



# Drinking water science

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## Part 4

### Drinking Water in England 2004



## Part 4

### Drinking water science

The Inspectorate's drinking water science activities in 2004 included:

- Commissioning research on emerging drinking water issues;
- Providing scientific and engineering advice to Ministers and officials on drinking water issues, policies and standards;
- Involvement in the development of national, European and international standards and guidelines for drinking water quality; and
- Communicating knowledge through lectures and papers at meetings of professional societies, public bodies, water companies and teaching establishments.

### Drinking water research

The Inspectorate manages the Water Directorate's (WD) Drinking Water Quality and Health (DWQH) research programme, which is part of Defra Environment Directorate General's (EDG) research programme.

The DWQH programme supports Defra and the Welsh Assembly Government policy on the quality and regulation of water supplies and enables the UK to contribute to the international evidence base for drinking water quality.

Details of the research completed in 2004 and research in progress is presented in the tables below.

#### Information on DWQH Research

Executive summaries of the DWQH research reports and reports by the former Department of the Environment and Department of the Environment, Transport and the Regions since 1977 are posted on the Foundation for Water Research (FWR) web site ([www.fwr.org](http://www.fwr.org)) with details of how to obtain copies of research reports. The FWR website also provides access to other reports concerning complimentary components of the European Commission's Framework Programmes.

General enquiries about the broad scope of the EDG research programme, aspects of commissioning and contractual conditions should be directed to: Ken Nulty, Defra, Zone 4/E7, Ashdown House, 123 Victoria Street, London SW1E 6DE or [ken.nulty@defra.gsi.gov.uk](mailto:ken.nulty@defra.gsi.gov.uk)

More specific enquiries should be addressed to DWI Enquiries, Drinking Water Inspectorate, Ashdown House, 123 Victoria Street, SW1E 6DE [dwi.enquiries@defra.gsi.gov.uk](mailto:dwi.enquiries@defra.gsi.gov.uk)

From 18th July 2005 the Inspectorate's address will be 55, Whitehall, London, SW1A 2EY.

A copy of the WD and DWQH Science Strategies are posted on the Defra website at: [http://defraweb/science/S\\_IS/Strategy03\\_06/Directorate\\_PDFWD.pdf](http://defraweb/science/S_IS/Strategy03_06/Directorate_PDFWD.pdf)

## Research Completed in 2004

Area of Research: <i>Cryptosporidium</i>	
Project Summary	Contractor
<p><b>Investigation of <i>Cryptosporidium</i> clinical isolates and analysis with epidemiological data</b></p> <p>This study investigated the performance of five gene probe based molecular fingerprinting systems. Using 320 human and animal isolates, an analysis of sub-type data with case control data was used to calculate odds ratios to identify risk factors for infection.</p>	Scottish Centre for Infection and Environmental Health and PHLS
<p><b>Establishing the relationship between farm re-stocking and <i>Cryptosporidia</i></b></p> <p>This study assessed the effects of re-stocking with livestock after the Foot and Mouth epidemic on the sub-types of <i>Cryptosporidia</i> in farmed and wild animals and the environment.</p>	Centre for Research into Environment and Health
Area of Research: Other Health risks and monitoring	
Project Summary	Contractor
<p><b>Further studies on the incidence of <i>Mycobacterium avium</i> Complex and <i>Helicobacter</i> organisms in water supplies</b></p> <p>This study investigated whether <i>Mycobacterium</i> spp. and <i>Helicobacter</i> can survive within water distribution systems and colonise biofilms and deposits from water mains and domestic plumbing, Mycobacteria were present in a high proportion of samples but <i>Mycobacterium avium</i> subsp. paratuberculosis was absent and the low occurrence of <i>Mycobacterium avium</i> Complex was not considered to be a major public health concern. <i>H. pylori</i> was detected in some samples by PCR but was not detected by culture techniques.</p>	Health Protection Agency
<p><b>A study of sources of drinking water and Crohn's disease</b></p> <p>The objective of this study was to test the hypothesis that surface water derived drinking water, which could contain <i>Mycobacterium avium</i> subsp. paratuberculosis is a risk factor for Crohn's disease. This case-control epidemiological study involved the collaboration of recently diagnosed Crohn's disease patients, who agreed to provide information about exposure to possible risk factors. No significant association was observed between measures of potential contamination of water sources with MAP, water intake or water treatment.</p>	University of East Anglia

Area of Research: Water Supply within Consumers' Premises	
Project Summary	Contractor
<p><b>Updating the protection of Water Supply against contamination by backflow and reviewing Regulator's specifications against EN standards</b></p> <p>The output from this project will be used by Defra in its review of its guidance on the Water Fittings Regulations.</p>	WRc-NSF Ltd
Area of Research: Water Treatment	
Project Summary	Contractor
<p><b>Monitoring the integrity of low-pressure membrane processes for drinking water treatment.</b></p> <p>This study, which was carried out in collaboration with the American Water Works Association Research Foundation, investigated the performance of techniques to monitor breakthrough in membrane filtration water treatment processes.</p>	Carollo Engineers

## Current Research

Area of Research: <i>Cryptosporidium</i>	
Project Summary	Contractor
<p><b>Effectiveness of UV treatment for <i>Cryptosporidium</i> in drinking water.</b></p> <p>Inter-laboratory trials to test the robustness of published cell culture techniques and preliminary treatment studies on the effectiveness of UV against <i>Cryptosporidium</i> have been completed. Only one of the cell culture assays has been shown to give reproducible results. The pilot plant treatment study, which will investigate turbidity interference, will now be carried out in 2005.</p>	UK Water Industry Research Ltd
Area of Research: Other Health risks and monitoring	
Project Summary	Contractor
<p><b>Investigation of possible relationships between chlorination by-products and adverse pregnancy outcomes</b></p> <p>A number of US studies have reported a tentative association between Trihalomethane (THM) levels in drinking water and adverse pregnancy outcomes. This study provides a retrospective analysis of some 10 years of monitoring data for THM in water supply zones in England, Scotland and Wales. This data is being compared with data from National Registries on birth outcomes.</p>	Imperial College London
<p><b>Study into the feasibility of investigating possible relationships between the supply of discoloured water and incidence of gastrointestinal illness</b></p> <p>The feasibility of accessing data on the incidence of gastro-intestinal illnesses in small population sub-groups has been completed. The researchers are now undertaking a pilot study to assess how precisely geographical areas affected by discolouration can be defined.</p>	London School of Hygiene and Tropical Medicine
<p><b>Review of evidence for a relationship between incidence of cardiovascular diseases and water hardness</b></p> <p>This study has been commissioned to guide policy on the re-introduction of a minimum hardness standard for drinking water that has been softened or desalinated. The contractor is assessing the significance of the evidence for the health implications of trace mineral constituents in drinking water that the World Health Organisation has posted on its website.</p>	University of East Anglia

<p><b>Characterisation of waterborne <i>Aeromonas</i> species for their virulence potentia</b></p> <p>This project is jointly funded with AWWARF and involves collaborative work with three other research organisations. 35 <i>Aeromonas</i> isolates have been obtained from a collection derived from both clinical and water samples and have been sub-cultured. A further three <i>Aeromonas</i> isolates have been obtained from a sampling survey of water treatment works. All isolates have been assayed for haemolytic and cytotoxic activity. Further biochemical and virulence testing is planned</p>	<p>American Water Works Association Research Foundation</p>
<p><b>Virobathe</b></p> <p>This EU Framework funded study will investigate the feasibility of applying PCR-cell culture assays in the detection of viruses in bathing waters. Defra is funding the participation of its Central Science laboratory in this study in order to assess whether the techniques developed can be applied also in the detection of viruses in drinking water.</p>	<p>Central Science Laboratory</p>
<p><b>Uranium concentration in groundwater</b></p> <p>This study is investigating whether groundwater supplies in England and Wales comply with the provisional WHO guideline value for uranium in drinking water.</p>	<p>British Geological Survey</p>
<p><b>Area of Research: Water Distribution</b></p>	
<p><b>Project Summary</b></p>	<p><b>Contractor</b></p>
<p><b>Distribution operation and maintenance strategies – what can we learn?</b></p> <p>Distribution, Operation and Maintenance Strategies (DOMS) are the key tool to ensure water companies operate and maintain their distribution system in a manner that maintains drinking water quality. This project is intended to define the best approaches to assessing performance of distribution system from a water quality point of view including what data is needed, how best to collect it and how companies should conduct risk assessments.</p>	<p>UK Water Industry Research Ltd</p>

Area of Research: Materials testing and approval	
Project Summary	Contractor
<p><b>Provision of expert advice for European research and standardisation activities.</b> Expert technical support has been provided in the development of the regulatory approach to a European system for positive lists for polymeric drinking water construction products.</p>	WRC-NSF
<p><b>Assessment of costs and benefits arising from Government and Water Industry participation in the development of European standards</b> This study will evaluate the effectiveness of UK participation in the development of standards for drinking water construction products and chemicals. Based on responses to questionnaires, the contractor will select a number of cases for a more detailed assessment of costs and benefits.</p>	WS Atkins Consultancy Ltd
<p><b>UK performance testing of EAS GCMS general survey</b> The UK requirement for application of a gas chromatography-mass spectrometry analysis of materials testing leachates will be included in the European Acceptance Scheme for drinking water construction products. This study provides data on the inter-laboratory performance of this test in the UK's designated testing laboratories.</p>	WRC-NSF Ltd ITS testing services Ltd Law Laboratories Ltd
<p><b>Assessment of the performance of UK approved products in the German chlorine test</b> The German national test requirement for chlorine demand measurement on materials testing leachates is being included in the EAS. This study will investigate the inter-laboratory reproducibility of the test and the performance of UK approved construction products.</p>	WRC-NSF Ltd Intertek Testing and Certification Ltd
<p><b>Information base to support water efficiency labelling</b> The aim was to develop options for an effective voluntary water efficiency labelling regime. The work involved the identification of product test methodologies and product performance standards to enable the relative water efficiency of products to be established. The product groups identified were WCs, showers, baths, taps, clothes washing machines and dishwashers.</p>	Market Transformation Programme

Area of Research: Materials testing and approval	
Project Summary	Contractor
<p><b>The effectiveness and benefits of drinking water regulation in England and Wales</b>            As part of the Defra “Better Regulation” initiative, this study will assess the effectiveness of the current regulatory regime. Comparisons will be made with equivalent regimes in other EU countries.</p>	University of Surrey
<p><b>Cost benefit analysis for drinking water quality standards and enhancements</b>            Drinking water quality improvement programmes are currently justified by the degree of compliance with established standards. This scoping study will outline current practice in cost/benefit analysis, assess suitability of use in a drinking water quality context, and identify options for development of a generic methodology for drinking water quality</p>	WS Atkins Consultancy Ltd
<p><b>Sustainability of water efficiency measures</b>            The project builds on the work of a previous study to establish best practice guidelines for the measurement of water efficiency activities. The objectives of the project are to determine which water efficiency measures have sustainable benefits and are most cost effective. The project aims to establish the economic, environmental and sociological sustainability of water efficiency measures so that they can be assessed on an equitable basis against alternative supply options</p>	UK Water Industry Research Ltd

## Technical advice on drinking water issues, policies and standards

### The European Union Drinking Water Directive

The European Directive 98/83/EC on the quality of water intended for human consumption was adopted on 3 November 1998 and came into force fully on 25 December 2003. It provides the basis for legislation on the quality of drinking water supplies throughout the European Union. In England and Wales, the Directive is transposed through the Water Supply (Water Quality) Regulations 2000 and 2001 respectively. More details on its requirements are given in Part 2 of this report.

The previous 1980 Drinking Water Directive (80/778/EEC) applied a common framework for monitoring drinking water quality across all member states of the EU but was out of date in respect of its scientific and technical basis, and its managerial approach. The new Directive was drawn up to address these points and the main features are set out below.

- Revised parametric values, and where necessary strengthening them in accordance with the latest available scientific knowledge based on the World Health Organisation Drinking Water Quality Guidelines and the European Scientific Committee on Toxicology and Ecotoxicology.
- Increased transparency by:
  - making the point of use of the water the point of compliance with the quality standards;
  - making reference to ISO/CEN standards;
  - including an obligation to report on quality;
  - including an obligation to inform the consumer about drinking water quality and measures that they can take to comply with the requirements of the Directive, in particular for lead when the non-compliance is due to the domestic distribution system (a building's internal pipes, plumbing etc); and
  - streamlining legislation to only those parameters essential for health: 66 parameters in the old directive to 48 (50 for bottled waters) in the new one, including 15 new parameters.
- Differentiating between mandatory and indicator parameters and between audit and check monitoring. The Directive allows Member States to specify additional parameters and standards and apply tighter standards to existing parameters.
- Specifying remedial action and restrictions for use.
- Allowing time limited derogations under certain conditions provided that they do not constitute a potential danger to human health.

The Directive includes a requirement that at least every five years the Commission shall review the standards and monitoring requirements in the light of scientific and technical progress. A seminar was organised by the Commission in Brussels in October 2003 to consider the Directive. The main conclusion was that the Directive did not require major revision at present but a start should be made on working towards a more risk-based approach to monitoring and standards as recommended in the third edition of the WHO Guidelines for Drinking Water Quality. In this context the Inspectorate represented and put across the views of drinking water quality regulators at the global launch of the WHO Guidelines in Morocco in September 2004.

### Implementation of the Water Act 2003

The Water Act 2003 (the Act 2003) received Royal Assent on 20 November 2003 and amends parts of the Water Industry Act 1991 (the Act 1991)<sup>1</sup>. There are four broad aims of the Act 2003, the most important of which are strengthening the voice of consumers and extending the opportunities for competition in the water industry in England and Wales.

Part 3 of the Act 2003 contains a number of miscellaneous sections which impact on the role and operations of the Inspectorate. Commencement of the Act 2003 began on 1 April 2004.

#### **Impact of Water Act 2003 on the role and operations of the Inspectorate**

Part 2 of the Act 2003 amended Section 18 of the Act 1991 to allow enforcement action to be initiated on the basis of likelihood of failure, rather than retrospectively. This has enabled the Inspectorate to put in place legally binding programmes of work for agreed Asset Management Plans 2005 - 2010, in advance of actual failures of standards. For more details refer to Part 5 : Other regulatory processes

There is also a new requirement for co-operation between water regulators by way of statutory Memoranda of Understanding between all parties. This will build on the current Memorandum of Understanding between the Inspectorate and the Office of Water Services (Ofwat) signed in 2004.

Under Part 3 of the Act 2003, section 86 of the Act 1991 is amended to reflect the fact that technical assessors are synonymous with the Drinking Water Inspectorate and are now known as Inspectors. It is also recognised that the Inspectorate acts for and on behalf of the National Assembly for Wales in respect of those water companies whose area of supply is wholly or mainly in Wales. The Assembly will now be able to designate a Chief Inspector of Drinking Water in Wales. The maximum penalty available in Magistrates' Court for the offence of failing to provide inspectors with assistance or information has been increased from £5,000 to £20,000. The amendment also enables cases to be brought on indictment before the Crown Court, where the offence is punishable by a fine.

<sup>1</sup>References to the Act 1991 refer to the Water Industry Act 1991 as amended by Water Act 2003.

Finally a new subsection has been introduced which enables the Chief Inspector of Drinking Water to institute prosecutions on behalf of the Secretary of State or the National Assembly for Wales, in relation to drinking water quality, in his or her own name.

Section 70 of the Act 1991 was also amended to ensure that anyone concerned in the supply of water unfit for human consumption will be liable to prosecution. This is of particular relevance to opening up the industry to competition in that water companies, licensed water suppliers and their respective contractors all become potentially liable, subject to a due diligence defence. The maximum penalty available to a Magistrates' Court for the offence has been increased from £5,000 to £20,000. Proceedings can also be brought in the Crown Court, where the penalty on conviction would be an unlimited fine.

### **Increasing competition in the water industry in England and Wales**

From autumn 2005 non-domestic customers who use at least 50Ml/yr of water in a set of premises will be able to purchase their water from either their existing water company or from a licensed water supplier. Prospective licensees will need to obtain a relevant licence from Ofwat. There will be two forms of licence:

- a 'retail' Water Supply Licence, which entitles the holder to purchase a supply of water from a water undertaker and to retail it to a customer's eligible set of premises; or
- a 'combined' Water Supply Licence, which is a retail licence with a supplementary authorisation that enables the holder to introduce water into a water undertaker's supply system and to retail that water to a customer's eligible set of premises (otherwise known as common carriage).

During 2004, the Inspectorate participated in the two Water Supply Licensing Stakeholders' workshops organised by Ofwat. Ofwat also set up a number of Industry Advisory Groups looking at various aspects of the proposed water supply arrangements. The Inspectorate has been represented on the Sponsors' Group and the Regulators' Group. The Inspectorate has also been advising the Licensing and Eligibility Group and the Access Group on water quality issues associated with opening up the industry to competition.

Our advice has been incorporated in the four Ofwat consultation documents on Water Supply Licensing published in December 2004 and January 2005. The purpose of our advice was to ensure that there are no risks to public health associated with competition, that the quality of public water supplies is safeguarded and consumers continue to have confidence in their drinking water. We also sought to create a level playing field between water undertakers and licensees in terms of technical competence for inputting water into the public supply system. As part of this process, we updated our document entitled 'Common Carriage: Guidance on the drinking water quality aspects', and published it in November 2004.

Another area of the competition framework that involved the Inspectorate during 2004 is the work of the Ofwat Self-lay Advisory Group, which is helping to develop and implement the policy on allowing parties (other than water companies) to install new water mains, service pipes and sewers. As a member of the Group, the Inspectorate provides advice on good practice in terms of the maintenance of drinking water quality.

## Fluoridation of drinking water supplies

Fluoridation is the term used to describe the addition of a chemical to water supplies to raise the level of fluoride to around 1 milligram per litre (mg/l), equivalent to 1 part per million, to help prevent tooth decay. This level of fluoride is below the maximum concentration of 1.5 mg/l permitted in drinking water supplies in England and Wales.

Fluoridation has been practiced in England and Wales since the late 1950s. Approximately 10% of water supplies in England and Wales now receive artificially fluoridated water or contain similar levels of naturally occurring fluoride. Where fluoridation is carried out, water companies are only allowed to use named fluoridation chemicals that comply with strict European standards.

A map showing an overview of the concentrations of natural and artificial fluoride in water supplies is published annually by Defra, and is available on their website: (<http://www.defra.gov.uk/environment/statistics/inlwater/iwfluoride.htm>). Your water company can provide further information on the concentration of fluoride in your drinking water and confirm whether or not fluoridation is practised in your local area.

### Recent changes in fluoridation law

Under the Water Industry Act 1991, the decision about whether to request water companies to fluoridate a water supply rested with the District Health Authority. The law allowed water companies to fluoridate supplies when requested, but it did not force them to do so.

The Water Act 2003 changed the legal position. When section 58 of the Water Act 2003 comes into force, water companies will be required (subject to certain provisions) to fluoridate water supplies, if requested to do so by the local Strategic Health Authority (or the National Assembly in Wales). Strategic Health Authorities (or the National Assembly) must first consult the public in the affected area before requiring any new fluoridation scheme to start. They must also indemnify the water company against costs associated with the fluoridation scheme.

### What is the Inspectorate's involvement?

The Inspectorate does not decide whether or not water supplies should be fluoridated. The Inspectorate's role is checking that, regardless of whether or not fluoridation is practised, drinking water supplies comply with the Water Supply (Water Quality) Regulations 2000<sup>1</sup>. In the unlikely event that the standard of 1.5 mg/l is breached, the Inspectorate can take enforcement action against the water company to require

<sup>1</sup>2001 in Wales

it to rectify the breach, or for a serious incident, the Inspectorate can consider prosecuting the water company.

Where fluoridation is practiced, it is the Inspectorate's job to ensure that it is carried out in accordance with the requirements of the Code of Practice on Technical Aspects of Fluoridation of Water Supplies. This Code contains guidance on the design, installation, operation and maintenance of fluoridation equipment.

During 2004, the Inspectorate initiated and led a full revision of the 1987 Code of Practice on Technical Aspects of Fluoridation of Water Supplies. Representatives from the UK water industry, English and Welsh Governments and the Strategic Health Authorities were all involved in this process. The Inspectorate has drawn upon the experience and knowledge of specialists to update the 1987 Code in line with current technology and industry best practice. The revised document – the Code of Practice on Technical Aspects of Fluoridation of Water Supplies 2005 – was published in late spring 2005. A copy of the Code of Practice is available on the Inspectorate's website ([www.dwi.gov.uk](http://www.dwi.gov.uk)).

The Inspectorate also acts as advisor on technical aspects of water fluoridation to the Department for Environment, Food and Rural Affairs (Defra) and the Department of Health. Throughout 2004 the Inspectorate reviewed a wide range of policy related documents ensuring the accuracy of the technical content.

### **Future developments in fluoridation**

Once the requirements of the Water Act 2003 are fully in place, no new fluoridation schemes will be started without consulting the public. The Department of Health is currently preparing regulations outlining how this consultation process must be carried out by Strategic Health Authorities. These regulations are likely to be published by Department of Health in 2005.

Any new fluoridation schemes will have to meet the requirements of Code of Practice on Technical Aspects of Fluoridation of Water Supplies 2005 and all water supplies will continue to comply with the drinking water standard that remains unchanged (i.e. no more than 1.5 mg/l of fluoride).

### **Security matters**

During 2004 the Inspectorate continued to work in partnership with non-Governmental bodies and research organisations, both in this country and overseas, to ensure that it is up-to-date with relevant technology and research. The Inspectorate also continued to fund and direct research of particular benefit to the security of public water supplies in England and Wales.

The Inspectorate has established links with other Government departments on these matters and, during 2004, continued to provide technical advice on issues associated with the supply of safe drinking water.

The Inspectorate has been involved in a number of groups to develop new water industry operational protocols and to update existing ones. Inspectors took part in 2004 in several major exercises designed to test emergency responses.

## Private water supplies

Private water supplies are defined in section 93 of the Water Industry Act 1991 as any supplies of water provided otherwise than by a statutorily appointed water undertaker. Private water supplies used for drinking, washing, cooking and food production are covered by the Private Water Supplies Regulations 1991 implemented by local authorities. There are about 42,000 of these supplies in England and 8,000 in Wales, ranging from those supplying a single property to much larger supplies. There are also many other private supplies such as those used solely for irrigation, cooling and non-food industrial processes which are not covered by the regulations.

Although there are some private supplies in urban areas, the majority are situated in the more remote, rural parts of the country. The source of the supply may be a well, a borehole, a spring, a lake or a stream. The circumstances of private water supplies are highly variable.

The definition of wholesomeness applying to public water supplies also applies to private water supplies. The current regulations will be replaced shortly by new ones, fully implementing the requirements of the European Drinking Water Directive. These new regulations will be the first in drinking water regulation to put the focus of effort on risk assessment (the water safety plan approach to protecting public health) rather than testing.

The current regulations require local authorities to classify private supplies in their areas and to take samples and cause them to be analysed at a frequency determined by the classification, in order to protect public health. They also prescribe the maximum charges that local authorities can make for sampling and analysis. Local authorities have powers under the Act to require improvements to be made to unwholesome supplies.

The Inspectorate's role is providing technical and scientific advice to local authorities about private water supplies. Advice and guidance for local authorities and owners and users of private water supplies are available in the following documents:

- Circular 24/91 on the regulations (In England);
- Welsh Office Circular 68/91 on the regulations (In Wales);
- a Defra leaflet – A guide to the laws controlling private water supplies;
- Drinking water Inspectorate Manual on Treatment for Small Water Supply Systems; and
- Drinking water Inspectorate leaflet – Private Water Supplies, which reminds owners and users of the risks of contamination.

Most private water supplies are probably safe to drink most of the time, however, some do represent a serious risk to health and it is worth repeating here the advice given in the Inspectorate's leaflet about microbiological risk. "A number of serious illnesses can result from consuming water that is contaminated with certain micro-organisms. The most likely source of contamination of the water will be animal droppings. Water supplies drawn from farmed land where animals graze, or where manure is spread, are at most risk. The risk is particularly high at times of heavy rainfall when water may run directly off farmland and carry micro-organisms into the water source. Discharges from cess pits or septic tanks are another likely source of contamination. All those who drink contaminated water are at risk of infection". All owners and users of private water supplies are urged to assess, and take appropriate precautions, to minimise the risk of supplying or drinking contaminated water.

### **Standing Committee of Analysts**

The Standing Committee of Analysts (SCA) can trace its history to the publication in 1904 of the Royal Commission's Report on Sewage Disposal. The work was undertaken as a parliamentary standing committee established to give advice on methods of analysis for water and wastewater. Following this, but prior to 1973, a number of similar committees were set up to produce related guidance. In 1973, the Department of the Environment established the SCA in its current form. Since then the stature and reputation of SCA has grown and by the 1990s its publications had become recognised as international reference methods of water analysis. These were published as a series of priced booklets (via HMSO), which have blue covers and are commonly referred to as 'Blue Book' methods. Documents are now available free of charge and can be downloaded from the Environment Agency web site at <http://www.environment-agency.gov.uk/nls>.

### **Inspectorate Involvement**

Between 1990 and 1996, the Inspectorate sponsored the SCA, providing the Chairman and Secretariat. In 1996, these responsibilities transferred to the Environment Agency. The Inspectorate has continued to be represented on the Main Committee, which oversees work and approves all publications. In 2004 the SCA Main Committee was re-constituted as an independent committee representing a wide range of interested parties, in line with the government recommendations for scientific advisory committees. The SCA now has a new Charter and Terms of Reference, both of which can be downloaded from the web page (see above).

The Inspectorate's representative was appointed by the members in 2004 as the first independent Chairman of the Main Committee. The Environment Agency still sponsors the SCA and provides the Secretariat.

The Main Committee manages the activities of SCA as well as providing a peer review of all methods prior to publication. Members of Working Groups normally undertake method development work and prepare reports, or they oversee the work of panels set up to carry out the work. Membership of Working Groups is made up of practising

experts in their respective fields. All work of SCA is carried out on a voluntary basis and could not continue without the good will and support of professionals and their respective sponsoring organisations. Any offers of participation from those wishing to become new members or suggestions about the need for a new or revised method can be sent to the Secretary at <http://www.environment-agency.gov.uk/nls>. In view of the voluntary nature of SCA, new work can only be considered if the suggestion is accompanied by an offer to support the work entailed.

### **Activities of the SCA**

In 2004, the following drinking water methods were published or revised:

- *The Microbiology of Drinking Water (2004) – Part 6 – Methods for the isolation and enumeration of sulphite-reducing clostridia and Clostridium perfringens by membrane filtration.*
- *The Microbiology of Drinking Water (2004) – Part 9 – Methods for the isolation and enumeration of Salmonella and Shigella by selective enrichment, membrane filtration and multiple tube most probable number techniques.*
- *The Microbiology of Drinking Water (2004) – Part 11 – Taste, odour and related aesthetic problems.*
- *The Microbiology of Drinking Water (2004) – Part 12 – Methods for the isolation and enumeration of micro-organisms associated with taste, odour and related aesthetic problems.*

All methods published by SCA (and work in progress) can be found on the Environment Agency web site.

Under the direction of its new Chairman, the Main Committee is reviewing how it manages the work programme and publicises its work.

## Representation on national and international organisations

Several Inspectors and Inspectorate consultants are national or international experts in the field of drinking water treatment, distribution, quality and regulation. In 2004 they represented the Inspectorate, Defra, the Assembly Government or the Government on a wide range of national, European and international organisations including:

- Chair of UK Committee (governing body) of the International Water Association
- Chair of European Microbiology Advisory Group
- European Network of Drinking Water regulators
- Chair of Standing Committee of Analysts
- Standing Committee of Analysts Panel for *Cryptosporidium* and *Giardia*
- Health Protection Agency Advisory Committee on Water and the Environment
- EPSRC: Potable Water treatment and Supply Network
- IWA Disinfection Specialist Group

In addition, the Inspectorate was actively involved in one international, eight European and twelve British committees relating to drinking water quality.

## Presentations

In 2004 the Inspectorate was present at a variety of International, European, English and Welsh venues as invited guests or to talk to audiences.

Audience and Venue	Subject or Purpose
International Water Association Morocco	Global launch of the WHO Guidelines for Drinking Water Quality
American Water Works Association Annual Conference Orlando	Drinking Water Regulations / Risk Management (Water Safety Plans)
International Conference Genoa	Revision of the Drinking Water Directive
International Conference on Giardia and <i>Cryptosporidium</i> : Amsterdam	<i>Cryptosporidium</i> and Drinking Water Safety Plans
Endware London (April 2004) / Berlin (September 2004)	Drinking Water Regulations / Risk Management (Water Safety Plans)
CEN Technical Committee 164 Working Group 3 ad hoc group 5: Nieuwegein	Test Requirements for Metallic Fittings
Aquatech symposium on Membrane Integration and Membrane Integrity: Amsterdam	The Use Of Membranes For <i>Cryptosporidium</i> Removal From Drinking Water In England And Wales
WeKnow: Karlsruhe	Test requirements for metallic fittings
South African Inward visit on regulation (PAWS) and SAJ holdings, Malaysia	The role of the Inspectorate and the regulatory framework
Czech Standards Institute: Prague	European Acceptance Scheme
Latvian Water treatment and Water Environment Experts and Scientists: Latvia	Water Safety Plans and Quality of Sampling
Institution of Water Officers Annual Conference, Regulators Panel: Southampton	Drinking Water Regulations / Risk Management (Water Safety Plans)
Water Management: Society Tamworth	Drinking Water Regulations/Risk Management (Water Safety Plans)
Royal Society of Chemistry: Water Science Forum London	Taste and Odour in Drinking Water – It's consequences and Management
Association of Public Analysts: Reading University	Regulations and Standards for Drinking Water Quality
Health Protection Agency/Local Authority: Winchester	Private Water Supplies
Health Protection Agency/Local Authority: Colindale and High Wycombe	Water Quality Regulations
CIWEM Edinburgh Institute of Water Officers:	Drinking Water Regulations / Risk Management (Water Safety Plans)

Audience and Venue	Subject or Purpose
CIWEM: Edinburgh	Drinking Water Regulations / Risk Management (Water Safety Plans)
Institute of Water Officers: Northern Area	Good Information and the Regulator
British Water: London	Revision of the Drinking Water Directive and Possible Amendments to the Drinking Water Directive
Surrey University: Guildford	Opening of the Oxfam Pilot Plant
South East Water / Southern Water Incident Workshop for Local Authorities and Consultants in Communicable Disease Control: Lewes	Incidents workshop : Incidents and the role of local authorities and health authorities
British Bathroom Association: Daventry	Test Requirements for Water Fittings
Automatic Vending Association: Chipping Camden	Water Hardness
DWI Regulation 31 seminar: Cropston	European Acceptance Scheme
Cranfield University MSc Course: Cranfield	The role of the Inspectorate
Surrey University MSc course: Guildford	Various topics concerned with drinking water safety and regulation
Welsh Water Liaison Meeting: Llanhamlach	Drinking Water 2003 and Local Authority role in relation to the new regulations and incidents
SE Water Liaison Group Meeting :Frimley Green and Barcombe Mills	Local Authority role in relation to the new regulations and incidents
Totnes Water Festival	Talking to consumers
Hampshire Water Fair	Talking to consumers



