quality of water intended for human consumption (the Drinking Water Directive). The objective of the Directive is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is clean and wholesome. These new regulatory requirements explained below gave the Inspectorate the opportunity to review and improve how it reports on drinking water quality and its own activities.

Previously the Inspectorate has produced an annual report covering Wales and England, and, since 1998, a separate report for Wales. This year there is no combined report; Wales and England are reported separately. Each year water companies carry out the required tests on samples of drinking water and report these to the Inspectorate.

The information about water quality testing in previous reports was based on summaries provided annually to the Inspectorate by water companies and audited by the Inspectorate. In 2004, for the first time, water companies have transferred to the Inspectorate, the individual results of every test on a monthly basis. This has been made possible through consultation with the water industry and collaborative development of electronic data handling systems in the companies' laboratories over several years. In parallel the Inspectorate has developed its own data handling resources to enable inspectors to access and assess the integrity of this important scientific information that underpins public confidence in drinking water quality.

This new way of handling and assessing drinking water quality data brings benefits, particularly it delivers the flexibility required for the Inspectorate to draw together all the information needed to report comprehensively on the results and this is reflected in the changes in this year's report as described below.

Part 1: Regional water quality

In this part we report on Wales as a whole. The regional report, which can be used as a stand-alone document, provides:

- coverage of the performance of all the water companies within the region;
- a summary of regional and company drinking water quality test results;
- a commentary on the results of tests and actions taken where appropriate;
- information on selected incidents;
- matters of local interest for local authorities, health boards and consumers across the region; and
- a summary of feedback from local authorities.

The regional report concept reflects feedback from consumers who are interested in more specific information about their drinking water quality. We have also taken on board the views of public health professionals in local authorities and health authorities, who often have more than one water company supplying drinking water in their area of responsibility, and thus need more tailored local and regional information. These were the findings from a questionnaire sent by the Inspectorate to all local authorities in Wales in January 2005. A particular aim of the regional section has been to make the report more useful to our colleagues in local authorities.

Part 2 : The role and performance of the Inspectorate

This section focuses on the work of the Inspectorate, reporting on our responsibilities, our approach to protecting public health through regulation, giving details of our technical audit activities and our performance against published targets in 2004.

Part 3 : Water company performance

Here we assess the progress made by the water companies towards meeting the new and existing drinking water standards. This year, for the first time, we are able to show the actual results of sampling in the form of a range for each parameter. In addition this section of the report introduces new information requested from companies under the Water Undertakers (Information) Direction 2004 which reveals the extent of consumer contacts with each company about drinking water quality issues, as well as the numbers of consumers turning to the Inspectorate to resolve their concerns.

We have included this information with the local authority audience in mind along with more information about water quality incidents, their cause and effect on consumers, and the learning that has come from our assessment of these. We also explain more fully the circumstances and reasons for the few occasions when the Inspectorate has had to caution or prosecute a company.

Water company performance is also measured and reported using an updated index, named OPI (TIM) based on those parameters which at present best reflect consumer acceptability issues, namely turbidity, iron and manganese.

Part 4 : Drinking water science

Here we describe Defra's Drinking Water Quality and Health Research Programme, managed by the Inspectorate, together with the scientific advice we have provided to policy makers and others during the year. Included is an explanation of the effect of the Water Act 2003 on our powers and duties, details about the publication of the Technical Code of Practice on Fluoridation and matters concerning private water supplies.

Part 5 : Other regulatory processes

In Part 5 we report on four particular regulatory processes of importance to drinking water quality and public health: our role in the Periodic Review of water prices, water company drinking water improvement programmes in the context of our enforcement processes, the control of *Cryptosporidium* risks through regulation, the work of the Committee on Products and Processes in public water supplies.

In the Annexes we provide additional information to aid our readers such as a glossary of terms, a list of local authorities in the region, an explanation by our statistical consultant of the methodology used by us to report drinking water quality results and measure compliance with the drinking water standards, details of our governance arrangements with Defra, tables listing those parameters and standards that have changed and a list of Inspectorate staff.

The Inspectorate is excited by this way of reporting with its emphasis firmly on providing authoritative, extensive and understandable information on the protection of public health through the provision of safe drinking water of a quality acceptable to consumers. We are particularly pleased to be able to demonstrate how the safety of drinking water is delivered by several agencies working alongside each other, both locally and nationally (water companies, local authorities, health boards, our inspectors, consumer consultative committees) for the benefit of consumers. The process of change has been hard work and we consider that the product is work still in progress. We welcome and will be seeking opinions on our report with a view to making further improvements in coming years.

Changes to the regulatory framework

The 1998 Drinking Water Directive and the associated regulations improve on the former monitoring requirements by focussing on those parameters that are important in respect of protecting public health (known as mandatory parameters) together with those that reflect the control of water treatment processes and the aesthetic quality of drinking water (known as indicator parameters or additional monitoring requirements (listed in Annex 5). The Directive places emphasis on ensuring that drinking water is wholesome at the point where it is consumed but the regulations also include national definitions of wholesomeness for water leaving treatment works and service reservoirs.

The parameters are set out in the Regulations in Schedules.

- Schedule 1 parameters are mandatory parameters with a prescribed concentration or value and are listed in Tables A and B. Most derive from the Drinking Water Directive but there are 12 national requirements. For operational reasons the national standard for the hydrogen ion parameter permits a slightly wider range than the Directive indicator specification. Schedule 1 parameters are part of the definition of wholesomeness.

- Schedule 2 lists the twelve indicator parameters (additional monitoring requirements). These have specifications (concentrations, values (maximum) or states) set for monitoring purposes. Specifications are not mandatory standards and indicator parameters are not part of the definition of wholesomeness. Most of the parameters and their standards are derived from the World Health Organisation's Guidelines for Drinking Water Quality.

There are now two forms of monitoring, check and audit. The purpose of check (high frequency) monitoring is to provide regularly, information on the organoleptic and microbiological quality of water supplied for human consumption, as well as information on the effectiveness of water treatment, where it is used. The purpose of audit monitoring (which applies to all those parameters not subject to check monitoring) is to provide the information necessary to determine whether or not all of the tests meet the parametric values. Certain parameters such as *Escherichia coli*, coliform bacteria, ammonium, colour, conductivity, hydrogen ion concentration, odour, taste and turbidity must always be subject to check monitoring. For other parameters such as iron and aluminium, the monitoring requirement will depend on whether they are used in the treatment process. For example, if a water supply zone receives water from a works where aluminium salts are used in the treatment process, then the aluminium parameter must be subject to check monitoring in that zone. If another zone receives water from a treatment plant where aluminium salts are not used, aluminium will be subject to only audit monitoring in that zone.

The regulations introduce a number of new parameters which are listed in Annex 5 Table 1. Apart from *Clostridium perfringens* (including spores) these are all Schedule 1 parameters. There is no monitoring requirement for acrylamide, epichlorohydrin and vinyl chloride because these parameters are controlled by specifying the maximum concentration permitted in products used for water treatment and distribution. The nitrate/nitrite formula is a ratio calculation which effectively reduces the prescribed concentration for nitrate as the level of nitrite rises towards its prescribed value, which is now 0.5 mg NO₂/l at consumers' taps (see Annex 5 Table 3). There is a newly introduced prescribed value for nitrite in water leaving treatment works of 0.1 mg NO₂/l.

There are nine other parameters where the prescribed concentration or value has altered. Other than nitrite, all these standards have been tightened although fluoranthene is no longer included in the calculation of polycyclic aromatic hydrocarbons (PAH). Fluoranthene was responsible for many of the adverse results relating to the PAH parameter reported previously. For the lead parameter, the prescribed concentration has been tightened to an interim value of 25 µg Pb/l until the end of 2012 (when it will be tightened further to 10 µg Pb/l) recognising the importance to public health of reducing human exposure to this parameter. A full description of each parameter listed in the regulations is provided in Part 3 where we report the water company drinking water quality results.

Annex 5 Table 5 lists the 16 parameters for which standards applied in the former 1989 regulations but which have not been included in the 2001 regulations. These parameters have been omitted because they do not represent a risk to health in themselves, neither do they act as indicators of risk nor are properly defined. Parameters included in the regulations are kept under constant review, taking into account advice from the World Health Organisation and the European Union, and any of these or a range of other parameters will be included if a public health need is established. The move towards a risk-based water safety plan approach will play an increasingly important part in this process of review and updating of drinking water standards.

Wholesomeness

The regulations reflect the Drinking Water Directive in requiring that water must be wholesome when supplied:

- for cooking, drinking, washing and food preparation (domestic purposes); and
- to premises in which food is produced (food manufacturing).

However, nationally there are different definitions for wholesomeness of water leaving water treatment works, leaving a service reservoir and in water supply zones.

To be wholesome water leaving a water treatment works must not contain:

- *E coli* in excess of 0/100ml (national requirement)
- coliform bacteria in excess of 0/100ml (national requirement)
- nitrite in excess of 0.1 mg NO₂/l (Directive requirement).

To be wholesome water leaving a service reservoir must not contain:

- *E coli* in excess of 0/100ml (national requirement)
- coliform bacteria in excess of 0/100ml in more than 5% of samples taken in a year (national requirement).

To be wholesome water at consumers' taps or leaving a tanker:

- must contain nothing alone (other than a parameter) or in combination (including parameters) that is a potential danger to public health (this is a catch-all provision which reflects the concept of wholesomeness as developed over the years)
- must meet the standards (maximum or minimum in Schedule 1 Tables A and B (i.e. Directive and national standards)
- must satisfy the nitrate/nitrite formula (NO₃/50 + NO₂/3 equal to or less than one) (Directive requirement).

As can be seen, the concept of wholesomeness is based firmly on regulatory standards. However, what should be stressed is that unwholesome drinking water does not necessarily represent a risk to the health of consumers. Most standards are set with a very wide margin of safety and are based on a lifetime's consumption of the water.

Responsibilities of local authorities for checking the wholesomeness of drinking water

Local authorities have important duties in respect of drinking water quality which are laid down in the Water Industry Act 1991. The Act states that it shall be the duty of every local authority to take all such steps as they consider appropriate for keeping themselves informed about the wholesomeness and sufficiency of water supplies to premises in their area, including every private water supply to any such premises. Private supplies are covered in Part 4 of this report.

Local authorities use various means to keep themselves informed about drinking water quality. The regulations require water companies to provide local authorities with an annual report summarising drinking water quality within their areas. It is hoped that the new format of the Inspectorate's report will supplement and expand upon these company reports. Water companies also have to inform local authorities of events affecting drinking water quality within their area. A small number of local authorities carry out their own monitoring programmes and some will get involved in helping to resolve consumer complaints about drinking water quality.

The Inspectorate sees local authorities as very important independent local guardians of drinking water quality. It will seek their advice and comments as part of any investigation of a drinking water incident and it encourages water companies to maintain strong links with the local authorities in their areas of supply and hold regular liaison meetings.

Information on drinking water in England, Scotland and Northern Ireland

Drinking water throughout the United Kingdom is subject to the same quality standards and similar regulations are in place as to those applying in Wales.

The Drinking Water Inspectorate is responsible for the regulation of drinking water quality in England. The Chief Inspector reports annually to the Secretary of State for Environment, Food and Rural Affairs and her report is available on the Inspectorate's website www.dwi.gov.uk.

Scottish Water, a publicly owned undertaker, is the sole supplier of public drinking water supplies in Scotland. Regulation is the responsibility of the Drinking Water Quality Regulator for Scotland who is appointed by Scottish Ministers to ensure that the drinking water quality duties imposed on the public water supplier are complied with. The Regulator's powers are set out in Part 2 of the Water Industry (Scotland) Act 2002 and include the power to obtain information and the power to serve enforcement notices. The Regulator produces an annual report on drinking water quality in Scotland. This and further information on the Regulator's activities can be obtained from its website www.dwqr.org.uk

The Drinking Water Inspectorate for Northern Ireland acts on behalf of the Department of the Environment in the administration of the implementation of the Water Supply (Water Quality) Regulations (Northern Ireland) 2002. Water Service, an executive agency within the Department for Regional Development, is the sole provider of public water supplies in Northern Ireland. The Inspectorate acts in a similar way to the other UK regulators except that currently it has no enforcement powers and it is directly responsible for implementing the Private Water Supplies Regulations. The Inspectorate for Northern Ireland also produces an annual report and this and further information on its other activities can be obtained from its website: www.ehsni.gov.uk/environment/drinkWater

The year 2004 saw the inaugural meeting of UK drinking water regulators for the purpose of sharing information and resources for the benefit of both consumers and the water industry. These are now held three times a year. A Memorandum of Understanding covering the collaboration between the UK drinking water regulators can be found on the websites mentioned above.

